Mapping the Dimensions of Social Support in type 2 diabetes: Cross-Cultural Perspectives to Inform Person-Centred Practice

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Author's declaration

No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

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Abstract

This PhD examines the conditions and processes through which social support becomes effective in the self-management of type 2 diabetes (T2D). Despite extensive intervention research in diabetes care, the mechanisms through which support becomes acceptable, meaningful, and sustained over time remain poorly specified. The thesis foregrounds effectiveness, defined as sustained engagement with self-management practices rather than as a clinical outcome alone, while integrating acceptability and lived experience as underlying mechanisms through which effectiveness is achieved. A cross-cultural comparison is adopted, drawing on data from the United Kingdom (with participants recruited primarily through Liverpool-based services) and Morocco, to examine how relational, structural, and cultural conditions shape the form and reception of support across two contrasting health systems.

The thesis is organised into three phases. The first phase comprises a systematic review and meta-analysis of 27 intervention studies, which found that social support produced a modest improvement in glycaemic control but revealed no clear advantage of any one support type, informational, emotional, tangible, or appraisal, over another. These findings indicate that social support is not a monolithic construct, and that effectiveness depends less on the type of support provided than on the conditions under which it is combined and sustained, including relational context, implementation processes, and alignment with patients' needs. This pattern motivates the qualitative investigation that follows.

The second phase comprises four qualitative studies conducted with people living with T2D, their family members, and healthcare professionals across both settings, analysed using reflexive thematic analysis. Across the studies, identity emerged as a cross-cutting mechanism shaping how support was understood, enacted, and sustained. In Morocco, support was embedded in family and relational routines, with health professionals often extending care through emotional closeness, physical proximity, and informal follow-up shaped by collectivist expectations. However, the data caution against assuming that supportive outcomes flow automatically from collectivist settings; rather, collectivist norms shape the form support takes without guaranteeing it will be experienced as helpful or aligned with the individual's needs. In the United Kingdom, support was more pragmatic and autonomy-focused, delivered through signposting, coaching, and subtle reminders, but constrained by role boundaries and service fragmentation. Across both settings, trust, continuity, respectful communication, and negotiated involvement were identified as key conditions enabling support to be experienced as helpful rather than intrusive.

The third phase integrates findings across the studies through a higher-order synthesis and the application of the COM-B model as a programme-level sense-making framework. COM-B was selected over alternatives including the Theoretical Domains Framework and the Theoretical Framework of Acceptability because its higher level of abstraction accommodates the heterogeneous, relationally embedded nature of social support across multiple participant groups and cultural contexts. The synthesis culminates in the development of the Social Support Consistency Model (SSCM), positioned as a conceptual and interpretative model rather than an intervention. Distinguished from typological approaches such as House's four-component framework, and from stress-buffering and network models of social support, the SSCM offers a theoretically informed account of mechanisms through which alignment of expectations, identities, and relational practices across patients, healthcare professionals, and family members may enable support to remain acceptable and effective.

By integrating cross-cultural qualitative evidence with intervention research, this thesis extends a literature that has predominantly focused on high-income settings and on isolated intervention components. It offers a relational and system-oriented account of how support functions in everyday diabetes care, with implications for policy and practice in both high- and middle-income countries. The SSCM lays the groundwork for future interventions to be co-designed with patients, families, and professionals, and to test the model in practice.

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Abbreviations

- **ACT** - Acceptance and Commitment Therapy
- **ADA** - American Diabetes Association
- **AMO** - Assurance Maladie Obligatoire (Mandatory Health Insurance, Morocco)
- **APA** - American Psychological Association
- **BCW** - Behaviour Change Wheel
- **BMI** - Body Mass Index
- **CI** - Confidence Interval
- **CINAHL** - Cumulative Index to Nursing and Allied Health Literature
- **COM-B** - Capability, Opportunity, Motivation – Behaviour model
- **DESMOND** - Diabetes Education and Self-Management for Ongoing and Newly Diagnosed
- **DSME** - Diabetes Self-Management Education
- **DSMES** - Diabetes Self-Management Education and Support
- **GDPR** - General Data Protection Regulation
- **GOSH** - Graphical Display of Study Heterogeneity
- **GP** - General Practitioner
- **HbA1c** - Glycated haemoglobin
- **IDF** - International Diabetes Federation
- **Int$** - International Dollar
- **I^2** - I-squared heterogeneity statistic
- **JARS-Qual** - Journal Article Reporting Standards for Qualitative Research
- **JBI** - Joanna Briggs Institute
- **LJMU** - Liverpool John Moores University
- **LMICs** - Low- and Middle-Income Countries
- **M** - Mean
- **Medline** - Medical Literature Analysis and Retrieval System Online
- **MENA** - Middle East and North Africa
- **MMAT** - Mixed Methods Appraisal Tool
- **MRI** - Magnetic Resonance Imaging
- **NHS** - National Health Service (United Kingdom)

- **NICE** - National Institute for Health and Care Excellence
- **NVivo** - Qualitative data analysis software (QSR International)
- **OECD** - Organisation for Economic Co-operation and Development
- **PPI** - Public and Patient Involvement
- **PRISMA** - Preferred Reporting Items for Systematic Reviews and Meta-Analyses
- **RAMED** - Régime d'Assistance Médicale (Medical Assistance Scheme for low-income groups, Morocco)
- **RCT** - Randomised Controlled Trial
- **SSCM -** Social Support Consistency Model
- **SD** - Standard Deviation
- **SDT** - Self-Determination Theory
- **T2D** - type 2 diabetes
- **UK** - United Kingdom
- **USA** - United States of America
- **USD** - United States Dollar
- **WHO** - World Health Organization
- **Z** - Z statistic

Publications

Publications relating to the work presented in this thesis:

- **Madroumi, R**., Umeh, K., Poole, H., Jones, A., Brown, J., Elansari, N., Dassoufi, R., & Newson, L. (2026). Identifying the key components of social support for patients living with type 2 diabetes: A systematic review and meta-analysis of type 2 diabetes social support interventions – submitted to the British Journal of Health Psychology

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Additional publications pending from work presented in this thesis:

- Beyond support components: a mechanism-level model of continuity, relational filtering and coherence in type 2 diabetes self-management. In preparation for Social Science and Medicine. Higher level analysis bringing together UK and Morrocco Patient Studies)

- Social support as a service-mediated system: A cross-context qualitative study of continuity, coordination, and burden in type 2 diabetes self-management. In preparation for Health Services Research. Higher level analysis bring together UK and Morrocco Health Professional Studies

- Reframing social support in type 2 diabetes: from support components to relational consistency. In preparation for *Social Science & Medicine*. A conceptual manuscript bringing together the new empirical evidence and position developed from this thesis.

- How Reflexive Thematic Analysis can be extended and synthesised across multiple qualitative datasets without violating its epistemological foundations. Written for submission to Qualitative Research in Psychology, Special Edition. Taylor & Francis. Contribution of higher-level analysis – utilising reference to papers listed above, and in collaboration with another PhD student and Professor Newson.

List of other publications completed during the PhD not related to this thesis:

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- Van Hout, M. C., **Madroumi, R**., Andrews, M. D., Arnold, R., Hope, V. D., & Taegtmeyer, M. (2024). The nexus of immigration regulation and health governance: A scoping review of the extent to which right to access healthcare by migrants, refugees and asylum seekers

was upheld in the United Kingdom during COVID-19. Public Health, 232 (374), 21–29. https://doi.org/10.1016/j.puhe.2024.04.012

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Preface

1. Overview of the thesis

This thesis examines how social support contributes to effective self-management in type 2 diabetes (T2D), with particular attention to how support becomes acceptable, meaningful and sustained in everyday care. A cross-cultural perspective is adopted by comparing two distinct health system and sociocultural contexts, the United Kingdom and Morocco, to explore how relational, structural and cultural factors shape the delivery and experience of support.

The programme of research is organised into three interrelated phases. The first phase comprises a systematic review and meta-analysis examining the informational, emotional, tangible, and appraisal components used in social support interventions and their association with glycaemic outcomes. While social support was linked to modest improvements, no single component consistently outperformed others, indicating that effectiveness depends on how support is implemented and sustained rather than on the type of support alone.

The second phase comprises four qualitative studies conducted with health professionals and people living with T2D across both countries. These studies explore how support is understood, negotiated, and experienced within everyday care. The findings show that effectiveness is shaped by relationship quality, cultural expectations, clarity of roles and alignment between

people living with T2D, families, and professionals, with trust, continuity and respectful communication emerging as key enabling mechanisms.
The third phase integrates findings across the preceding studies to develop the Social Support Consistency Model (SSCM), which offers a theoretically informed account of mechanisms through which alignment of expectations, roles and relational practices may enable support to remain acceptable and effective over time and across contexts.

2. Thematic Map of the PhD Structure

This thesis follows a progressive research logic in which each stage of the work builds on the previous one to develop increasing conceptual and empirical depth.

The research begins by establishing the existing evidence base on social support in T2D and identifying key conceptual and methodological gaps. The systematic review and meta-analysis then provide a structured examination of how social support has been operationalised within interventions and highlights the limitations of treating support as a single construct.

Building on these gaps, the qualitative studies explore how social support is experienced in practice across two contrasting health system and cultural contexts. These studies examine how support is delivered, negotiated, and sometimes resisted within relationships between patients, families, and health professionals. Attention is given to identity, role expectations, and relationship dynamics as mechanisms that influence whether support becomes acceptable and sustainable.

The subsequent cross case synthesis integrates findings across all four studies to identify common mechanisms and contextual differences. This stage moves the analysis beyond individual settings to generate higher level insight into how support operates across systems.

Finally, the integrated findings inform the development of the Social Support Consistency Model, which explains how effective support emerges through alignment between relational expectations, roles, and social environments. The overall structure therefore moves from evidence synthesis to contextualised exploration, to conceptual development, allowing the thesis to explain not only what support exists but how it becomes workable in real world diabetes care.

3. Explanation of chapter and section structure

The thesis is organised into four main sections that reflect the sequential development of the research from conceptual groundwork to empirical investigation and final synthesis.

Section A establishes the conceptual and contextual foundations of the thesis. Chapter 1 introduces type 2 diabetes as a complex biopsychosocial condition and situates social support within existing theoretical and empirical literature. It also outlines the United Kingdom and Moroccan healthcare contexts and defines the research aims and questions. Chapter 2 presents the systematic review and meta-analysis, which examines how informational, emotional, tangible, and appraisal support have been operationalised within previous interventions and evaluates their association with glycaemic outcomes.

Section B presents the empirical qualitative component of the thesis. Chapter 3 details the methodological framework underpinning the four studies, including epistemological positioning, reflexivity, study design, data collection, and analytical procedures. Chapter 4 reports the findings from qualitative studies conducted with health professionals and people living with type 2 diabetes in Morocco and the United Kingdom, focusing on how social support is understood, negotiated, and experienced within everyday care.

Section C provides higher level integration of the empirical findings. Chapter 5 synthesises insights across the four studies using both inductive cross case analysis and deductive mapping onto the Capability, Opportunity, Motivation and Behaviour model. This chapter identifies the key mechanisms through which social support influences self-management across contexts.

Section D presents the final discussion and overall contribution of the thesis. Chapter 6 integrates findings from all phases of the research and introduces the Social Support Consistency Model. The chapter discusses theoretical contributions, implications for policy and clinical practice, and directions for future research.

Section A - Introduction

Chapter 1: Global & Comparative Context

1. Context:

Type 2 diabetes is one of the fastest growing chronic conditions worldwide and represents a major public health challenge across both high- and middle-income countries (World Health Organization, 2023; Zheng, et al., 2018). According to the International Diabetes Federation, an estimated 537 million adults were living with diabetes globally in 2021, a figure projected to rise substantially in the coming decades, with most cases being type 2 diabetes (International Diabetes Federation, 2021). Recent estimates continue to show increasing prevalence across diverse health systems, including both the United Kingdom and Morocco, driven by demographic change, urbanisation, and lifestyle transitions (NCD Risk Factor Collaboration, 2016; World Health Organization, 2022).

This thesis approaches the comparison between these settings as an analytical examination of how health system structures, service organisation, and social contexts shape the delivery and experience of support, rather than as a comparison of fixed cultural traits. The focus is therefore on identifying systemic conditions that influence self-management support across contexts.

2. What is type 2 diabetes?

Type 2 diabetes is a condition characterised by high blood sugar levels caused either by the body not producing enough insulin, a hormone that helps move sugar from the blood into cells, or by the body not responding properly to the insulin it produces (insulin resistance) (ElSayed et al., 2023; Kahn, Cooper, & Del Prato, 2014). The condition usually begins with insulin resistance in muscle and liver cells, meaning that the muscles take up less sugar after meals while the liver continues to release sugar even when it is not needed. This leads to persistently high blood glucose levels (Petersen & Shulman, 2018; Samuel & Shulman, 2016).

To compensate, the pancreas produces more insulin to maintain normal glucose levels. However, over time, the insulin-producing beta cells become overworked and begin to fail, resulting in insufficient insulin production and sustained hyperglycaemia (high blood glucose) (DeFronzo, 2009; Weir & Bonner-Weir, 2004; Kahn et al., 2014). This process is accelerated

by excess body fat, particularly fat stored in the liver and around internal organs (ectopic fat). This further increases insulin resistance and places additional stress on beta cells (Taylor, 2013).

Other physiological changes also contribute to high blood sugar levels. After meals, the release of incretin hormones from the gut, which normally stimulate insulin secretion, is reduced, weakening the body's ability to control post-meal glucose rises (Nauck & Meier, 2018; Holst, Vilsbøll, & Deacon, 2009). The pancreas may also secrete excess glucagon, a hormone that signals the liver to produce sugar. This increases glucose levels even further (Unger & Cherrington, 2012; Ferrannini & Camastra, 1998). In addition, the kidneys tend to reabsorb sugar back into the blood rather than excreting it in urine. This helps sustain high glucose concentrations (Vallon & Thomson, 2020; DeFronzo et al., 2017).

Losing a meaningful amount of weight can reverse many of these processes by reducing fat in the liver and pancreas, improving insulin action, and, in some cases of early disease, achieving remission (normal blood sugar levels without the need for diabetes medication) (Lean et al., 2018; Taylor, 2013).

3. Burden of type 2 diabetes

Globally, diabetes accounted for an estimated USD 1.015 trillion in health expenditure in 2024, reflecting a 338 percent increase over the past 17 years and approximately 12 percent of total health spending (International Diabetes Federation [IDF], 2025). Direct health service costs are only part of the burden because productivity losses from sickness absence, early retirement, and premature mortality add substantial indirect costs to societies (Vijan et al., 2004). Across income settings, average per person spending on diabetes is highly unequal, with systematic reviews showing very low per capita costs in low-income contexts and very high costs in high-income contexts, implying different financial pressures and affordability challenges (Butt et al., 2024).

In the Eastern Mediterranean Region, recent modelling estimated a societal diabetes burden of $639 billion in 2023. Of this total, 89 percent arose from indirect costs, highlighting the macroeconomic importance of prevention and long-term care quality (Elmusharaf et al., 2025).

In the United Kingdom, up-to-date cost of illness estimates indicate £10.7 billion in direct National Health Service costs and £3.3 billion in indirect costs in 2021 to 2022, yielding a total

approaching £14 billion and showing that complications remain the largest cost driver for the health system (Hex et al., 2024; University of York, 2024). Routine prescribing data further show rising pharmaceutical spending for diabetes treatment in 2023 to 2025, consistent with increasing prevalence and uptake of newer agents that have higher unit costs but important clinical benefits (NHS Business Services Authority, 2025).

United Kingdom advocacy and surveillance sources converge on the conclusion that diabetes absorbs a material share of the national health budget. They further indicate that preventing complications would reduce financial pressure on critical and long-term services (Diabetes UK, 2024).

A recent cost-of-illness study estimates the economic burden of diabetes in the Eastern Mediterranean Region, including Morocco, at Int$639 billion in 2023, with 10.6% direct costs and 89.4% indirect costs mainly from mortality-related productivity losses (Elmusharaf et al., 2025).

The wider health financing context features a significant share of out-of-pocket spending. This increases the risk that people with chronic conditions such as diabetes face catastrophic health expenditure and avoid necessary care when costs are high (Oudmane et al., 2019). Emerging analyses of financial protection in Morocco reinforce concerns about out-of-pocket payments and support the case for continued reforms to reduce household financial risk for long term conditions (Taheri Kondar, 2024).

For individuals and families, diabetes generates direct costs (e.g. consultations, tests, medicines, supplies) and indirect costs (e.g. time off work, reduced productivity, informal caregiving), with the balance shaped by insurance coverage, medicine pricing, and access pathways (Butt et al., 2024).

In the United Kingdom, indirect costs from lost productivity are a measurable component of the total burden. In settings with higher out-of-pocket shares, direct payments at the point of care dominate household experience and can trigger coping strategies such as borrowing or reduced utilisation (Hex et al., 2024).

In Morocco, estimated per-person diabetes spending and evidence of out-of-pocket payments reveal a heightened risk of financial strain. This is particularly evident among those requiring sustained glucose-lowering treatment and monitoring, especially when complications develop (Oudmane et al., 2019).

4. Causes and risk factors:

T2D develops through a complex interaction of biological, behavioural, psychological, and social influences (McCoy & Theeke, 2019). At a biological level, the condition arises when the body becomes resistant to insulin and the pancreas can no longer produce enough of it to maintain normal blood sugar levels (ElSayed et al., 2023; Kahn, Cooper, & Del Prato, 2014). These processes unfold gradually and are shaped by environmental and lifestyle exposures, highlighting that diabetes is not solely a metabolic disorder but one that reflects broader biopsychosocial factors (McCoy & Theeke, 2019).

Among modifiable biological and behavioural factors, excess body weight remains the strongest predictor. Higher body mass index and central fat accumulation are consistently associated with a greater risk of developing T2D (Bellou, Belbasis, Tzoulaki, & Evangelou, 2018; Kahn et al., 2014). Physical inactivity also contributes independently to risk, whereas regular moderate to vigorous physical activity improves insulin sensitivity and supports weight regulation, reducing the likelihood of disease onset (Pan et al., 1997; Petersen & Shulman, 2018). This effect occurs partly because muscle contraction during exercise stimulates the translocation of GLUT4 (glucose transporter type 4) proteins to the cell surface, enabling glucose uptake into muscle cells independently of insulin (Vargas, Podder, & Carrillo Sepulveda, 2023). Spending long periods sitting still has additional adverse effects on blood sugar control beyond the absence of exercise. This indicates that reducing sedentary time can be a distinct behavioural target for prevention (Ekelund et al., 2012; Patterson, McNamara, Tainio, de Sa, & Smith, 2018).

Dietary habits are another key factor influencing risk. Diets high in sugar-sweetened beverages, refined grains, and processed meats are linked to higher incidence of diabetes, while those rich in whole grains, legumes, fruits, vegetables, nuts, and unsaturated fats are linked to lower risk (Imamura et al., 2015). These dietary effects operate through multiple pathways, including energy balance, the body's responsiveness to insulin, and the strain placed on the pancreas. This occurs through combined effects on weight regulation, insulin sensitivity, and pancreatic workload (Imamura et al., 2015; Schwingshackl, Hoffmann, Lampousi, & Boeing, 2017). Sleep also plays an important role, as both short and long durations are associated with greater risk, suggesting that maintaining balanced sleep patterns supports metabolic regulation (Shan et al., 2015; Cappuccio, D'Elia, Strazzullo, & Miller, 2010). Tobacco smoking further increases risk through inflammatory and metabolic mechanisms, whereas quitting reduces it, supporting a causal relationship (Willi, Bodenmann, Ghali, Faris, & Cornuz, 2007; Bellou et al., 2018).

Psychological factors are increasingly recognised as both direct and indirect influences on diabetes risk. Chronic stress and depressive symptoms are linked with higher incidence, likely because stress hormones such as cortisol disrupt glucose regulation, while negative mood can reduce motivation for healthy eating and regular physical activity (Wicke, F. S., et al., 2024; Hackett & Steptoe, 2017). Emotional eating, poor sleep linked to stress, and low self-efficacy in managing lifestyle changes can all contribute to weight gain and insulin resistance over time. These pathways illustrate how mental health and behaviour interact with biological vulnerability in shaping disease risk.

Individual susceptibility is also influenced by genetic and developmental factors. Genetic variation primarily affects how well the pancreas produces and releases insulin, with each variant having a small effect but a meaningful cumulative influence on risk (McCarthy, 2010; Mahajan et al., 2018). Experiences early in life, such as poor nutrition before birth or rapid weight gain in infancy, can cause lasting changes in metabolism that increase adult risk, reflecting developmental programming mechanisms (Hoyas & Leon-Sanz, 2019; Wang et al., 2022). Certain clinical conditions, such as a history of gestational diabetes or polycystic ovary syndrome, further signal underlying insulin resistance and limited pancreatic capacity (Diaz Santana et al., 2022; Anagnostis et al., 2021). Some medicines, including long-term steroids and particular antipsychotics, can also raise blood sugar levels or reveal an existing vulnerability to diabetes. This underscores the importance of risk monitoring in healthcare settings (ADA, 2023; Holt et al., 2014).

Social and structural determinants play an equally important role. Socioeconomic disadvantage increases exposure to unhealthy food environments, limited access to safe spaces for physical activity, and chronic psychosocial stress, which together contribute to higher rates of obesity and metabolic disease (Agardh et al., 2011; Stringhini et al., 2012). Ethnic background is also linked to differential risk, with several minoritised groups developing diabetes at younger ages and lower body weights. These differences reflect not only biological factors but also cultural dietary practices, patterns of body fat distribution, and structural inequalities in healthcare and living conditions (Narayan et al., 1997; Tillin et al., 2012).

Taken together, these biological, psychological, and social determinants show that T2D arises from the interplay between individual vulnerability, behaviour, and social context. Effective prevention therefore requires strategies that combine population-level measures to promote

healthy diet and activity with targeted interventions that address mental health, social inequality, and the broader determinants of health (ADA, 2023; Bellou et al., 2018).

5. Health-system contexts for type 2 diabetes management and service provision: UK NHS and Morocco

In the UK, T2D care is formally organised around primary care with multidisciplinary input and clear national guidance, yet routine audits continue to show shortfalls in delivering all recommended care processes to every patient, indicating that coverage is uneven despite the existence of a structured pathway (National Institute for Health and Care Excellence [NICE], 2026; National Diabetes Audit, 2024). Care typically begins with diagnostic confirmation, baseline risk assessment, and an initial plan comprising structured education, dietary and physical-activity advice, and first-line pharmacotherapy, but uptake of education and sustained engagement are variable and socially patterned (Winkley et al., 2020).

Ongoing reviews are intended to cover medication titration, blood pressure and lipid management, and complication surveillance, yet completion rates differ across regions and between practices, reflecting workload pressures and access barriers for patients who have competing responsibilities or limited transport (Office for Health Improvement and Disparities, 2025). National programmes for prevention and remission add important options, but real world participation and long-term maintenance require support beyond clinic visits. Findings from the UK's NHS Diabetes Prevention Programme show that although group-based lifestyle support is generally delivered as intended, there is considerable variation across sites in scheduling, group size, and venue quality, and these structural differences shape how participants experience the programme (Hawkes et al., 2020).

This reflects broader evidence that routine care pathways, including annual GP reviews and brief primary care consultations, provide limited ongoing support for sustaining behaviour change over time (Lean et al., 2018; Valabhji et al., 2020). Access to newer glucose-lowering agents with cardio-renal benefits has expanded. However, formulary criteria and capacity constraints can slow equitable adoption, particularly in areas with higher deprivation where diabetes burden is greatest (Wilkinson et al., 2018).

Morocco has integrated non-communicable disease management into primary health care using national therapeutic protocols and essential-medicine lists, but implementation is moderated

by regional variation in staffing, diagnostics, and supply chains that affect continuity of care for type 2 diabetes (World Bank, 2022). Initial management mirrors international good practice with lifestyle counselling and metformin as first-line therapy, although timely access to laboratory testing and follow-up appointments can be constrained outside major urban centres. This delays treatment adjustments and surveillance for complications (Mahdaoui & Kissani, 2023).

Referral pathways to specialists exist in Morocco for complex cases, pregnancy, and complications, yet travel distance, appointment backlogs, and administrative steps can lead to attrition between levels of care, particularly among low-income households (Boutiti et al., 2025). Availability of second line and advanced agents is improving but remains heterogeneous across facilities and insurance arrangements. This may push intensification decisions towards older regimens even when clinical indications favour newer options with organ-protective effects (International Diabetes Federation, 2016). Financial protection has expanded through insurance reforms, but out-of-pocket costs for diagnostics, monitoring supplies, and travel continue to influence care-seeking and adherence for people with chronic conditions (Organisation for Economic Co-operation and Development [OECD], 2020).

Across both systems, the intended pathway relies on patients undertaking substantial daily self-management. This includes taking medicines as prescribed, implementing dietary plans, maintaining regular physical activity, monitoring glucose where indicated, and acting on advice such as sick-day rules. Together, these constitute a significant workload that competes with work and family demands (Espinoza et al., 2020; Gallacher et al., 2011; NICE, 2026).

Clinic schedules and recall systems are designed to support this workload through reviews and surveillance checks but missed appointments and partial completion of checks are common when transport, time, or caregiving responsibilities create barriers that the pathway does not directly resolve (National Diabetes Audit, 2024). Health literacy and language shape how people understand targets and medications, yet consultation time is limited and written materials are not always culturally or linguistically matched to patient needs. This reduces the likelihood that education translates into practice between visits (Schillinger et al., 2002; Al Sayah et al., 2013).

Digital and remote options can extend support through teleconsultations and data sharing, although access to devices, connectivity, and digital confidence varies by age and socioeconomic position, potentially widening the gap for those already at higher clinical risk

(Ebekozien et al., 2024). Technology for glucose monitoring is criteria-based in the United Kingdom and more limited in Morocco. This can leave many patients relying on intermittent checks and symptom recognition rather than continuous feedback, thereby constraining timely self-adjustment of behaviours and care-seeking (Battelino et al., 2019).

To clarify the system-level context underpinning these differences, Table 1 provides a concise comparison of the Moroccan and UK health care systems, highlighting contrasts in coverage, access, funding, and structural barriers.

Table 1: Comparative Overview of the Health Care Systems in Morocco and the United Kingdom

Aspect	Morocco	United Kingdom (UK)
Type of System	Mixed public–private system	Predominantly publicly funded system (NHS)
Funding Source	Government budget, social security contributions, and private out-of-pocket payments	General taxation
Coverage	Expanding coverage through AMO (mandatory insurance) and RAMED/AMO Tadamon for low-income groups	Universal coverage for all residents
Access to Care	Public care available but unevenly distributed; urban areas better served than rural regions	Equal access in principle, though local capacity drives variation
Cost to Individuals	Subsidised public care but substantial reliance on private services; higher out-of-pocket costs	Services largely free at the point of use
Structural Barriers	Transport, distance to specialist centres, limited availability, and appointment bottlenecks	Workforce shortages, waiting times, and deprivation affect access
Patient Workload	Self-management complicated by travel burden, fragmented services, and limited follow-up	Strong protocol infrastructure, but workload shaped by social and family demands

Role of Government	Regulates, finances, and provides public services within a mixed system	Funds, manages, and delivers most services through the NHS

Following this overview, it becomes clear that biomedical standards and protocols, while necessary, are insufficient to secure equitable outcomes when routine delivery is uneven and when patient workload collides with structural barriers such as transport, costs, and work schedules, which are not readily addressed within clinic-centred pathways (Gallacher et al., 2011). In the United Kingdom, the coexistence of detailed guidance and persistent variation in process completion and target achievement suggests that capacity, accessibility, and social context limit the effectiveness of otherwise robust clinical frameworks (Marmot et al., 2020). For example, although diabetes care is free at the point of use, a low income patient may miss routine reviews because of unreliable public transport, inability to take unpaid time off work, or the cost and availability of childcare, leading to delayed monitoring and treatment adjustments.

In Morocco, the expansion of primary care protocols and insurance coverage like AMO and RAMED systems has increased formal access, yet supply-side constraints and out-of-pocket exposure continue to shape adherence, follow-up, and escalation decisions, particularly for people living far from specialist services (El Hanafi & Lmejjati, 2024). For instance, a person living with T2D in a rural area may postpone or avoid booking a hospital appointment due to upfront transport costs, long travel distances to urban centres, or concerns about consultation fees and medication affordability despite nominal insurance coverage.

These realities indicate that pathway design must be accompanied by reliable implementation supports and attention to the everyday conditions in which self-management occurs. For example, services may need to provide flexible appointment scheduling, proactive follow up for missed reviews, and practical support for medication management and home monitoring to ensure that recommended care is actually deliverable in patients' daily lives (NICE, 2026; Public Health Wales, 2025).Otherwise, gaps in monitoring, medication taking, and risk-factor control will persist despite the presence of guidelines and programmes (NICE, 2026; Rushforth et al., 2016; Blonde et al., 2017; Woodward et al., 2024). Consequently, both contexts face the challenge of aligning service provision with the practical and social demands of living with T2D, which sets the stage for examining additional supports that operate alongside and beyond

biomedical care to make self-management feasible and sustainable in real life (NHS Digital, 2024).

6. Social Support:

Social support is widely recognised as a key social determinant of health that influences morbidity, mortality, and overall well-being across diverse conditions (Berkman et al., 2000; Thoits, 2011; Holt-Lunstad, 2024). Classical models conceptualise social support as both a direct and stress-buffering factor (Cohen & Wills, 1985), operating through psychological, behavioural, and physiological pathways such as stress reduction, improved adherence, and enhanced metabolic and immune regulation (Uchino, 2006, 2009). Recent evidence continues to confirm these pathways, with large-scale reviews showing the centrality of social connection for physical and mental health outcomes across populations (Holt-Lunstad, 2024).

Empirical work also highlights how both receiving and providing social support shape well-being and health among different groups (Zanjari et al., 2022). Within healthcare, supportive relationships between patients, families, peers, and professionals remain crucial for engagement, treatment satisfaction, and clinical outcomes (Almubaid et al., 2024). These mechanisms are particularly relevant in chronic diseases such as T2D, where long-term self-management places sustained emotional and practical demands on patients (Van Dam et al., 2005; Baig, Benitez, Quinn, & Burnet, 2015). Consequently, social support is increasingly viewed as an integral component of effective diabetes care alongside education and pharmacotherapy (Young-Hyman et al., 2016).

In the context of T2D, social support is generally defined as the provision of informational, emotional, tangible, and appraisal resources that help individuals meet the psychological and practical demands of diabetes. This four-component framework was originally introduced by House (1981), who classified social support according to its functional roles in influencing health behaviour and stress regulation, and has since been widely applied in diabetes research, including by Van Dam et al. (2005), to understand how these support functions operate in diabetes care.

Informational support refers to advice, guidance, or education that enhances patients' understanding of diet, physical activity, and medication use (Wang et al., 2024). Emotional support encompasses empathy, encouragement, and reassurance that buffer stress and sustain

motivation (Baig et al., 2015; Taheri Kondar et al., 2024). Tangible support (also referred to as instrumental support in earlier frameworks) involves direct practical help, such as preparing healthy meals or accompanying patients to appointments (Diriba et al., 2023; Matrook et al., 2025). Appraisal support consists of feedback and affirmation that strengthen self-efficacy and confidence in disease management (Van Dam et al., 2005).

These four components often operate in combination. Informational and tangible support facilitate daily self-care activities, while emotional and appraisal support enhance psychological resilience and sustained adherence (Baig et al., 2015). For example, a spouse or a husband that remind a person to take insulin at the correct time and prepare appropriate meals (tangible and informational support), offer encouragement during difficult periods (emotional support), and praise progress in glucose control (appraisal support), thereby helping maintain routines, manage stress, and support effective self-management.

Meta-analytic evidence indicates that social-support interventions lead to measurable though modest improvements in HbA1c, diabetes knowledge, and self-care behaviours (Spencer-Bonilla et al., 2017). In particular, interventions offering structured informational support, such as group education or peer-led sessions, significantly improve glycaemic outcomes when compared with usual care (Van Dam et al., 2005). Emotional and peer support programmes have been shown to lower diabetes distress and depressive symptoms, improving well-being and motivation (Baig et al., 2015; Taheri Kondar et al., 2024).

Tangible support from family or peers, including shared meal planning and medication monitoring, correlates with better adherence and HbA1c reduction (Diriba et al., 2023; Matrook et al., 2025). Appraisal support, which reinforces patients' confidence and normalises their experiences, has been linked to higher self-efficacy and sustained engagement in lifestyle change (Wang et al., 2024). Collectively, these findings suggest that social support promotes better health outcomes by strengthening behavioural pathways that enhance adherence and skill application, as well as psychological pathways that reduce stress and improve coping (Spencer-Bonilla et al., 2017).

Nevertheless, systematic reviews identify several methodological and conceptual limitations. Many interventions fail to specify which type of support is being delivered or rely on composite "support scores" that obscure the unique effects of each component (Van Dam et al., 2005; Baig et al., 2015). Few studies describe a guiding theoretical model, resulting in inconsistent operationalisation of support across trials (Matrook et al., 2025). Intervention intensity and

duration vary widely, and short follow-up periods limit assessment of long-term sustainability (Diriba et al., 2023; Spencer-Bonilla et al., 2017).

Heterogeneity in study design and outcome measurement contributes to mixed findings, as some studies report significant HbA1c improvements while others show no association between social support and glycaemic control (Adu et al., 2023; Spencer-Bonilla et al., 2017). Moreover, most trials have been conducted in high-income contexts, restricting the generalisability of results to resource-limited settings where family and community support structures may be more salient (Al-Dwaikat et al., 2023; El-Radad et al., 2022).

Recent studies in diverse populations highlight the cultural contingency of social support. In collectivist settings, such as those common across North Africa and the Middle East, family involvement in disease management often provides strong tangible and emotional support but can also generate conflict or overprotection that undermine autonomy (Taheri Kondar et al., 2024; El-Radad et al., 2022). In contrast, in more individualistic societies such as the United Kingdom, formal peer or community programmes may compensate for weaker family-based networks, though their reach and continuity remain limited (Spencer-Bonilla et al., 2017). These findings emphasise that social support must be understood as context-dependent and dynamic rather than uniform across cultures (Diriba et al., 2023; Wang et al., 2024).

Overall, the literature conceptualises social support in T2D as a multidimensional construct encompassing informational, emotional, tangible, and appraisal elements that together enhance self-management and psychological adaptation (Van Dam et al., 2005). While its positive influence is well documented, its effects are moderated by intervention quality, cultural fit, and sustained engagement (Baig et al., 2015). Addressing the conceptual and methodological gaps that have led many reviews to treat social support as a single, undifferentiated factor is crucial for developing culturally responsive and theory-driven interventions that can produce lasting improvements in self-care and glycaemic outcomes (Matrook et al., 2025).

7. Evidence on social-support interventions

A wide range of interventions have been developed to integrate social support into diabetes care. These interventions vary in their delivery models, target populations, and theoretical frameworks but share a common goal of improving the self-management capacity of people living with T2D (Captieux et al., 2018). Social support can be delivered through peers, family

members, community health workers, healthcare professionals, or digital platforms, providing combinations of informational, emotional, tangible, and appraisal support (Fisher et al., 2017; Litchman et al., 2020; Kerr et al., 2024). Evidence from systematic reviews and meta-analyses indicates that peer support and supported self-management approaches can improve glycaemic control and engagement, although effects vary across settings and populations (Patil et al., 2016; Captieux et al., 2018). The effectiveness of these approaches depends largely on their duration, intensity, and contextual fit within the social and cultural environment, highlighting the importance of tailoring interventions to the realities of everyday life (Captieux et al., 2018; Kerr et al., 2024; Litchman et al., 2020).

7.1 Peer-based interventions

Peer-based interventions utilise trained individuals who have lived experience of diabetes to provide education, encouragement, and shared problem-solving. Meta-analyses have shown that these programmes can produce modest yet significant improvements in glycaemic outcomes, with reductions in HbA1c typically ranging from 0.3 to 0.5 percentage points (Dale, Williams, & Bowyer, 2012).

These interventions consistently improve self-efficacy, diabetes knowledge, and adherence to self-care behaviours such as diet and physical activity. Behavioural outcomes are often accompanied by modest reductions in blood pressure and lipid levels, suggesting additional cardiovascular benefits. Psychosocial effects include reductions in diabetes distress and improved coping, which are attributed to shared understanding and mutual encouragement among peers (Dale et al., 2012).

However, outcomes vary across studies due to differences in peer training, supervision, and contact frequency.

7.2 Family-based interventions

Family-based interventions seek to strengthen the involvement of relatives in daily diabetes management through education, communication skills, and collaborative goal setting. Systematic reviews and meta-analyses have demonstrated that such interventions improve both clinical and behavioural outcomes (Baig, Benitez, Quinn, & Burnet, 2015; Diriba et al., 2023).

Participants in family-oriented programmes show reductions in HbA1c of approximately 0.4 to 0.6 percentage points, alongside improvements in blood pressure, body mass index (BMI), and cholesterol (Matrook et al., 2025; Al-Dwaikat et al., 2023). These biological changes are supported by greater medication adherence, healthier eating habits, and improved glucose monitoring (Mayberry & Osborn, 2012; Diriba et al., 2023).

Psychologically, family involvement enhances motivation and self-efficacy while reducing diabetes-related distress (Baig et al., 2015). For example, a family member who regularly walks with the person, helps plan appropriate meals, and offers encouragement after medical appointments can reinforce confidence in managing the condition and reduce feelings of isolation. Nevertheless, the quality of family interaction is critical, as overprotection, conflict, or criticism can undermine autonomy and adherence, turning social support from a facilitator into a barrier (Mayberry & Osborn, 2012).

7.3 Community and group education interventions

Community and group education interventions often involve lay educators or community health workers who combine diabetes education with emotional and practical support. These programmes are particularly effective in increasing diabetes knowledge, encouraging self-monitoring, and promoting sustained lifestyle changes (Long et al., 2017; Fisher et al., 2017).

Meta-analyses show that community-based interventions can achieve HbA1c reductions between 0.4 and 0.7 percentage points and are frequently associated with improvements in blood pressure, lipid profiles, and BMI (Nam et al., 2012). These effects are most pronounced in low-income or ethnically diverse populations, where community health workers act as culturally congruent mediators between patients and healthcare systems (Long et al., 2017; Nam et al., 2012).

Behavioural improvements include better diet quality, increased physical activity, and adherence to medication regimens, which in turn contribute to longer-term metabolic stability (Long et al., 2017; Fisher et al., 2017).

7.4 Digital and tele-support interventions

Digital and tele-support interventions deliver remote contact and follow-up through mobile applications, web-based platforms, and telecommunication tools. Recent evidence demonstrates that mobile health interventions produce modest but clinically meaningful improvements in glycaemic outcomes, with meta-analyses showing HbA1c reductions of

approximately 0.3 percentage points alongside better medication adherence, dietary regulation, and glucose self-monitoring (Gomez-Garcia et al., 2025).

Broader metabolic benefits have also been reported, including reductions in BMI, total cholesterol, and triglycerides, as well as enhancements in quality of life (Gomez-Garcia et al., 2025). A recent scoping review highlights that digital communication technologies also function as an important source of social support, providing informational, emotional, and appraisal support that strengthens self-management capacity and complements traditional care pathways (Hazime & Burner, 2024).

Digital peer-support interventions, although studied predominantly in populations with type 1 diabetes, similarly demonstrate reductions in diabetes distress and depressive symptoms, underscoring the potential value of digitally mediated peer relationships across diabetes contexts (Yakubu et al., 2024). These interventions are valued for enabling real-time feedback and sustained connection with healthcare teams (Greenwood et al., 2017), though engagement tends to decline over time and access disparities persist among older adults and individuals with limited digital literacy (Greenwood et al., 2017).

7.5 Summary

Across intervention types, the evidence consistently shows that social-support-based programmes lead to measurable improvements across biological, behavioural, and psychosocial domains. Reductions in HbA1c, blood pressure, BMI, and lipid levels are commonly accompanied by enhanced medication adherence, diet, and physical activity, as well as increased self-efficacy and emotional well-being.

Although peer, family, community, and digital interventions differ in delivery format, their effectiveness appears greatest when they combine multiple support types, maintain regular contact, and align with the cultural and social realities of the population served. Future intervention development should therefore prioritise the integration of complementary forms of social support while accounting for the socio cultural contexts and everyday demands that shape how support is received and sustained.

8. Rationale, aims, and research questions

Current evidence shows that social support plays a crucial role in the management of T2D. A broad body of research demonstrates that higher levels of social support are associated with improved self-management behaviours, greater treatment adherence, and enhanced quality of life among people living with T2D (Van Dam et al., 2005; Baig, Benitez, Quinn, & Burnet, 2015). Interventions that incorporate peer, family, community, or digital support have shown modest but consistent benefits for biological, behavioural, and psychosocial outcomes, including reductions in glycated haemoglobin (HbA1c), blood pressure, and BMI, as well as improvements in self-efficacy, emotional well-being, and engagement with care (Matrook et al., 2025).

Although these findings support the importance of social relationships in sustaining long-term diabetes management, the overall effects remain variable. This suggests that not all forms of support are equally effective or accessible (Strom & Egede, 2012).

A central aim of this thesis is to examine how social support becomes effective in the context of Type 2 Diabetes (T2D) self-management, rather than assuming effectiveness as an inherent property of support itself. In this thesis, effectiveness is conceptualised as the extent to which social support contributes to sustained engagement with self-management practices, rather than as a simple clinical or behavioural outcome. This shifts the focus from what support is provided to how support is understood, taken up, and integrated into everyday life.

Much of the qualitative evidence presented in this thesis speaks directly to the acceptability of social support, particularly in terms of how it is perceived, negotiated, and sustained in practice. Rather than treating acceptability as a separate analytical lens, it is conceptualised here as a key mechanism through which effectiveness is achieved.

Within this framework, related dimensions such as acceptability, lived experience, and contextual influences are not treated as separate objects of inquiry, but as interconnected mechanisms through which effectiveness is produced, shaping whether and how social support becomes meaningful and actionable across different settings.

Despite the growing evidence base, several important gaps remain. Conceptually, most intervention studies treat social support as a single construct rather than distinguishing between its functional components, such as informational, emotional, tangible, and appraisal support (Van Dam et al., 2005). This limits understanding of which aspects of support contribute most strongly to behavioural and clinical outcomes.

Theoretically, few interventions explicitly employ psychological or behavioural models to explain how support exerts its influence, leaving the mechanisms linking social interactions to self-management outcomes underdeveloped (Van Dam et al., 2005). Methodologically, considerable heterogeneity exists across intervention designs, including differences in duration, delivery agents, and outcome measures, which complicates synthesis and replication (Captieux et al., 2018).

Contextual limitations are also evident. Most studies have been conducted in high-income countries, resulting in limited understanding of how social support functions in low- and middle-income or collectivist settings, where family and community networks may play a more dominant role in chronic illness management (Diriba et al., 2023). There is also insufficient exploration of how health-system organisation, social norms, and cultural expectations shape the form and delivery of support (Taheri Kondar et al., 2024; El-Radad et al., 2022).

In terms of underlying processes, while reviews suggest that social support influences health through behavioural, psychological, and physiological pathways, few studies have examined how these processes interact in practice (Glasgow et al., 2018; Wang et al., 2024). Finally, sustainability remains a key challenge, as many effective interventions are short-term research projects rather than integrated elements of health service delivery.

Contextual limitations are also evident. Existing reviews indicate that much of the empirical work on social support and diabetes has been generated in high-income settings, particularly the United States, whereas research in low- and middle-income countries (LMICs) remains comparatively sparse. For example, a recent systematic review of social support and health outcomes in diabetes identified 22 eligible studies, all of which were conducted in the USA (Almubaid et al., 2024).

In contrast, a scoping review of peer-support interventions for T2D in LMICs located only 28 primary studies worldwide across seven databases. Of these studies, 67% were carried out in Asia, 22% in Africa, and 11% in the Americas (Sherifali et al., 2024). Although the two reviews are not directly comparable in scope, the small number of LMIC studies, set against the size of the global diabetes literature and the disproportionate burden of diabetes in LMICs, suggests that evidence on how social support functions in lower-resource and collectivist settings remains limited. Within this LMIC evidence base, there are very few studies from North African or Middle Eastern contexts and none focused on Morocco specifically. This highlights a gap that the present Morocco–UK comparison begins to address.

Addressing these gaps requires an in-depth, context-specific understanding of how social support operates in everyday diabetes care. Qualitative approaches are well suited to uncovering how support is experienced, enacted, and perceived by different actors, revealing what makes certain forms of support effective, insufficient, or counterproductive (Baig et al., 2015; Diriba et al., 2023).

This need is particularly urgent in Morocco, where the prevalence of T2D continues to rise and where structural, cultural, and socioeconomic factors create additional complexity in self-management. Recent national reviews highlight that Morocco faces a growing diabetes burden driven by rapid urbanisation, dietary transitions, and high levels of obesity and metabolic risk, with marked regional and socioeconomic disparities in access to diagnosis, monitoring, and treatment (Guerboub et al., 2025).

Although national programmes have expanded coverage and strengthened primary-care protocols, gaps remain in screening, follow-up, and continuity of care. Little is known about how families, communities, and healthcare providers contribute to or hinder self-management within these conditions (Karachaliou et al., 2020).

Given these contextual challenges, further research is needed to understand how social support functions in the Moroccan setting and how it interacts with both formal healthcare structures and informal family and community networks (El Hanafi and Lmejjati, 2024). Comparative exploration across healthcare systems with differing resources and cultural norms, such as the United Kingdom and Morocco, provides an opportunity to examine how institutional organisation, relational expectations, and sociocultural contexts shape the availability, form, and impact of support (Taheri Kondar et al., 2024).

Understanding these influences is essential for developing interventions that are both culturally relevant and sustainable within routine practice (Shapiro & Grajower, 2024).

8.1 Aims

The overall aim of this research is to identify how different components of social support contribute to effective T2D self-management and to explore how these components are understood, delivered, and experienced within two distinct healthcare and cultural contexts. Specifically, the study seeks:

1. To identify and evaluate which components of social support are associated with helping patients achieve good clinical outcomes.

2. To examine how social support is experienced and enacted by patients, family members, and healthcare professionals in the United Kingdom and Morocco.
3. To analyse how social, cultural, and health system contexts shape the form, delivery, and perceived effectiveness of social support in each setting.
4. To compare social support needs and practices across the United Kingdom and Morocco in order to identify transferable and context-specific elements.
5. To use these findings to develop a context-sensitive social support intervention model for people living with T2D

8.2 Research questions

1. Which components of social support interventions are associated with improved clinical and self-management outcomes in T2D?

2. How is social support experienced and enacted by patients, family members, and healthcare professionals in the United Kingdom and Morocco?

3. How do social, cultural, and health system contexts shape the delivery and effectiveness of social support in each setting?

4. What similarities and differences exist in social support needs and practices between the United Kingdom and Morocco?

5. How can these insights inform the development of a context-sensitive model of social support for people living with T2D?

9. Chapter summary and thesis roadmap

This introductory chapter established the conceptual and contextual foundations of the thesis. It defined T2D as a chronic metabolic condition caused by insulin resistance and relative insulin deficiency, leading to sustained hyperglycaemia and increased risk of complications (ElSayed et al., 2023). The global prevalence of T2D continues to rise, placing a growing economic and social burden on health systems and individuals worldwide (Bommer et al., 2018).

The chapter outlined how T2D management depends on self-management behaviours supported by health systems that vary across contexts. In the United Kingdom, care is largely delivered through multidisciplinary primary-care teams following national guidelines, while in Morocco, management occurs mainly in primary-care settings with variable specialist support

and medication. Both systems place substantial responsibility on patients, making effective support essential for adherence and long-term control.

Social support was introduced as a key psychosocial determinant of diabetes management. Building on House's (1981) original typology of social support and its subsequent application in diabetes research by Van Dam et al. (2005), this thesis conceptualises social support as comprising informational, emotional, tangible, and appraisal components that collectively act to enhance coping, adherence, and psychological well-being. Each component contributes uniquely to how individuals manage their condition and interact with others involved in their care (Thoits, 2011).

While biomedical interventions remain central to diabetes care, growing evidence indicates that consistent and culturally sensitive social support significantly enhances self-management, psychological adjustment, and quality of life (Baig, Benitez, Quinn, & Burnet, 2015). Reviews of social-support interventions indicate benefits for glycaemic control, self-care, and emotional health, though results vary by delivery mode and setting (Matrook et al., 2025).

Persistent gaps remain regarding how specific support components influence outcomes, the limited theoretical grounding of many interventions, and the scarcity of culturally adapted research in low- and middle-income contexts (Diriba et al., 2023). These gaps justify the need for the current research, which integrates quantitative and qualitative methods to identify effective components of social support and examine how they operate across distinct healthcare systems and cultural environments.

The remainder of the thesis is structured to address the research objectives in a sequential manner. Chapter 2 addresses Objective 1 by presenting a meta-analysis of social support interventions in T2D to identify which components are associated with improved clinical and self-management outcomes. Chapter 3 addresses Objective 2 by outlining the methodological framework for the qualitative studies conducted in the United Kingdom and Morocco, which examined how social support is experienced and enacted by patients, family members, and healthcare professionals. Chapter 4 addresses Objectives 2 and 3 by presenting the findings from these studies, illustrating how social support is understood in practice and how social, cultural, and health-system contexts shape its delivery and effectiveness in each setting. Chapter 5 addresses Objective 4 by conducting a cross-context comparison of the UK and Moroccan findings using the COM-B model to identify transferable and context-specific elements of social support. Finally, Chapter 6 addresses Objective 5 by integrating evidence

across all studies to develop the Social Support Consistency Model and propose a context-sensitive model for strengthening social support in T2D care. In summary, this chapter established why understanding the social support components of T2D is essential for improving management outcomes. By combining evidence synthesis and qualitative exploration across contrasting contexts, the thesis aims to generate practical and theoretical insights to strengthen person-centred diabetes care.

Chapter 2: Systematic Review & Meta-analysis of Social-Support Interventions

Identifying the key Components of Social Support for Patients Living with Type 2 Diabetes: A Meta-Analysis of Type 2 Diabetes Social Support Interventions

1. Introduction & Rationale

1.1 Context:

Type 2 diabetes is a chronic disease characterised by insulin deficiency resulting from having insulin-resistant cells where insulin receptors fail to absorb glucose into body cells (Welch & Vella, 2022). Managing T2D requires the patient to adhere to many lifestyle changes that help them maintain and achieve specific glycaemic targets. Embracing a healthier lifestyle involves a combination of factors such as adopting a nutritious diet, staying physically active, medication management, biomonitoring, applying healthy coping mechanisms, and minimising other health-based risks (stopping smoking, reducing blood pressure, etc.; Shrivastava et al., 2013). This comprehensive approach forms the foundation for providing patient-centred diabetes care and education (American Association of Diabetes Educators, 2008). However, the success with which patients achieve optimal lifestyle behaviours has been low among T2D patients (Alhaiti et al., 2020; Marrero et al., 2000; Mogre et al., 2017; Paudel et al., 2022), resulting in the increased risk and incidence of health complications such as heart attack, stroke, kidney failure, leg amputation, vision loss and nerve damage, which can increase the overall risk of dying prematurely (Roglic, 2016). Overall, people with T2D tend to adopt

fewer health-promoting behaviours, exhibit less interaction within their social circles, and possess lower confidence in obtaining support during times of severe illness (Hempler et al., 2016). On the other hand, higher levels of adherence are associated with better T2D self-management, self-care behaviours, self-efficacy, well-being, and quality of life.

Previous systematic reviews have highlighted the importance of social support in T2D management (Pamungkas et al., 2017; Stopford et al., 2013), showing that it can influence both self-management and clinical outcomes. However, their findings regarding HbA1c outcomes have been mixed, with some reporting improvements and others finding little or no effect (Pamungkas et al., 2017; Stopford et al., 2013). One reason for this ambiguity is that social support has often been treated as a single construct, without distinguishing between its different forms. This makes it difficult to determine which components of social support contribute in unique ways to glycaemic control. To address this gap, the present review examines interventions through the lens of these distinct components and evaluates their relationship to HbA1c outcomes. In doing so, it extends previous work by offering a more detailed understanding of how different types of social support may shape diabetes management.

1.2 Social support in type 2 diabetes:

Social support in the context of T2D refers to the provision of resources, emotional care, or validation that meet an individual's fundamental social needs, including affection, esteem, belonging, identity, and security (van Dam et al., 2005). Based on House's typology of social support (House, 1981), van Dam et al. (2005) categorised social support in T2D into four types: (1) informational support, providing knowledge or advice about diabetes management; (2) emotional support, offering empathy, encouragement, or reassurance; (3) tangible support, supplying practical assistance such as materials or services; and (4) appraisal support, validating a patient's actions or decisions to reinforce self-efficacy. These components are hypothesised to enhance glycaemic control by improving adherence, self-efficacy, and coping mechanisms, thereby reducing stress and supporting lifestyle changes critical for T2D management (Schiøtz et al., 2012; Shao et al., 2017; Strom & Egede, 2012). Prior studies suggest that social support positively influences HbA1c levels and psychosocial outcomes, though the specific contributions of each support type remain underexplored (Baig et al., 2015; Dale et al., 2012; Finfgeld-Connett, 2005; Pamungkas et al., 2017; Patil et al., 2016; Stopford et al., 2013; Zhang et al., 2016). For example, informational support may enhance knowledge

and self-management behaviours, while emotional support may mitigate diabetes-related distress (Young et al., 2020).

According to the direct effect hypothesis, individuals who receive more social support tend to manage their health more effectively than those who receive less (Strom & Egede, 2012). In the context of T2D, this suggests that receiving consistent support can improve adherence to treatment regimens, lifestyle changes, and psychological well-being. However, the effects of social support are not always straightforward. Support is often offered when a patient's illness becomes more complicated and may decline as the disease progresses (Kadirvelu et al., 2012). Similarly, receiving support from close family or friends can sometimes make patients feel judged, nagged, or burdened, which may in turn hinder effective self-management (Kadirvelu et al., 2012). These complexities highlight the importance of examining not only whether social support benefits people with T2D, but also how different types of support operate in practice and contribute to health outcomes.

1.3 Types of social support:

The relationship between social support and glycaemic control in T2D is multifaceted, as different forms of support may influence self-management behaviours in distinct ways. Building on van Dam et al.'s (2005) framework, this review categorises interventions according to four key support components: informational, emotional, tangible, and appraisal. These categories provide a structured lens through which to evaluate diverse intervention strategies, clarifying how specific types of support may contribute to self-management outcomes.

For example, informational support can include structured diabetes education or practical advice about diet and medication use; tangible support may involve providing glucometers, meal plans, or transport to clinical appointments; emotional support can consist of empathy, encouragement, and reassurance from family, peers, or professionals; and appraisal support might involve affirming or validating patients' treatment decisions, thereby reinforcing self-efficacy.

Despite evidence supporting the role of social support in T2D management, previous systematic reviews have yielded mixed results regarding its impact on HbA1c, with some studies showing significant reductions (Baig et al., 2015; Dale et al., 2012; Finfgeld-Connett,

2005; Pamungkas et al., 2017; Patil et al., 2016; Zhang et al., 2016) and others finding no effect (El-Radad et al., 2022). Furthermore, the specific contributions of informational, emotional, tangible, and appraisal support to glycaemic control remain poorly understood, as most studies do not disaggregate these components or compare their effectiveness. This meta-analysis addresses this gap by systematically identifying which social support components are used in T2D interventions and evaluating their impact on HbA1c, aiming to inform the development of more targeted and effective interventions.

1.4 Objectives:

The aim of this review was to identify social support components in T2D interventions. This involved examining past interventions that sought to enhance T2D outcomes through the utilisation of social support. These interventions were categorised according to the four distinct social support components: informational, tangible, emotional, and appraisal. These interventions included T2D patients and family members, caregivers, or peers who might have also participated.

To guide this exploration of social support, three central questions were investigated:

1. What T2D social support components have been used in previous interventions since 1990?
2. Which of these components of social support had a significant impact on patients' HbA1c levels?
3. Is there a difference between the components used in interventions with significant vs. non-significant effect on HbA1c?

2. Methods:

This systematic review and meta-analysis was conducted and reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines (Page et al., 2021). This review focused exclusively on intervention studies designed to enhance T2D outcomes through social support, aligning with the objective to evaluate the effectiveness of specific social support components on HbA1c. The methodological approach was developed and refined using a protocol specifically created for this systematic review and

meta-analysis (Madroumi et al., 2024). The protocol provided a comprehensive framework which the research team adhered to throughout the course of this review.

2.1 Eligibility criteria:

Studies were included if participants were adults (aged ≥ 18) diagnosed with T2D, involving family members, caregivers, or peers. Studies focusing on other types of diabetes (e.g., type 1, gestational) were excluded to maintain focus on T2D-specific interventions. To reduce heterogeneity in health outcomes and ensure comparability of HbA1c results, studies with participants having diagnosed psychological conditions (e.g., depression) or significant comorbidities were excluded, despite the high prevalence of depression in T2D populations. Similarly, studies exclusively focusing on a single sex/gender were excluded to enhance the generalisability of findings across diverse populations. However, this may limit insights into population-specific effects, which is noted as a limitation.

2.2 Search strategy:

Four databases (Medline, Web of Science, ProQuest, and CINAHL) were searched between March and April 2024 to identify relevant interventions. The search was limited to studies published from 1990 onwards to capture the emergence of contemporary diabetes self-management approaches and structured social support interventions.

The search strategy combined three core concepts: (1) type 2 diabetes, (2) social support, and (3) intervention-related terms. The following search terms (including related subject headings and synonyms) were used: “type 2 diabetes” or “T2D”; “social support” or “family support” or “peer support”; and “intervention”. Terms within each concept were combined using the Boolean operator “OR”, and the three concepts were combined using “AND” to ensure that retrieved studies addressed all aspects of the research question. An example of the search structure was: (“type 2 diabetes” OR T2D) AND (“social support” OR “family support” OR “peer support”) AND (intervention*).

Search was limited to studies published between 1990 and 2023, focusing on adult populations (≥18 years), and restricted to peer-reviewed journal articles and dissertations. The search strategy was adapted to the syntax and indexing systems of each database, including the use of subject headings (e.g. MeSH terms in Medline) where available.

In addition to database searching, the berry-picking approach was employed to identify further relevant studies (Bates, 1989). This involved iterative searching through reference lists of included studies to identify additional eligible interventions. The full search strategy, including all search terms, Boolean operators, and database-specific adaptations, is provided in Appendix 2.1.

2.3 Selection process:

Article selection involved a dual-screening approach, with two authors (RM, LN) independently evaluating titles and abstracts using Rayyan, an AI-powered systematic review tool (Rayyan Systems Inc., 2017). Rayyan facilitated the organisation, deduplication, and blinded screening of articles, allowing reviewers to tag studies as "include," "exclude," or "maybe" based on eligibility criteria. Discrepancies were resolved through discussion to reach consensus, ensuring robust and transparent study selection.

2.4 Risk of bias assessment:

Risk of bias was assessed using the Mixed Methods Appraisal Tool (MMAT; Hong et al., 2018). This tool was selected because the review included quantitative and mixed-methods study designs.

The MMAT evaluates methodological quality using design-specific criteria, including randomisation, blinding, and completeness of outcome data for randomised controlled trials. Each study was independently assessed by four authors (RM, LN, KU, HP). Studies were assigned qualitative judgements of low, medium, or high quality rather than numerical scores.

2.5 Synthesis methods:

A summary of the extracted data was produced in accordance with PRISMA reporting requirements (Page et al., 2021). This information was presented in summary table in appendix 2.1 describing each study's key characteristics. The table was organised into three sections: Study ID (authors and year), Population (country, intervention context, sample size, age, and gender), and Outcomes (follow-up duration and HbA1c results).

2.6 Classification of social support components:

Interventions were coded for the presence of informational, emotional, tangible, and appraisal support based on definitions proposed by van Dam et al. (2005).

Two authors (RM, LN) independently reviewed intervention descriptions to identify social support components using predefined criteria. For example, informational support included education or advice, while emotional support included expressions of empathy or encouragement.

Disagreements in coding were resolved through discussion with a third author (KU). When intervention descriptions were ambiguous, components were inferred from described activities, such as educational materials being coded as informational support.

2.7 Quantitative synthesis:

A multilevel, random-effects meta-analysis was conducted using the metafor package in R to account for multiple effect sizes from studies reporting more than one follow-up (Van den Noortgate & Onghena, 2003). The primary outcome was the mean difference in HbA1c. For between-subjects designs, the mean difference was calculated as the difference between intervention and control groups at post-intervention and follow-up. For within-subjects contrasts, the mean difference reflected changes from pre- to post-intervention and subsequent follow-ups.

Moderator analyses were conducted across 27 studies to examine (1) the number of social support components (1–4, classified as informational, emotional, tangible, and appraisal), (2) the presence or absence of each specific support type, and (3) the duration of follow-up. These moderators were selected to address the study objectives of identifying which components of social support influence HbA1c and whether effects differ between interventions reporting significant versus non-significant outcomes.

Diverse intervention types (peer, family, community health worker, group-based, and couple-based interventions) were pooled because all explicitly incorporated at least one of the four functional social support components defined by van Dam et al. (2005). This approach prioritised the mechanisms of social support over delivery format, ensuring inclusion was guided by theoretical rather than procedural criteria.

Statistical heterogeneity was quantified using the I^2 index, with values above 50% indicating moderate and above 75% indicating substantial heterogeneity (Huedo-Medina et al., 2006). As some degree of heterogeneity is expected in meta-analyses (Higgins, 2008), potential sources

were explored through moderator analyses and assessment of publication bias (see below). To further characterise uncertainty around pooled effects, prediction intervals were calculated in line with recommendations by IntHout et al. (2015), indicating the range within which effects of future comparable studies are expected to fall.

2.8 Publication bias:

The risk of publication bias was evaluated using trim-and-fill (Shi & Lin, 2019), which estimates and adjusts for the number of potentially missing studies to assess their impact on the results. Additionally, Egger's test (Egger et al., 1997) was employed to examine the symmetry of the funnel plot, a common method for detecting bias. The GOSH approach (Olkin et al., 2012) was used to compute a large number of meta-analytic models by subsetting the available data (in this case, we used 10,000 possible models). This was then visually presented as an overall effect size and a heterogeneity estimate across the computed models. We also conducted sensitivity analyses where the largest and smallest effect sizes were removed from the models.

2.9 Confidence in cumulative evidence:

The results were interpreted using the Joanna Briggs Institute (JBI) assessment tool (Munn et al., 2019). This tool provides a systematic methodology for assessing the robustness and reliability of research. It closely examines essential aspects of the study design, such as randomisation, blinding, data collection methods, and analysis techniques, ensuring that systematic reviews and meta-analyses are grounded in methodologically solid studies.

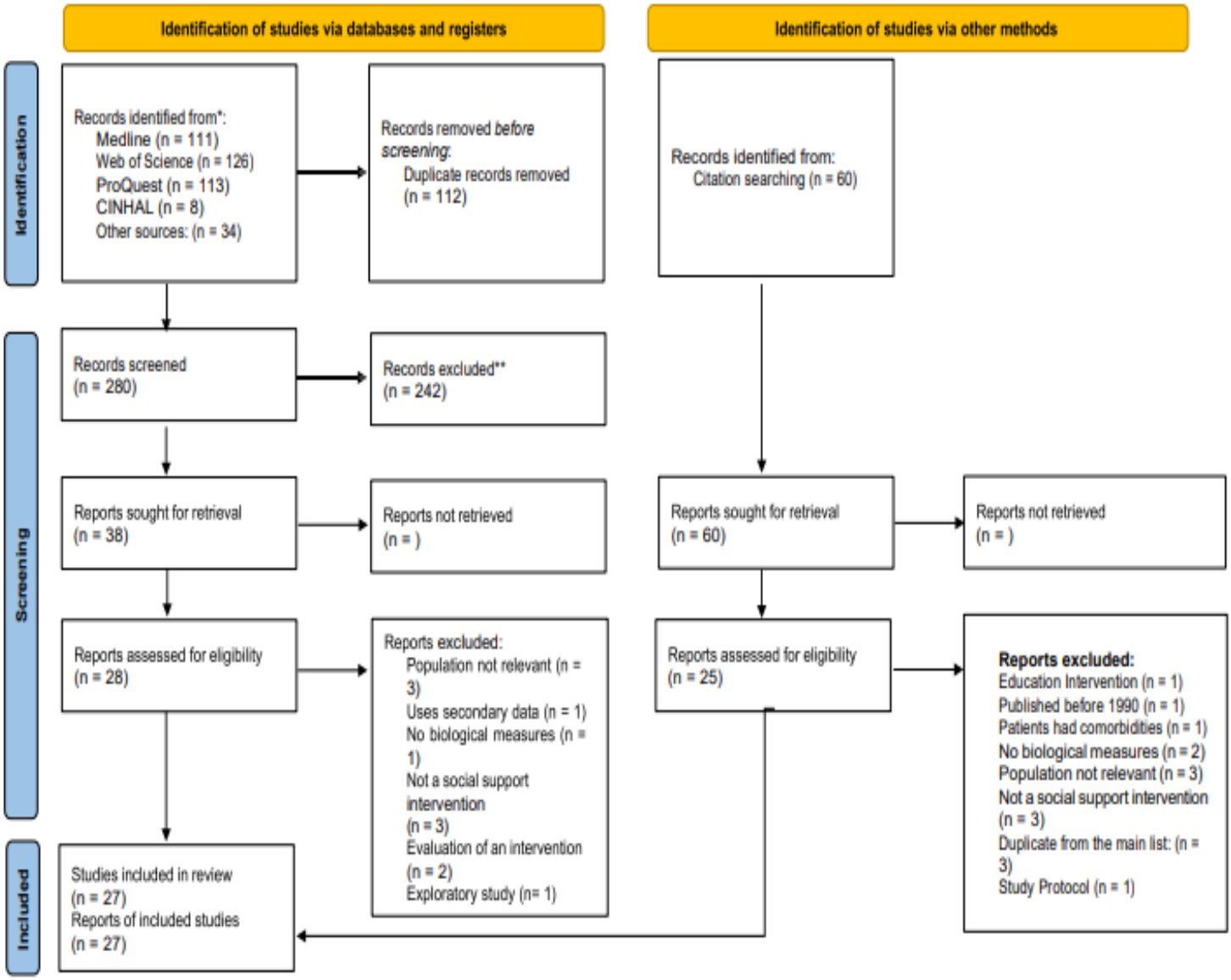
3. Results:

3.1 Study selection:

As shown in Figure 1, database searches generated 392 articles (Medline = 111, Web of Science = 126, ProQuest = 113, CINAHL = 8, other sources = 34). A total of 112 duplicates were removed, and 280 abstracts were screened, from which 28 full-text articles were reviewed for eligibility. Of those, 17 studies were included (Assah et al., 2015; Baumann et al., 2015; Feng et al., 2023; García-Huidobro et al., 2011; Gomes et al., 2017; Haltiwanger, 2012; Haltiwanger & Brutus, 2012; Hemmati Maslakpak et al., 2017; Hu et al., 2013, 2016; Kang et al., 2010; Khosravizade Tabasi et al., 2014; McEwen et al., 2010, 2017; Shaya et al., 2014; Smith et al., 2011; Withidpanyawong et al., 2019).

Subsequent citation searching generated a further 60 articles, of which 25 were assessed for eligibility after abstract screening. An additional 10 studies were included, resulting in a final sample of 27 interventions (Assah et al., 2015; Baumann et al., 2015; Lorig et al., 2009; Lujan et al., 2007; Presley et al., 2020; Safford et al., 2015; Spencer et al., 2011; Tang et al., 2015; Thom et al., 2013; Trento et al., 2001; Trief et al., 2016).

Figure 1: PRISMA 2020 study-selection flow diagram



3.2 Risk of bias in studies (MMAT):

The Mixed Methods Appraisal Tool (MMAT; Hong et al., 2018) was used to assess risk of bias, as the review included quantitative and mixed methods designs. Overall, the majority of studies were rated as medium to high quality.

One study (Shaya et al., 2014) was rated as low quality due to partial randomisation and a lack of blinding among assessors. Additionally, more than 20% of participants in this study did not complete follow-up measures, which contributed to its lower quality rating. A summary of MMAT ratings for all included studies is presented in table 8 (in Appendix 2.2)

3.3 Results of individual studies:

As presented in Table 9 (in appendix 2.3), this review includes a variety of interventions targeting different aspects of social support to improve diabetes management. These interventions comprise 14 peer-support interventions (Assah et al., 2015; Baumann et al., 2015; Haltiwanger, 2012; Haltiwanger & Brutus, 2012; Johansson et al., 2016; Lorig et al., 2009; Lujan et al., 2007; McEwen et al., 2010; Presley et al., 2020; Safford et al., 2015; Shaya et al., 2014; Smith et al., 2011; Tang et al., 2015; Thom et al., 2013), 10 family interventions (Feng et al., 2023; García-Huidobro et al., 2011; Gomes et al., 2017; Hemmati Maslakpak et al., 2017; Hu et al., 2013, 2016; Kang et al., 2010; Khosravizade Tabasi et al., 2014; McEwen et al., 2017; Withidpanyawong et al., 2019), one couples intervention (Trief et al., 2016), one community health worker intervention (Spencer et al., 2011), and one group visits intervention (Trento et al., 2001).

Among these interventions, 18 were randomised controlled trials (Feng et al., 2023; García-Huidobro et al., 2011; Gomes et al., 2017; Hemmati Maslakpak et al., 2017; Hu et al., 2013, 2016; Johansson et al., 2016; Kang et al., 2010; Lorig et al., 2009; Lujan et al., 2007; McEwen et al., 2017; Presley et al., 2020; Safford et al., 2015; Spencer et al., 2011; Tang et al., 2015; Thom et al., 2013; Trento et al., 2001; Trief et al., 2016; Withidpanyawong et al., 2019). Within these, most control groups received usual care, defined as standard medical management without additional social support (e.g., Gomes et al., 2017; Kang et al., 2010; Lorig et al., 2009; Smith et al., 2011; Spencer et al., 2011; Trento et al., 2001).

In contrast, five studies employed attention control arms, where participants engaged in non-social support activities such as general health education (Johansson et al., 2016; Presley et al., 2020; Safford et al., 2015; Shaya et al., 2014; Tang et al., 2015). A further two trials used a

wait-list or delayed intervention design (McEwen et al., 2017; Spencer et al., 2011). In addition to these RCTs, six studies were non-randomised (Assah et al., 2015; Baumann et al., 2015; Haltiwanger, 2012; Hu et al., 2016; McEwen et al., 2010; García-Huidobro et al., 2011), and two employed mixed methods (Baumann et al., 2015; Haltiwanger & Brutus, 2012).

Within the identified studies, 14 interventions led to significant changes in HbA1c levels over time compared to the control groups (Assah et al., 2015; Baumann et al., 2015; Haltiwanger, 2012; Haltiwanger & Brutus, 2012; Hu et al., 2013, 2016; Khosravizade Tabasi et al., 2014; Lujan et al., 2007; McEwen et al., 2010, 2017; Spencer et al., 2011; Tang et al., 2015; Thom et al., 2013).

In contrast, 13 studies failed to demonstrate a significant impact in reducing HbA1c levels over time or when compared to control groups (Feng et al., 2023; García-Huidobro et al., 2011; Gomes et al., 2017; Hemmati Maslakpak et al., 2017; Johansson et al., 2016; Kang et al., 2010; Lorig et al., 2009; Presley et al., 2020; Safford et al., 2015; Shaya et al., 2014; Smith et al., 2011; Trento et al., 2001; Withidpanyawong et al., 2019).

It is important to note that three of these 13 interventions did showcase significant alterations in other clinical metrics (Safford et al., 2015; Trento et al., 2001; Trief et al., 2016) and two positively influenced health behaviours (García-Huidobro et al., 2011; Lorig et al., 2009), indicating their effectiveness in specific aspects of T2D self-management beyond HbA1c levels. Moreover, there were instances where studies demonstrated significant improvements in HbA1c levels but not in other behavioural measures (Hu et al., 2016; McEwen et al., 2017; Spencer et al., 2011), suggesting a lack of consistency in T2D self-management outcomes.

Taken together, these findings indicate that while a number of interventions achieved significant reductions in HbA1c, an almost equal number did not, and some showed improvements in behavioural or other clinical outcomes without corresponding changes in HbA1c. This pattern suggests that the effects of social support interventions are not uniform and may depend on how support is delivered and engaged with in practice.

3.4 Results of studies by intervention type:

a) Peer support interventions

The 14 peer support interventions (Assah et al., 2015; Baumann et al., 2015; Haltiwanger, 2012; Haltiwanger & Brutus, 2012; Johansson et al., 2016; Lorig et al., 2009; Lujan et al., 2007; McEwen et al., 2010; Presley et al., 2020; Safford et al., 2015; Shaya et al., 2014; Smith et al., 2011; Tang et al., 2015; Thom et al., 2013) identified through the search showed differences in terms of intervention type, design and individuals who delivered them. Six were categorised as peer support interventions (Baumann et al., 2015; Haltiwanger, 2012; Haltiwanger & Brutus, 2012; McEwen et al., 2010; Smith et al., 2011; Lujan et al., 2007). Two of the interventions were defined as peer coaching interventions (Johansson et al., 2016; Thom et al., 2013), three were community-based peer support interventions (Assah et al., 2015; Lorig et al., 2009; Safford et al., 2015), one intervention was a peer mentoring intervention (Haltiwanger, 2012), one intervention was a mobile-enhanced intervention (Presley et al., 2020), and one intervention was a peer-led empowerment-based approach (Tang et al., 2015). In terms of design, three were quasi-experimental (Assah et al., 2015; Haltiwanger, 2012; McEwen et al., 2010), eight studies were RCTs (Johansson et al., 2016; Lorig et al., 2009; Presley et al., 2020; Safford et al., 2015; Smith et al., 2011; Tang et al., 2015; Thom et al., 2013; Lujan et al., 2007), two studies were mixed methods (Baumann et al., 2015; Haltiwanger & Brutus, 2012), and one was a partially randomised study (Shaya et al., 2014). Ten of these interventions were delivered by peers (Assah et al., 2015; Baumann et al., 2015; Haltiwanger, 2012; Haltiwanger & Brutus, 2012; McEwen et al., 2010; Lorig et al., 2009; Lujan et al., 2007; Safford et al., 2015; Tang et al., 2015; Thom et al., 2013). In contrast, four were reported to be delivered by community health workers (Presley et al., 2020), nurse practitioners (Shaya et al., 2014), peer supporters and healthcare professionals (Johansson et al., 2016), or certified diabetes educators and peer leaders (Tang et al., 2015).

b) Family interventions

Five of the family interventions (Gomes et al., 2017; Hu et al., 2013; Kang et al., 2010; Khosravizade Tabasi et al., 2014; McEwen et al., 2017) were defined as strictly family interventions only. Two of these interventions did not specify who delivered the interventions (Gomes et al., 2017; McEwen et al., 2017); one was delivered by a researcher (Khosravizade Tabasi et al., 2014), one was delivered by a nurse practitioner and trained educator bilingual in Spanish (Hu et al., 2013), and one was delivered by nurses, physicians, a pharmacist,

physiotherapist, foot therapist, social workers, and dieticians (Kang et al., 2010). The other five were defined as the following:

- One family intervention with motivational interviewing (García-Huidobro et al., 2011), with an RCT design, delivered by clinicians and other providers trained in motivational interviewing and family counselling.

- One family-based pharmacist intervention (Withidpanyawong et al., 2019), with an RCT design, delivered by physicians, pharmacists, and nurses.

- One family-based culturally tailored intervention (Hu et al., 2016), with a quasi-experimental design, delivered by bilingual and bicultural registered nurses.

- One family-oriented education intervention (Hemmati Maslakpak et al., 2017). This intervention had an RCT design with two intervention groups (face-to-face and telephone). The telephone group had their intervention delivered by two research team instructors, whereas the face-to-face group had their intervention delivered by the first two authors of the paper.

- One eHealth family-based intervention via WeChat (Feng et al., 2023), with an RCT design that was delivered online.

c) Couples' intervention

There was only one couples intervention (Trief et al., 2016) identified through the search, which was an RCT delivered by dietitians who were certified diabetes educators.

d) Community health worker intervention

Only one intervention was identified as a community health worker intervention (Spencer et al., 2011), which was an RCT and was delivered by community health workers.

e) Group visits intervention

Only one intervention was identified as a group visits intervention (Trento et al., 2001), which was an RCT and was delivered by physicians and educationists.

3.5 Social support components: Patterns and contextual variability

Each intervention was assessed for the inclusion of social support components, namely tangible, informational, emotional, and appraisal support, as outlined by van Dam et al. (2005). On average, the interventions incorporated three of the four components. The findings revealed that among the interventions, informational support was the most prevalent component, followed by appraisal and then tangible support. Emotional support was the least utilised component within the context of T2D interventions. Table 10 (appendix 2.4) summarising coding decisions is provided in the appendices section.

Across the 27 interventions, informational support was the most consistently incorporated, typically through structured education sessions, mobile content, or professional guidance (e.g., Feng et al., 2023; García-Huidobro et al., 2011; Gomes et al., 2017; Hemmati Maslakpak et al., 2017; Johansson et al., 2016; Kang et al., 2010; McEwen et al., 2010, 2017; Presley et al., 2020; Smith et al., 2011; Spencer et al., 2011; Trento et al., 2001; Withidpanyawong et al., 2019). Appraisal support was also widely embedded, particularly in peer- and family-based programmes where encouragement, reminders, and feedback were central to the intervention process (Assah et al., 2015; Baumann et al., 2015; Haltiwanger, 2012; Haltiwanger & Brutus, 2012; Hu et al., 2016; Khosravizade Tabasi et al., 2014; Lujan et al., 2007; Safford et al., 2015; Shaya et al., 2014; Tang et al., 2015). Emotional support appeared less frequently and was often implicit rather than explicitly designed. It was more evident in culturally tailored interventions, such as those targeting Hispanic or Mexican-American families in the USA (Haltiwanger, 2012; Haltiwanger & Brutus, 2012; Hu et al., 2013, 2016), or family-based models in China, where relatives provided reassurance and sought to reduce non-supportive behaviours (Feng et al., 2023). In contrast, interventions conducted in European contexts (Johansson et al., 2016; Smith et al., 2011; Trento et al., 2001) predominantly emphasised informational and appraisal support, with minimal emotional components.

Tangible or instrumental support was the least represented overall. Except for group visits in Italy, where health professionals facilitated concrete strategies for daily management (Trento et al., 2001), and some family interventions where relatives helped with diet and medication routines (Gomes et al., 2017; Withidpanyawong et al., 2019; García-Huidobro et al., 2011), most interventions did not include structured tangible support. Notably, the Chinese WeChat

family-based programme explicitly excluded tangible support, highlighting a limitation of eHealth platforms in providing practical assistance (Feng et al., 2023).

Taken together, the interventions rarely incorporated all four dimensions simultaneously. Only the couple's intervention in the USA systematically included tangible, informational, appraisal, and emotional support, reflecting recognition of the multiple ways spouses are involved in diabetes self-management (Trief et al., 2016). This uneven emphasis suggests that while informational support remains the foundation across contexts, emotional and tangible elements are more likely to surface in family- or culturally grounded interventions, whereas clinical and peer-led programmes remain focused on knowledge provision and feedback.

Among the 27 interventions, only four (Feng et al., 2023; Gomes et al., 2017; McEwen et al., 2010; Shaya et al., 2014) included an explicit definition of social support that covered some or all of the components outlined by van Dam et al. (2005). Peer support interventions (Assah et al., 2015; Baumann et al., 2015; Haltiwanger, 2012; Haltiwanger & Brutus, 2012; Johansson et al., 2016; Lorig et al., 2009; Lujan et al., 2007; McEwen et al., 2010; Presley et al., 2020; Safford et al., 2015; Shaya et al., 2014; Smith et al., 2011; Tang et al., 2015; Thom et al., 2013) were similar to other types of interventions in that they mainly focused on providing informational and appraisal support. In contrast, family interventions (Feng et al., 2023; García-Huidobro et al., 2011; Gomes et al., 2017; Hemmati Maslakpak et al., 2017; Hu et al., 2013, 2016; Kang et al., 2010; Khosravizade Tabasi et al., 2014; McEwen et al., 2017; Withidpanyawong et al., 2019) were primarily focused on providing informational support to T2D patients and gave limited emotional support. The group visits intervention (Trento et al., 2001) utilised tangible, informational, and appraisal support, whereas the community health worker intervention (Spencer et al., 2011) employed informational and appraisal support. Finally, the couples intervention (Trief et al., 2016) employed all four components of social support.

Overall, the uneven distribution of social support components across interventions, combined with the absence of consistent definitions, suggests that the presence of specific components alone is insufficient to explain variation in outcomes. This reinforces the need to examine how these components are combined and operationalised within different intervention contexts.

3.6 Results synthesis

Thirty-eight effect sizes across 24 studies were included in a meta-analytic model. All variance within the effect sizes was at the study level, rather than the individual effect size level (as such, the pooled estimate is the same as aggregating the effects across studies). The pooled mean difference was −0.40 (95% CI [−0.66, −0.14], Z = 3.14, p = .002), with substantial heterogeneity (I^2 = 83%). Given the diversity of study designs, populations, and contexts, this level of heterogeneity is expected and acceptable within behavioural intervention research, provided that inclusion criteria and data quality are robust (Higgins, 2008; Huedo-Medina et al., 2006). Prediction intervals ranged from −1.56 to 0.77, indicating that the true effect of 95% of future studies would fall between these two values. There were no significant differences between the within- and between-subjects generated effects, and study design did not reduce any heterogeneity (I^2 = 83%). These results indicate that although social support interventions produce a statistically significant overall effect on HbA1c, this effect is accompanied by substantial heterogeneity and wide prediction intervals. This suggests that intervention effectiveness is highly context-dependent and cannot be explained solely by intervention type or the number of support components included.

3.7 Risk of bias

Figure 2 : Forest plot of pooled effect sizes for HbA1c

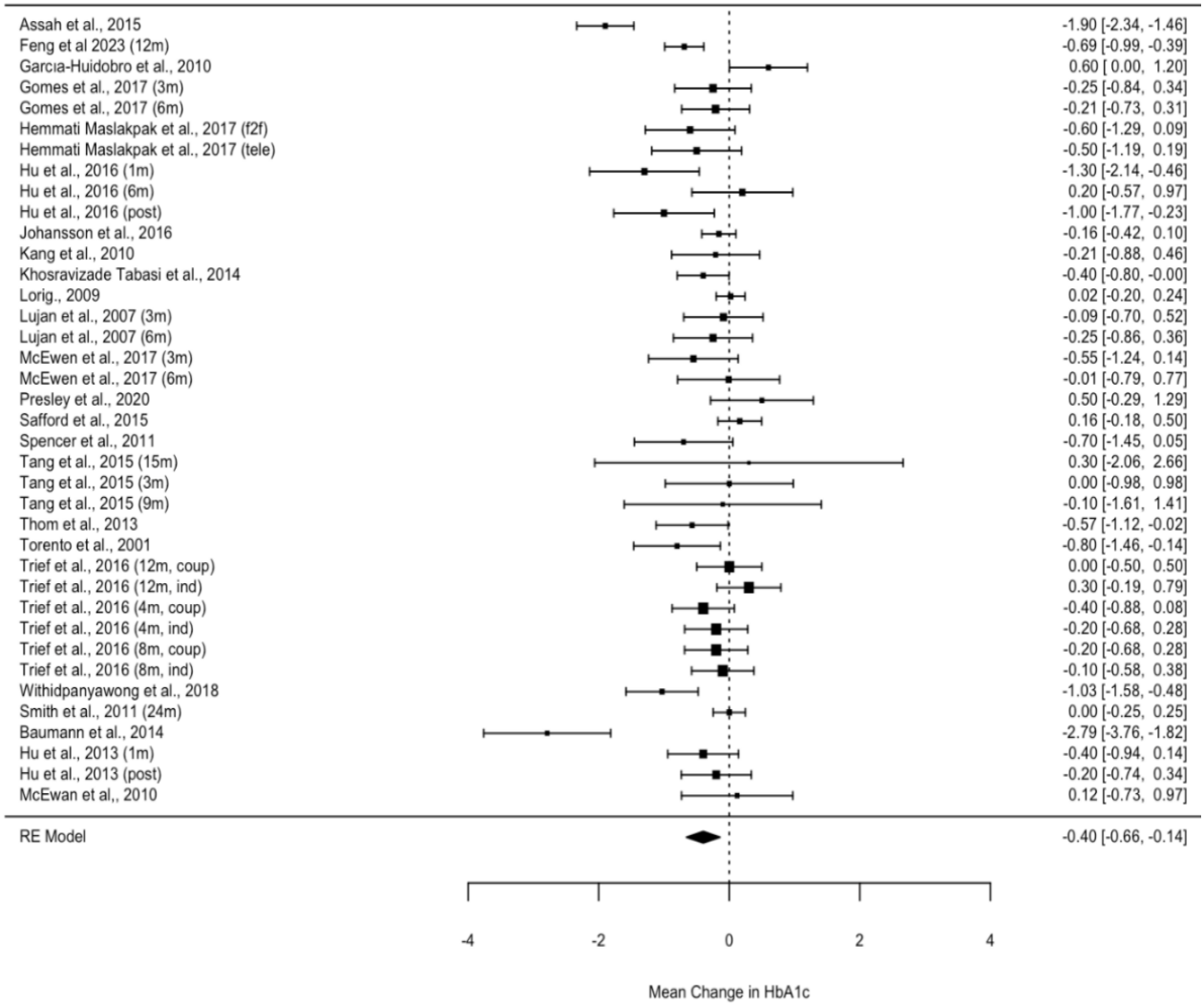
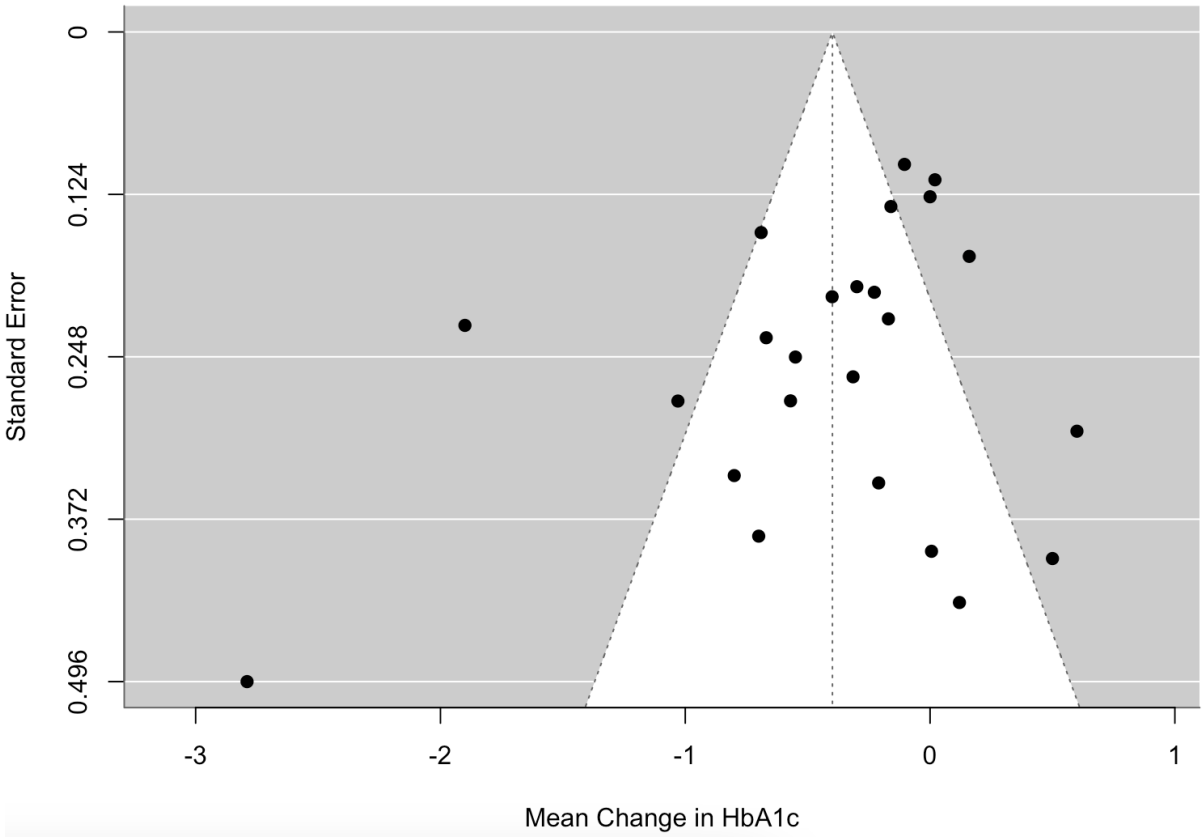
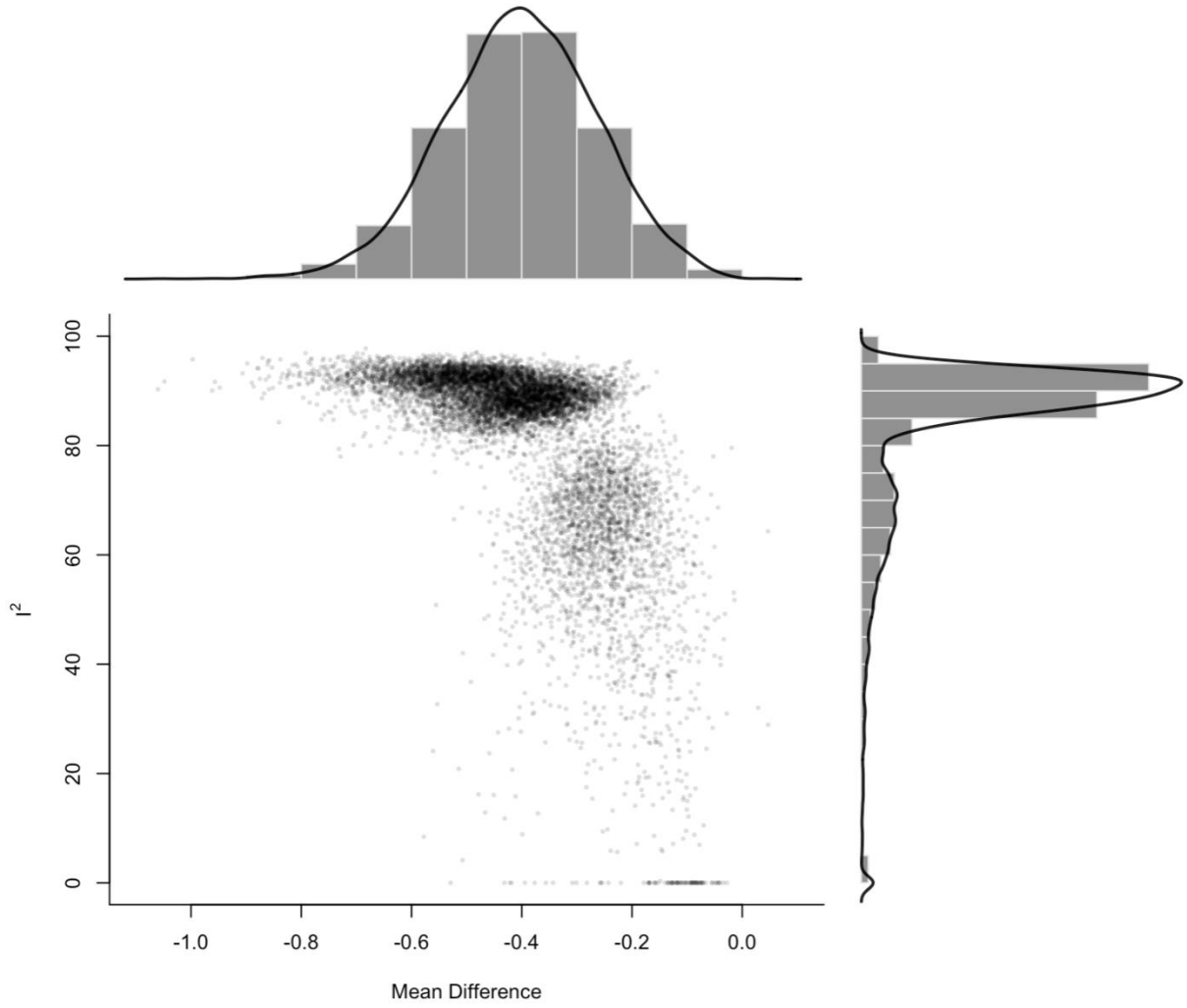


Figure 3: Funnel plot of effect sizes assessing publication bias



We conducted risk of bias indices on the aggregated effect sizes across studies. Egger's test of funnel plot asymmetry was not significant ($Z = -1.29$, $p = .197$; Egger et al., 1997), and the trim-and-fill test did not impute any hypothetical studies to improve funnel plot symmetry (Shi & Lin, 2019). GOSH demonstrated an average mean difference of −0.40 (min −1.06, max 0.04) with an average I^2 of 82% across 10,000 iterations (Olkin et al., 2012). One study (Shaya et al., 2014) was classed as an influential case. However, removing this study from the analysis did not substantially impact the pooled estimates (change in HbA1c = −0.32, 95% CI [−0.51, −0.11], $p = .002$, $I^2 = 80\%$).

Figure 4: GOSH plot exploring heterogeneity across meta-analytic models



3.8 Moderators of effect:

We retained the multilevel models to examine moderators of effect, including length of follow-up.

3.9 Number of components used:

There was no significant moderation effect of the number of social support components used (ranging from 1 to 4) on the difference in HbA1c, $\chi^2(1) = -0.01$, $p = .919$. Heterogeneity remained high ($I^2 = 83\%$).

3.10 Effect of individual components:

There was no effect of the presence of tangible support, $\chi^2(1) = 0.36$, $p = .547$. Studies with tangible support had a pooled mean difference of −0.34 (95% CI [−0.63, −0.05], $p = .021$), and studies without tangible support had a pooled mean difference of −0.51 (95% CI [−0.98, −0.03], $p = .036$). Heterogeneity remained high across both groups.

There was no effect of the presence of emotional support, $\chi^2(1) = 0.78$, $p = .377$. Studies with emotional support had a pooled mean difference of −0.31 (95% CI [−0.65, 0.02], $p = .069$), and studies without emotional support had a pooled mean difference of −0.51 (95% CI [−0.83, −0.19], $p = .002$). Heterogeneity remained high across both groups.

There was no effect of the presence of appraisal support, $\chi^2(1) = 0.58$, $p = .447$. Studies with appraisal support had a pooled mean difference of −0.40 (95% CI [−0.73, −0.08], $p = .014$), and studies without appraisal support had a pooled mean difference of −0.33 (95% CI [−0.58, −0.09], $p = .008$). Heterogeneity remained high.

Only one study did not include informational support, and removal of this study did not substantially influence the pooled effect (−0.39, 95% CI [−0.65, −0.13], $p = .003$).

3.11 Certainty of evidence:

The results of the JBI assessment (Munn et al., 2019) indicated that six randomised controlled trials (Kang et al., 2010; Smith et al., 2011; Feng et al., 2023; Lorig et al., 2009; Spencer et al., 2011; Tang et al., 2015; Trief et al., 2016) showed high quality of evidence and increased confidence in the findings. However, two RCTs (McEwen et al., 2017; Trento et al., 2001) displayed lower methodological rigour, which introduced some uncertainties. Moreover, nine RCTs (García-Huidobro et al., 2011; Hemmati Maslakpak et al., 2017; Hu et al., 2013; Johansson et al., 2016; Lujan et al., 2007; Presley et al., 2020; Safford et al., 2015; Thom et al., 2013; Withidpanyawong et al., 2019) presented a moderate level of quality. For quasi-experimental designs, some presented high-quality evidence (Assah et al., 2015; McEwen et al., 2010; Hu et al., 2016), whereas three other studies were found to have moderate quality (Baumann et al., 2015; Haltiwanger, 2012; García-Huidobro et al., 2011). The two mixed-method studies (Baumann et al., 2015; Haltiwanger & Brutus, 2012) were assessed using the

JBI qualitative and quantitative checklists aligned with the study designs. Both studies showed a moderate level of certainty due to some methodological limitations.

4. Discussion:

This meta-analysis provides the first systematic and quantitative evaluation of social support in T2D management using a multilevel meta-analytic approach. It is also the first review to disaggregate van Dam et al.'s (2005) four social support components (informational, emotional, tangible, and appraisal) across diverse interventions, a focus not comprehensively addressed in prior reviews (Baig et al., 2015; Dale et al., 2012; Finfgeld-Connett, 2005; Pamungkas et al., 2017; Patil et al., 2016; Zhang et al., 2016), representing a novel methodological contribution to the field. Pooling across diverse delivery modes was theoretically justified, as all interventions shared the functional inclusion of at least one social support component, enabling evaluation of the overall influence of social support on glycaemic outcomes regardless of format. By accounting for statistical dependence among multiple effect sizes within studies, this approach offers a more robust and precise estimation of the impact of social support on glycaemic control.

The analysis confirmed an overall significant reduction in HbA1c across interventions but found no evidence that specific support components or their number moderated the effect. These finding challenges long-standing theoretical assumptions that particular forms of support, such as emotional or informational, are inherently more effective in improving glycaemic outcomes. Instead, the results suggest that the context and quality of delivery, including how support is tailored, sustained, and experienced, play a more decisive role in shaping effectiveness. This provides an important conceptual insight, reframing social support as a dynamic and relational process rather than a fixed intervention ingredient.

In these exploratory comparisons, studies reporting non-significant reductions in HbA1c tended to involve larger sample sizes and slightly longer follow-up durations than those reporting significant effects. Interventions reporting significant effects generally involved participants with higher initial levels of glycaemic dysregulation. Together, these descriptive patterns suggest that intervention effects may be more closely related to baseline risk profiles and contextual factors than to study size or duration alone. This interpretation aligns with evidence that individuals with higher baseline HbA1c may exhibit greater absolute

improvements, while more heterogeneous or lower-risk samples may dilute detectable effects, highlighting the importance of tailoring social support to participant needs and context (Jones et al., 2016).

Differences between studies showing significant and non-significant HbA1c reductions appeared to be driven by contextual and participant factors, including baseline HbA1c and risk profiles, rather than by study duration or sample size. These patterns suggest that social support interventions are most effective when they are responsive to participant needs and situated within supportive environments that enable change.

Only 10 studies (Feng et al., 2023; García-Huidobro et al., 2011; Hemmati Maslakpak et al., 2017; Hu et al., 2013; Johansson et al., 2016; Lorig et al., 2009; Presley et al., 2020; Tang et al., 2015; Thom et al., 2013; Smith et al., 2011) explicitly reported theoretical frameworks, including social cognitive theory (Bandura, 1986), Self-Determination Theory (Deci & Ryan, 2000), and empowerment models (Anderson & Funnell, 2010). These frameworks emphasise self-efficacy, motivation, and peer influence, which align with the hypothesised processes through which social support enhances glycaemic control. However, the lack of consistent theoretical grounding in most studies limits the ability to link specific support components to outcomes, underscoring the need for theory-driven intervention design in future research.

Although this review did not explicitly assess equity dimensions, its cross-contextual scope, which includes studies from both high-income and low- and middle-income countries, provides valuable insight into how social support functions across diverse health system contexts. A small number of interventions demonstrated some level of cultural adaptation, for example by incorporating locally relevant dietary advice or peer facilitators who shared participants' cultural backgrounds. However, the predominance of studies from high-income settings and the limited systematic reporting of such adaptations highlight an ongoing research gap. These findings conceptually align with global and national policy priorities, such as the WHO Global Report on Diabetes (Roglic, 2016), the NHS Long Term Plan (NHS England, 2019), and UK clinical guidelines (e.g., NICE, 2026), which call for structured education and community-based support tailored to under-represented and high-risk groups. Future research should integrate equity and cultural adaptation frameworks to ensure that social support interventions are contextually appropriate and accessible across diverse populations.

4.1 Effect of social support on HbA1c:

All the interventions identified had a statistically significant pooled effect on HbA1c, with a mean difference of −0.40. Despite the evident efficacy, there was substantial heterogeneity among the studies. However, assessments for publication bias, including Egger's and trim-and-fill tests, suggested robustness in the results, indicating no significant influence of publication bias (Egger et al., 1997; Shi & Lin, 2019). The consistency of the findings was further reinforced by the GOSH analysis, which mirrored the primary effect size across multiple iterations (Olkin et al., 2012). This positive effect was consistent with previous systematic reviews that assessed the effect of HbA1c in T2D social support interventions (Baig et al., 2015; Dale et al., 2012; Finfgeld-Connett, 2005; Pamungkas et al., 2017; Patil et al., 2016; Zhang et al., 2016). This positive effect on glycaemic control can be explained by social support being a main source of encouragement for lifestyle changes that lead to better T2D self-management (El-Radad et al., 2022).

Social support has wider implications, and it has been shown to be positively correlated with improved quality of life (Tang et al., 2008), self-care behaviours (Mohebi et al., 2018), self-efficacy and adherence to treatment (Shao et al., 2017), and reduced diabetes-related distress (Young et al., 2020). Despite these positive associations, it is crucial to acknowledge the complexity of its effects on diabetes management, particularly regarding HbA1c levels. Notably, a recent study found no improvement in HbA1c levels attributable to social support (El-Radad et al., 2022). This divergence was mirrored in this meta-analysis as 13 studies showed no significant effect. The discrepancy in these results could be attributed to the use of distinct operational definitions for social support (Chlebowy & Garvin, 2006), and the diverse methodologies and intervention types employed in different T2D social support studies.

Furthermore, while the influence of friends and family support is a strong indicator of effective T2D management, it is imperative to consider other predictive factors. Gender, educational background, the duration of diabetes, and the level of diabetes empowerment also play critical roles in management outcomes (Habibi Soola et al., 2022). Additionally, the effectiveness of social support in yielding positive outcomes may also be linked to the baseline HbA1c levels of the patients (Qi et al., 2015). This multifactorial influence makes it challenging to isolate the specific components of social support that contribute to improved HbA1c levels. Therefore,

while social support has been shown to positively influence HbA1c, its role is complex and requires further investigation.

Taken together, these findings highlight key lessons for intervention design and future trials. Interventions with limited duration, small samples, or inadequate intensity may fail to show measurable effects, suggesting that sufficient follow-up and statistical power are crucial for capturing change in HbA1c. Tailoring interventions to patient characteristics, such as baseline HbA1c, diabetes duration or level of empowerment, may enhance responsiveness and ensure that support is both relevant and effective. Equally important is the consistent use of clear operational definitions of social support, which would improve comparability across studies and help isolate the most effective components. Embedding these elements into future trials can strengthen the evidence base and support the translation of social support interventions into reliable, scalable tools for improving glycaemic control in real-world settings.

4.2 Social support components:

This meta-analysis assessed the identified studies based on the four social support components (tangible, informational, emotional, and appraisal support). The multilevel modelling approach revealed no significant moderation by the number of components of social support used, nor by the type of support provided, whether tangible, informational, emotional, or appraisal. More specifically, the lack of a moderation effect of the number of components on HbA1c levels ($\chi^2(1) = -0.01$, $p = .919$) suggests that the quantity of support components is not as critical. One explanation for this may be the substantial overlap in intervention content, with 26 of the 27 studies incorporating informational support. This homogeneity restricted the ability to isolate the effects of individual components. Alternatively, it is possible that the quality of support delivery, such as whether the information is tailored, engaging, and responsive to patient needs, is more important than the number or type of components (Al-Dwaikat et al., 2021). This interpretation aligns with evidence that meaningful and contextually relevant support is directly linked with improved diabetes management, whereas frequency or breadth of support alone may be insufficient (Schiøtz et al., 2012; Qi et al., 2015).

Additionally, the absence of significant effects of individual components of social support (tangible, informational, emotional, and appraisal) indicates that no single type of support stands out as a key factor in improving glycaemic control. This finding challenges the

assumption that a multifaceted social support strategy is necessarily required in managing T2D, although evidence suggests that essential disease management information, coping mechanisms, and emotional support can collectively mitigate stress and enhance treatment adherence, thus facilitating the incorporation of care into daily routines and promoting stable glucose control (van Dam et al., 2005). It is also possible that the effect of social support on HbA1c levels is at least partially mediated through these psychosocial and behavioural factors (Stopford et al., 2013), making it difficult to detect direct effects of individual components on glycaemic outcomes. These findings suggest that the effectiveness of social support interventions cannot be understood solely in terms of measurable clinical outcomes such as HbA1c. Instead, effectiveness should be viewed as a broader process that involves behavioural engagement, contextual fit, and the sustainability of support over time.

4.3 Limitations:

A key limitation was the potential misclassification of social support components due to ambiguous intervention descriptions in some studies. For instance, family- or peer-based interventions may have included unreported emotional or appraisal support, complicating accurate coding and potentially underestimating the impact of specific components. This limitation has important ramifications for interpreting the findings, particularly regarding the effectiveness (or lack thereof) of different support types.

The analysis focused exclusively on HbA1c levels as the primary outcome. This focus was chosen to ensure consistency and comparability across studies, as HbA1c is the most widely used and standardised measure of glycaemic control. However, this meant excluding other relevant outcomes, such as fasting blood glucose, insulin sensitivity, self-care behaviours, diabetes-related distress, and quality of life, which are critical for capturing the broader impact of social support (Young-Hyman et al., 2016; Chrvala et al., 2016). Future meta-analyses should incorporate these outcomes to provide a more comprehensive view of social support mechanisms (Hill-Briggs et al., 2021; Feeney & Collins, 2014).

The inclusion of a diverse range of social support interventions provided a broad overview but complicated the identification of the most effective components within each type of intervention. This challenge was compounded by the lack of consistency in reporting intervention procedures and methods, limiting the ability to move beyond broad categories of

social support. High heterogeneity and limited theoretical and equity reporting reduce the interpretability of pooled results. The predominance of informational components may have obscured differential effects of emotional or tangible support, pointing to a need for balanced and theory-driven designs. Focusing on specific types of social support interventions in future research may allow for clearer identification of the elements that contribute most significantly to diabetes management. Together, these limitations emphasise the need for more targeted, clearly reported, and comprehensive studies to fully understand the complex dynamics of social support in T2D management.

Despite these limitations, this meta-analysis demonstrates several methodological strengths. It represents the first application of multilevel meta-analysis to social support interventions in T2D, incorporated studies from both low- and middle-income and high-income country contexts, and employed rigorous bias and heterogeneity testing (Egger's test, trim-and-fill, and GOSH). Furthermore, the review was protocol-registered (Madroumi et al., 2024) and PRISMA-aligned (Page et al., 2021), enhancing its transparency and reproducibility.

4.4 Implications for future research:

Many factors influence the impact of social support in T2D management (van Dam et al., 2005; Habibi Soola et al., 2022; Qi et al., 2015). To effectively detect the efficacy of social support, it is crucial for future research to control for risk factors that might obscure its true effect on diabetes management and to establish standardised intervention protocols that detail the specific activities and interactions involved. Equally important is the use of consistent theoretical frameworks that clearly present the four main forms of support (tangible, informational, emotional, and appraisal) to allow for more precise assessment of their effectiveness.

Despite this, only four of the 27 interventions identified in this review (Assah et al., 2015; Haltiwanger, 2012; Lorig et al., 2009; Lujan et al., 2007) incorporated participants' input into the design of interventions. Although participant involvement was not a central focus of the present findings, future research should more systematically incorporate public and patient involvement (PPI) to enhance intervention relevance and effectiveness by ensuring that social support components reflect patient needs, priorities, and lived experiences (McCoy & Theeke, 2019). Incorporating PPI could also strengthen the use of feedback mechanisms within

interventions, where formative feedback is used to monitor patient progress throughout the programme and summative feedback is used to evaluate outcomes against established standards. Together, these approaches would provide more robust evidence on the effectiveness of each social support component and contribute to the development of tailored interventions that more effectively support T2D management (Wang et al., 2019; Hardavella et al., 2017).

5. Conclusion

This review indicates that social support interventions generally improve HbA1c in T2D management, with a pooled mean difference of −0.40. However, the absence of significant moderation by specific support types suggests that no single component is consistently superior. Importantly, this does not imply that all forms of support are equally effective or interchangeable. Instead, the effectiveness of informational, emotional, tangible, and appraisal support is likely shaped by patient needs, cultural contexts, and the quality of delivery. These findings highlight the complexity of social support as a context-dependent phenomenon and point to the importance of designing tailored interventions that address these nuances. Future research should aim to standardise intervention protocols, apply consistent theoretical frameworks, and incorporate patient and public involvement to better capture the mechanisms through which different forms of support contribute to effective T2D management. Collectively, these findings support global policy ambitions for integrated and person-centred diabetes care. Embedding culturally responsive, theory-informed, and co-produced social support interventions could enhance equity in outcomes and help translate behavioural science into scalable clinical and community practice.

Data Availability:

The dataset supporting the findings of this study has been deposited in the Liverpool John Moores University repository (7926) and can be accessed via DOI: https://opendata.ljmu.ac.uk/id/eprint/215/

Section B - Empirical Qualitative Research (Studies 1–4)

Chapter 3: Methodology (qualitative studies 1-4)

1. Chapters Aims:

The preceding chapter presented a multilevel meta-analysis evaluating the effectiveness of social support interventions for T2D management. The findings demonstrated an overall significant reduction in HbA1c across interventions, confirming that social support can contribute to improved glycaemic control. However, the analysis also revealed substantial heterogeneity and found no evidence that specific support components or their number moderated the effect. These results suggest that the effectiveness of social support is shaped less by the type or quantity of support provided and more by contextual factors, delivery processes, and the way support is experienced within everyday relationships.

To address these limitations, the research programme moves from outcome focused evaluation to an in-depth exploration of lived experience. Qualitative inquiry enables examination of the relational, cultural, and contextual processes that shape how social support is perceived, delivered, and responded to in everyday settings. This shift therefore represents a necessary extension of the meta-analytic findings, allowing investigation of the mechanisms underlying the observed variability in intervention effectiveness and providing a more comprehensive understanding of social support as a dynamic and context dependent process.

This chapter outlines the methodological framework used to investigate how social support is understood and experienced in the management of T2D across two national contexts, Morocco and the United Kingdom. It describes the qualitative approach adopted to capture the perspectives of both health professionals and individuals living with T2D, enabling detailed exploration of experiences, interpretations, and relationships. The chapter focuses on the research design, participant recruitment, data collection procedures, and analytic strategy used across the four studies, providing the foundation for the findings presented in the subsequent chapter. The aim is to explain how the research was conducted to examine how support is perceived, delivered, and responded to in everyday settings, rather than to quantify it. The chapter therefore includes four studies:

- Study 1 - Morocco: Health-professional perspectives.
- Study 2 - Morocco: People living with T2D perspectives.
- Study 3 - UK: Health-professional perspectives.

- Study 4 - UK: People living with T2D perspectives.

2. Methodological orientation & reflexivity

This methodology section was structured in accordance with the Journal Article Reporting Standards for Qualitative Research (JARS–Qual) to ensure transparency, rigour, and alignment with best practices in qualitative reporting (APA, 2024). It allowed for attention to context, supported comparison across settings, and aligned with the study's philosophical commitment to understanding meaning in relation to social and cultural practice.

3. Ontological and Epistemological Positioning

This research adopts a constructivist epistemology and a relativist ontology, reflecting the assumption that reality is socially produced through interaction, language, and culture rather than existing as a single objective truth. Knowledge is therefore understood as co-constructed between researcher and participants within specific cultural and relational contexts. This philosophical stance aligns with the interpretivist paradigm underpinning the research, which seeks to understand meaning rather than to measure it. It also acknowledges that while participants' experiences of T2D have real material and emotional consequences, the ways these experiences are interpreted and expressed are shaped by social norms and cultural expectations. Reflexivity about how these assumptions influenced data collection and interpretation is revisited at the end of chapter 6.

This research was informed by a constructivist epistemology and a relativist ontology. From this position, knowledge is not treated as a neutral reflection of an objective social reality, but as something produced through language, interaction, context, and interpretation. A relativist ontology was appropriate because the study did not assume that social support had one fixed meaning across participants or settings. Instead, it assumed that what counted as helpful, intrusive, acceptable, or effective support could vary according to role, culture, relationships, and healthcare context. These assumptions shaped the study design in several ways. They supported the use of semi-structured interviews to explore how participants themselves understood and experienced support, and they aligned with an analytic approach that focused on meaning-making rather than factual verification. They also informed the decision to compare datasets across Morocco and the UK, not to identify one objective model of support, but to examine how support was constructed and negotiated differently across settings.

Alternative epistemological positions, such as positivist or post-positivist approaches, which assume a more stable and measurable social reality, were considered less appropriate for this research. These approaches would prioritise measurement and generalisability over the exploration of meaning and context, which did not align with the study's aim to understand how social support is experienced, interpreted, and negotiated in everyday life. The constructivist–relativist position was therefore adopted to enable a context-sensitive and interpretive understanding of social support across cultural settings.

4. Research Design Overview

These PhD qualitative studies were informed by an interpretivist paradigm, which assumes that knowledge is constructed through social interaction and shaped by context (Schwandt, 1994). This philosophical orientation aligned with the research focus on how people give meaning to support in culturally specific and relationally embedded ways. It also supported the use of open-ended inquiry, which enabled participants to describe their experiences and make sense of what social support means in their own terms.

A multiple case study design was used to organise the research. Each dataset was treated as a separate research study: (1) health professionals in Morocco, (2) people living with T2D in Morocco, (3) health professionals in the United Kingdom, and (4) people living with T2D in the United Kingdom. The empirical research underpinning this PhD portfolio comprises four interconnected qualitative studies. Each study was conducted and analysed independently, yet together they offer opportunities for comparative insight and synthesis across national and professional perspectives. This design allowed for both within-case analysis and cross-case comparison, supported by the consistent application of reflexive thematic analysis. This comparative design required an analytic approach capable of identifying patterns across multiple datasets and participant groups, which differs from Interpretative Phenomenological Analysis that typically focuses on detailed idiographic exploration within small, homogeneous samples (Smith et al., 2009).

Interview questions discussed the meaning of social support and what is effective about the four components of social support across all interviews. Each interview schedule was structured around the same core aims: exploring the meaning and perceived effectiveness of the four components of social support in diabetes care, while adaptations were made to account

for language, cultural nuance, and participant role (health professional vs. person living with T2D). The combination of a multiple case study design with reflexive thematic analysis was particularly well suited to research questions seeking to understand lived experience, meaning making, and the influence of relational and cultural contexts.

Reflexive thematic analysis, as described by Braun and Clarke (2006, 2021), is one of the most widely used methods in qualitative health research. It allows researchers to identify and interpret patterns of meaning across a dataset while acknowledging that themes do not passively emerge but are actively constructed by the researcher. Unlike other approaches that focus on consensus or coding reliability, reflexive thematic analysis views subjectivity as a resource rather than a problem, making it especially suitable for research grounded in interpretivist and constructivist paradigms (Clarke & Braun, 2018). The method also allows for a balance between descriptive and interpretive analysis, depending on the research aim and the level of abstraction chosen (Nowell et al., 2017). Its flexibility, transparency, and accessibility have made it popular in applied disciplines, including health psychology, nursing, and public health.

In the context of this PhD, reflexive thematic analysis was particularly useful for identifying both common patterns of support that work across groups, and differences between health professionals and people living with T2D, as well as between the Moroccan and UK contexts. This enabled a deeper understanding of how culture and healthcare systems shape the meaning, provision, and effectiveness of social support in diabetes care.

The use of a comparative qualitative design allowed for a structured yet contextually grounded comparison across different participant groups and national settings. Such an approach is particularly valuable when the boundaries between a phenomenon and its context are not clearly defined, and when the aim is to understand how experiences are shaped by social, cultural, and healthcare environments (Green & Thorogood, 2018). In this research, each participant group was defined by a combination of role (health professional or person living with T2D) and country (Morocco or the United Kingdom). This design supported an in-depth understanding of social support within each group and provided a clear framework for comparing similarities and differences across roles and settings. Learning from these patterned similarities and contrasts enabled the development of broader insights into how social support operates across contexts.

This combined approach is increasingly used in qualitative research on chronic illness, where individual experience is shaped by social networks, healthcare systems, and cultural expectations (Green & Thorogood, 2018). In this study, thematic analysis within each participant group enabled an in-depth exploration of participants' experiences, while comparative analysis across groups highlighted recurring themes and context-specific differences. Together, this integration of reflexive thematic analysis and a comparative qualitative design provided a flexible, rigorous, and culturally sensitive framework that supported analytic depth, conceptual transferability, and attention to context, consistent with the study's interpretive aims.

5. Researcher description:

In qualitative research, the researcher is not a detached observer but an active instrument in the generation, interpretation, and representation of data (Lincoln & Guba, 1985; Finlay, 2002). This study was shaped by my positionality as a bilingual Moroccan male researcher, trained in health psychology and based in the United Kingdom. My cultural, linguistic, and academic background informed the research process and inevitably influenced data analysis and interpretation.

My motivation to undertake this work stemmed from both professional and personal interests in the psychological and social dimensions of long-term health conditions. Having previously completed a master's in health psychology and conducted an extensive review of the literature on social support, I became increasingly aware of the mismatch between how social support is conceptualised in theory and how it is experienced and defined by people living with T2D and health professionals in everyday contexts. This recognition prompted me to explore social support not as a fixed intervention, but as a relational process shaped by context, identity, and culture.

6. Participant Selection:

The decision to conduct the study in Morocco and the UK was guided by the value of comparing two different cultural and healthcare contexts. Morocco reflects a more collectivist, family-centred setting where informal networks play a major role in supporting people with long-term conditions, whereas the UK represents a more individualist context with formalised

diabetes pathways and clearer professional boundaries (Hofstede, 2001; Leong et al., 2022). Including participants from both settings allowed the study to explore how these contrasting relational norms and healthcare structures shape the forms and meanings of social support.

The choice of countries also informed the selection of participants. Health professionals and people living with T2D were recruited in both Morocco and the UK to ensure representation across roles and contexts. This structure made it possible to compare experiences within each setting and across the two countries. The researcher's cultural knowledge, language skills, and professional links in both settings further supported recruitment, ethical access, and meaningful engagement with participants. The way these contextual differences informed the analysis is outlined in the analysis section.

7. Participants Inclusion Criteria:

a. People Living with T2D

Inclusion criteria for participants included being over the age of 18, having a formal diagnosis of T2D, and having lived with the condition for at least one year. The one-year threshold was chosen to ensure that participants had sufficient experience of managing diabetes in everyday life, allowing them to provide reflective insights into the role of social support In Morocco, participants also needed to be able to provide written informed consent and to communicate in Moroccan Arabic (Darija) or French; interviews were conducted in the participant's preferred language.

b. Health Professionals:

Inclusion criteria for health professionals required being over the age of 18 and currently working in a role that involves providing care or support to people living with T2D. Eligible participants included doctors, nurses, dietitians, psychologists, and other allied health professionals engaged in diabetes management within either primary or secondary care. A minimum of one year's experience in diabetes care was considered necessary to ensure participants could provide reflective accounts of their practice and interactions with patients. As with people living with T2D, health professionals in Morocco were also required to provide written informed consent and to be able to communicate in Moroccan Arabic (Darija) or French; interviews were conducted in the participant's preferred language.

8. Participant Recruitment

This study aimed to recruit around 20 to 25 participants per group. This aligns with qualitative research practices that often suggest flexible ranges rather than fixed thresholds, commonly between 5 and 30 participants per group (Wutich et al., 2024). While the principle of information power (Malterud, Siersma, & Guassora, 2016; Sirwan, 2025) was considered in contexts where recruiting patients was more challenging, the approach taken here is congruent with Braun and Clarke's (2019) Reflexive Thematic Analysis. Specifically, a decision to stop recruitment was guided not by saturation understood as repetition or frequency, but by a qualitatively driven rationale for sampling adequacy, prioritising the relevance, depth, and richness of the data in relation to the study's objectives. This perspective reinforces Braun and Clarke's (2021) rejection of saturation and their emphasis on generating rich meaning rather than pursuing numerical sufficiency.

Purposive sampling was used across all four studies to recruit participants who could provide information-rich accounts of social support in T2D management. In operational terms, this involved selecting participants based on their role (e.g. health professionals, people living with T2D), their level of experience, and their position within different healthcare and community contexts across Morocco and England. This approach was used to capture variation in how social support is understood, delivered, and experienced across settings. Recruitment was conducted iteratively, with ongoing reflection on sample composition to ensure sufficient diversity and depth in relation to the research questions. Consistent with qualitative research principles, the aim was not statistical representativeness, but to generate rich, contextually grounded insights. Examples of recruitment materials used in both settings are provided in Appendix 3.5.

a. Recruitment Process in Morocco:

Participants in Morocco were recruited through established collaborations with the endocrinology and diabetes services at Mohamed VI University Hospital in Marrakech. Health professionals were approached directly via hospital departments, with information sheets distributed by department leads who acted as gatekeepers.

People living with T2D were recruited during routine clinic visits, where healthcare staff introduced the study and referred interested patients to the researcher for further information.

Potential participants were provided with an information sheet outlining the purpose of the study, their rights, and what participation would involve.

Recruitment was guided by the purposive sampling strategy outlined above, with efforts made to ensure variation in professional roles and patient demographics. All participants were informed that participation was voluntary, that they could withdraw at any stage without consequence, and that their responses would remain confidential. Written informed consent was obtained prior to each interview. All participants were given at least 24 hours to decide whether they wished to take part.

b. **Recruitment Process in the UK:**

The study was conducted in Liverpool, Northwest England, and included both health professionals and people living with T2D. Health professionals were recruited through professional and community networks through purposive sampling, with efforts made to capture a range of roles and levels of experience in diabetes care, including general practitioners, nurses, pharmacists, and allied health professionals. This approach allowed for variation in perspectives across different points of the care pathway.

People living with T2D were primarily recruited through gatekeepers in community health organisations and diabetes support projects, who introduced the study and shared information sheets with potential participants. Recruitment was supplemented by advertisements on LinkedIn and X (formerly Twitter) and through community-based initiatives, including the Everton Football Club community centre and the Walton Road community hub in Liverpool.

Potential participants were provided with an information sheet outlining the purpose of the study, their rights, and what participation would involve. Those who expressed interest were invited to contact the researcher directly to discuss the study further and arrange an interview. All participants were reminded that their involvement was voluntary, that they could withdraw at any stage without consequence, and that their data would be treated confidentially. Written informed consent was obtained before participation. All participants were given at least 24 hours to decide whether they wished to take part.

9. Ethical Approval

Ethical approval for the study was obtained from the Liverpool John Moores University Research Ethics Committee (Code: 23/PSY/065 for UK studies and Code: 23/PSY/047 for Morocco studies). In Morocco, additional approval was granted by the Research Ethics Committee at Mohamed VI University Hospital (Code: 44/2023). All participants received information about the study and provided written informed consent prior to participation; copies of the consent forms and participant information sheets for all four groups are included in appendix 3.2 and 3.3.

10. Data management & confidentiality

To protect participants' confidentiality, interviews were anonymised at the point of transcription, with pseudonyms used throughout the dataset. Audio files were stored on a password-protected recording device and promptly transferred to the LJMU OneDrive, a secure, institutionally managed platform requiring an LJMU username and password for access. Once transcribed, audio files were deleted from the recording device. Consent forms were scanned and uploaded securely, with physical copies destroyed.

All data handling adhered to GDPR and the Data Protection Act (2018). Only the principal investigator and supervisory team had access to identifiable data. Final anonymised transcripts were prepared for analysis and, in line with LJMU ethics guidance, will be retained for a minimum of five years after publication. Selected anonymised quotes will be used in dissemination, with precautions taken to avoid indirect identification of participants.

11. Data Collection

Semi structured interviews were used to explore participants' experiences and perspectives on social support in T2D. This method allows in depth exploration of personal meanings while remaining flexible to issues introduced by participants, making it well suited to interpretivist research focused on contextually embedded experiences (Green & Thorogood, 2018).

Focus groups were considered but not used because the study addressed potentially sensitive topics, including illness management, family relationships, and professional practice. Individual interviews provided a confidential setting that enabled participants to speak openly without concerns about disclosure or power dynamics within a group, particularly given the inclusion of both health professionals and people living with T2D (Krueger & Casey, 2015).

Interviews lasted approximately 60 minutes, were audio-recorded with consent, and transcribed verbatim. Field notes were taken during and after interviews to support reflexivity and aid the analytic process.

The interview schedule was developed through an iterative process informed by the literature on social support, chronic illness management, and T2D, drawing particularly on House's (1981) four-component model (informational, emotional, tangible, appraisal). The interview guide was designed to explore how social support in T2D management was understood, delivered, received, and sustained in everyday life and practice. House's (1981) four-component model informed the guide as a sensitising framework, providing a structured way to explore different forms of support (informational, emotional, tangible, and appraisal) across interviews. However, the guide was not intended to impose these categories onto participants' accounts. Instead, questions were framed using open-ended prompts that allowed participants to describe their experiences in their own terms, including aspects of support that extended beyond House's framework. Alongside prompts that invited reflection on House's four components, the guide explicitly opened space for participants to discuss identity, cultural expectations, continuity of relationships, and any aspects of support they considered important but not captured by these categories.

Draft questions were refined through discussions with the supervisory team and shaped by early engagement with the study contexts. The schedule was piloted with two individuals (one in each country) to assess clarity, cultural relevance, and flow; minor adjustments were made based on this feedback to ensure accessibility and sensitivity.

Given the cross-cultural nature of the research, the interview guide was prepared initially in English and then translated into Moroccan Arabic (Darija) using a meaning-focused approach rather than direct linguistic equivalence. Back-translation was conducted informally with bilingual colleagues to ensure conceptual consistency across languages. Interviews were conducted in the participant's preferred language (English, Darija, or French). Copies of the interview schedules in all languages are provided in appendix 3.4.

a. **Data Collection in Morocco**

In Morocco, interviews were conducted primarily in person at Mohamed VI University Hospital in Marrakech, either within hospital offices or in quiet spaces identified by department staff. Where appropriate, alternative public settings were agreed with participants to ensure

privacy and comfort. Interviews were conducted in Arabic or French, according to participant preference, and later translated into English for analysis. Interview duration in Morocco was consistent with the overall study average of approximately 60 minutes across both participant groups.

b. **Data Collection in the UK**

In the UK, interviews were carried out both face-to-face and online via Microsoft Teams, depending on participant preference and availability. Face-to-face interviews took place in neutral, accessible community venues such as the Everton in the Community centre or the Walton Road hub in Liverpool. All interviews were conducted in English and followed the same interview schedule as in Morocco, while allowing flexibility to explore culturally specific issues that emerged during the discussion. Interview duration in the UK was similarly aligned with the overall study average of around 60 minutes for both health professionals and people living with T2D.

c. **Recording and Data Transformation**

All interviews were audio-recorded and transcribed verbatim. Where necessary, transcripts were translated into English to enable cross-case analysis across datasets. In Morocco, interviews were conducted in Arabic using the local Darija dialect and, in some cases, French. These interviews were transcribed and then translated into English. Translation accuracy was ensured through review by a bilingual Moroccan researcher based at the LJMU School of Engineering, who was originally from Marrakech. His linguistic and cultural familiarity with the local context supported accurate interpretation of regional expressions, metaphors, and culturally embedded meanings. In the UK, interviews were conducted in English and did not require translation prior to analysis.

12. Analytic Overview: From Inductive Findings to Theory-Informed Synthesis

Before describing the analytic approach in detail, it is important to set out the overall analytic plan across the research programme so that the reader understands how the different stages of analysis connect and where they are reported. The full analytic process unfolded across three phases, illustrated in Figure 5 below.

Phase 1: Empirical Research

This phase involved conducting the four independent qualitative studies, each analysed separately using inductive reflexive thematic analysis following Braun and Clarke's (2006, 2021) six-phase process. The raw interview data from each study were coded and developed into themes entirely through data-driven, bottom-up engagement. No theoretical framework was applied to the transcripts at this stage, and no pre-existing thematic structure was imposed. The methodology underpinning this phase is described in detail in sections 13 and 14 below, and the resulting inductive findings are reported in Chapter 4.

Phase 2: Higher Order Analysis

The second phase took place after all four studies were complete and is reported in Chapter 5. It comprised two sequential steps. The first was a higher-order synthesis, in which the results and themes from all four studies were examined side by side to identify patterns that consistently appeared across participant groups and national contexts. Through this iterative comparison, identity emerged as the central organising mechanism through which social support was understood, enacted, and sustained across all four studies. This was not a pattern anticipated in advance; it surfaced through the synthesis itself and is presented in Chapter 5 as the master theme. The second step was a cross-case synthesis, which built on the master theme by examining how identity and role played out differently across the UK and Morocco, exploring similarities and contrasts between the two national contexts in terms of cultural norms, relational expectations, and healthcare structures. Together, these two steps form Section A of Chapter 5.

Phase 3: Programme Level Analysis

The final phase also reported in Chapter 5, involved applying the COM-B model (Michie et al., 2011) as an interpretive lens to the synthesised findings from Phase 2. This was not a deductive analysis, and the COM-B framework was not used to code or re-analyse the original transcripts. Rather, it was applied at the programme level to the already-generated inductive themes and cross-case patterns, using its three components, capability, opportunity, and

motivation, to map overarching behavioural mechanisms and add theoretical coherence to the integrated findings. This phase culminated in a higher-level discussion and the introduction of the Social Support Consistency Model, forming Section B of Chapter 5. This approach is consistent with Braun and Clarke's (2006, 2020) articulation of reflexive thematic analysis as theoretically flexible, where existing theory can legitimately inform interpretive synthesis after inductive coding without compromising the data-driven foundation of the original analysis. It also mirrors established practices in health behaviour research, where inductive reflexive thematic analysis is first used to generate themes which are then mapped onto COM-B for synthesis and intervention relevance (Shpendi et al., 2024; Roche et al., 2022; Patterson et al., 2023).

Together, these three phases form a coherent and defensible analytic strategy that moves from rich inductive findings within each study, through programme-level synthesis and the emergence of identity as a master theme and cross-case comparison, to a theoretically informed higher-order integration using COM-B. Figure 6 illustrates this full analytic process.

Figure 5: *Programme-level analytic process: inductive reflexive thematic analysis, cross-case synthesis, and COM-B-informed integration.*

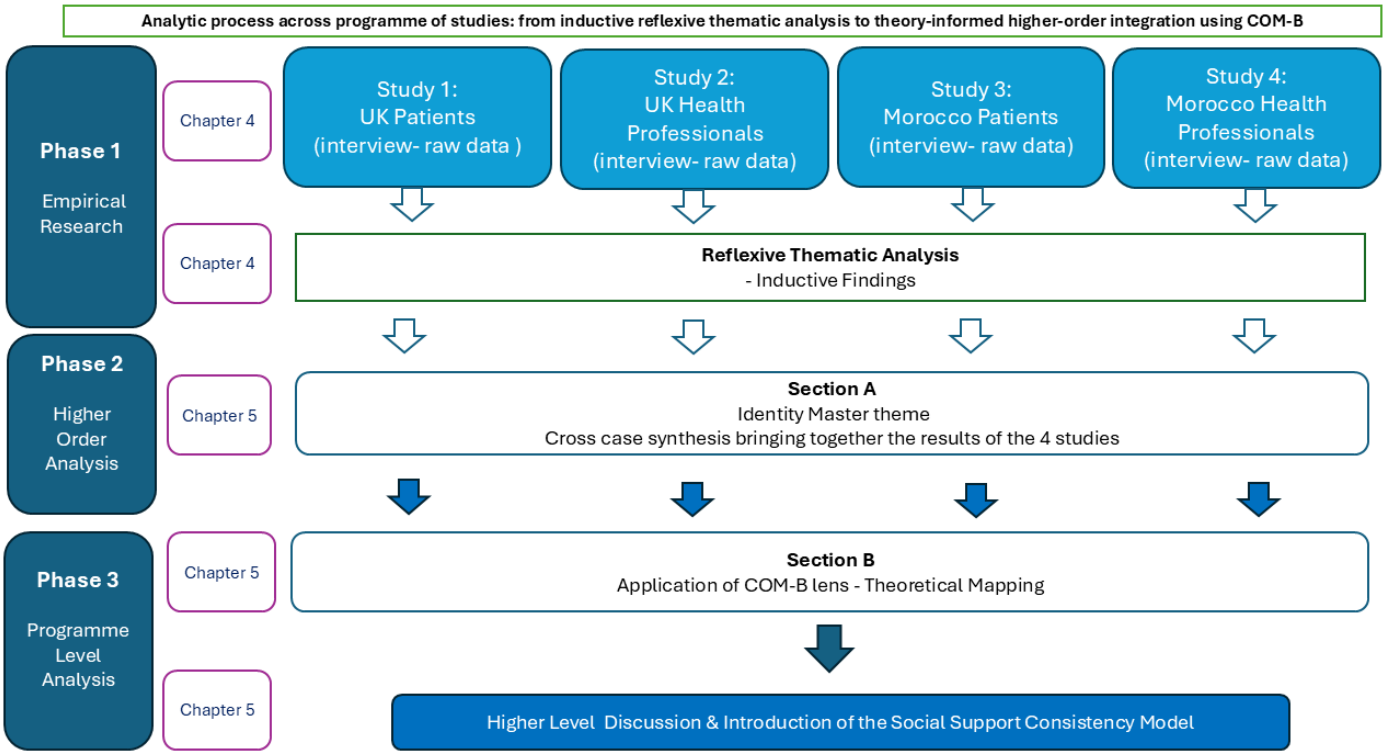


Figure 5: Programme-level analytic process: inductive reflexive thematic analysis, cross-case synthesis, and COM-B-informed integration.

13. Phase 1 Analysis: Reflexive Thematic Analysis

a. Data-Analytic Strategies

As outlined above, Phase 1 involved analysing each of the four datasets independently using Reflexive Thematic Analysis, following the six-phase process outlined by Braun and Clarke (2006, 2021). This approach was chosen because it is rigorous yet flexible, allowing examination of both semantic content and more latent, conceptual patterns within the data. The aim was not to generate consensus-based coding outputs but to develop interpretive themes that captured patterned meanings across participants' accounts while remaining sensitive to cultural and relational context.

The analysis was inductive and data-driven throughout. No fixed coding framework or pre-defined thematic structure was applied to the raw transcripts, and coding and theme development remained iterative, allowing patterns of meaning to be constructed through sustained engagement with the data. Coding began with close reading of each transcript and the production of initial codes that reflected both semantic content and early interpretive observations. Although the interview guide had been informed by House's (1981) framework, coding was not restricted to those four categories. In practice, codes captured issues such as identity, role expectations, trust, continuity, and relational fit, patterns that became increasingly important as theme development progressed. The final themes were developed through interpretive engagement with the data, allowing identity, relational dynamics, and contextual influences to take analytic priority.

Themes were generated through iterative engagement with the data, codes, field notes, and reflexive memos. The analysis moved back and forth between within-case interpretation and cross-case comparison across the four datasets, allowing both shared mechanisms and contextual differences to be identified. Reflexivity formed part of this process throughout, particularly in considering how my cultural and linguistic familiarity with Morocco, and my training in health psychology, shaped what I noticed, how I interpreted emotionally and culturally embedded practices, and how I made sense of differences between the Moroccan and UK datasets.

b. Methodological Integrity

Reflexive Thematic Analysis required me to remain open to divergent interpretations and to resist imposing coherence too early, holding space for multiple possible readings of participants' accounts and revisiting assumptions as the analysis developed. To enhance interpretive rigour, I engaged in ongoing critical dialogue and reflexive engagement with my supervisory team, which prompted me to interrogate my coding decisions, surface unexamined assumptions, and refine my interpretations. Consistent with Braun and Clarke's (2019, 2021) articulation of reflexive thematic analysis, these conversations were not used to reach inter-coder consensus or to validate themes against an external referent, but to deepen my reflexive engagement with the data and to make my interpretive choices more defensible. Examples of these collaborative reflections are provided in the reflexivity section in Chapter 6. The use of NVivo software, alongside detailed reflexive memos, provided a transparent audit trail that supported the interpretive rigour and coherence of the analysis. Supporting examples of coding and memoing are provided in appendix 4.1 and 4.2.

14. Reflexivity in Analytic Decision-Making

Reflexivity was embedded throughout the analytic process and actively shaped key analytic decisions rather than being treated as a separate reflective exercise. My positionality as a bilingual Moroccan researcher trained in health psychology influenced how data were coded, interpreted, and synthesised across contexts. During initial coding, I remained attentive to moments where culturally normative practices, such as family involvement, emotional closeness, or professional boundary flexibility, could be misread as either supportive or intrusive depending on the analytic lens applied. Reflexive memoing was therefore used to interrogate assumptions about effectiveness, particularly when participants' accounts conflicted with dominant biomedical or Western models of diabetes care.

Reflexivity also informed decisions about theme construction and abstraction. Rather than privileging frequency or apparent consensus, analytic emphasis was placed on relational meaning and contextual function, even when practices appeared inconsistent across settings. This was particularly important during cross-case comparison, where similarities and differences between the Moroccan and UK datasets were interpreted in relation to healthcare structures, cultural expectations, and professional norms, rather than treated as deficits or deviations. Ongoing dialogue with the supervisory team functioned as a critical reflexive

resource, supporting challenges to early interpretations and ensuring that themes reflected both participant meaning and theoretically informed analysis. A more comprehensive reflection on the researcher's positionality and its influence on the research process is presented in the final reflective section of the thesis.

Analysis Phase 1: Empirical Research

Chapter 4: Empirical Findings (qualitative studies 1–4)

This chapter presents the empirical findings from Studies 1–4, which together address Objectives 2 and 3 of the thesis. Objective 2 sought to explore how social support for T2D management is experienced and enacted across different cultural and healthcare contexts, while Objective 3 aimed to identify the effective components of social support from the perspectives of both health professionals and people living with T2D. The four qualitative studies reported in this chapter examine these issues across two national settings (Morocco and the United Kingdom) and two stakeholder groups (health professionals and people living with T2D), enabling both within-context analysis and cross-case comparison. Collectively, these studies provide the empirical foundation for understanding how social support operates in practice and how its effectiveness is shaped by cultural norms, relationship dynamics, and healthcare structures.

4.1 Study 1 - Morocco: Health-Professional Perspectives

1. Overview

The findings from this qualitative study with health professionals working with people living with T2D in a hospital setting in Morocco generated five interconnected themes that illuminate how social support is understood and delivered within clinical practice. These themes are: 1) Responsibilities of Health Professionals, 2) Understanding of Social Support, 3) Relational Commitment and Going Beyond Formal Care, 4) Delivering and Adapting Knowledge in Diabetes Care, and 5) Relational and Emotional Foundations of Diabetes Care. Together, they reflect how clinical care is shaped by professional roles, relational engagement, and broader cultural expectations surrounding support.

Health professionals' core responsibilities (Theme 1) provide the structural foundation for care, anchoring how support is delivered within clinical settings. Their understanding of social support (Theme 2) shapes how care is interpreted and adapted to patient needs, highlighting its relational and context-dependent nature. Relational commitment (Theme 3) illustrates how professionals extend their roles beyond formal responsibilities to maintain continuity of care and address gaps in service provision.

Delivering and adapting knowledge (Theme 4) captures how professionals translate medical information into practical and accessible forms, tailoring communication to patients' abilities, social contexts, and family involvement. Finally, relational and emotional foundations of care (Theme 5) bring these elements together by highlighting how trust, empathy, and interpersonal dynamics underpin the effectiveness of all forms of support.

Across these themes, social support is presented as an integrated and relational process rather than a set of discrete components. Health professionals described combining clinical, educational, and emotional practices to support patients' adaptation to T2D, often navigating systemic constraints through personal initiative and relational commitment. Within Morocco's collectivist context, support was framed as both a professional responsibility and a shared social process, embedded in ongoing interactions between patients, families, and healthcare providers.

2. Participants description:

The sample consisted of seven intern doctors and six nurses, including one head nurse. The group included both men and women, with four women and three men among the doctors, and four women, one man, and one woman in the head nurse role among the nursing staff. Participants varied in their levels of experience, with intern doctors still in training and nurses reporting between one and ten years of practice. These characteristics provide important context for interpreting the findings. The predominance of early-career professionals may influence their inclination to extend their roles beyond formal duties, while the cultural diversity of Morocco, which likely included participants from Amazigh and Arab backgrounds,

may shape their emphasis on collectivist approaches to support. An overview of participant characteristics, including demographic and role-related information, is presented in Table 2.

Table 2: Participant Characteristics – Study 1: Morocco Health Professionals

Participant ID	Role	Gender	Setting	Years of Experience with T2D patients
P1	Intern Doctor	Male	Hospital	1
P2	Intern Doctor	Female	Hospital	1
P3	Intern Doctor	Female	Hospital	3
P4	Intern Doctor	Male	Hospital	1
P5	Intern Doctor	Female	Hospital	1
P6	Intern Doctor	Female	Hospital	3
P7	Intern Doctor	Female	Hospital	2
P8	Nurse	Female	Hospital	3.5
P9	Nurse	Male	Hospital	10
P10	Nurse	Female	Hospital	3
P11	Nurse	Female	Hospital	3
P12	Nurse	Female	Hospital	10
P13	Nurse	Female	Hospital	2

3. Theme 1: Professional Responsibilities and Capacity for Delivering Social Support

This theme illustrates how health professionals conceptualised and enacted their core clinical responsibilities in supporting people living with T2D. Participants described duties that centred on diagnosis, treatment, monitoring, and reassurance, reflecting the practical and relational foundations of diabetes care. These responsibilities established the conditions upon which more tailored educational and emotional support, explored in later themes, could be delivered.

Doctors emphasised responsibilities related to clinical oversight, including diagnosis, treatment planning, medication management, and monitoring patient progress. Participant 2 (Female, Intern Doctor) highlighted how adherence to treatment contributed to improved outcomes, stating, *"They usually report better sleep, less fatigue, less infections."* Doctors also played a central role in stabilising patients during hospitalisation. As Participant 4 (Male, Intern Doctor) explained, *"We give them the medication… make sure that the diet is done in a good way."* Continuity of care was equally important, with Participant 7 (Female, Intern Doctor) noting that doctors sometimes provided essential medication at discharge to support ongoing treatment. Emotional reassurance was also embedded within clinical interactions. Participant 6 (Female, Intern Doctor) described how distressed patients often reached out, stating, *"They always get in touch when they are distressed… we remind them of what we have educated them."*

Nurses played a complementary role focused on day-to-day care, medication administration, monitoring, and reinforcing key medical instructions. Their responsibilities reflected close and continuous contact with patients. Participant 9 (Male, Nurse) explained, *"We ensure they take their medications… and monitor their blood sugar levels."* Nurses also provided simplified explanations of essential procedures when needed, although the structured delivery of educational support is examined in Theme 4. As Participant 8 (Female, Nurse) summarised, *"We help him with the medication… and understand more about his disease."*

Across both roles, professionals reported challenges that shaped their capacity to deliver care. Time constraints were a prominent concern. Participant 3 (Female, Intern Doctor) reflected, *"You cannot give your patient a lot of time during the space of 3 hours where you must do many consultations,"* noting that opportunities for discussion varied depending on the clinical setting. Patient non-adherence also complicated care delivery. As Participant 9 (Male, Nurse) observed, *"You can inform and warn them about the risks, but ultimately, they have to make their own decisions."* Nurses additionally pointed to equipment limitations that affected their ability to reinforce treatment practices. Participant 11 (Female, Nurse) shared, *"Sometimes you want to help the patient and you do not have enough equipment… if we left every patient with one (monitoring device), this contributes to them learning how to face their sugar."*

In response to these constraints, some health professionals described extending their roles beyond formal responsibilities to ensure continuity of care. This included providing additional reassurance, reinforcing education outside structured interactions, and attempting to maintain engagement with patients despite limited time and resources.

Overall, doctors and nurses performed distinct yet interconnected responsibilities that ensured patients received consistent treatment, close monitoring, and relational support. These clinical duties provided the groundwork upon which more personalised and structured support could be delivered.

Interpretive analytical synthesis:

What emerges from these accounts is that professional responsibilities are not limited to biomedical care, but extend into social and relational domains in ways that are shaped by both systemic constraints and personal commitment. While formal responsibilities provide the structure for diabetes management, the ability to deliver effective social support depends on how professionals navigate limitations such as time pressure, resource shortages, and patient non-adherence. The extension of roles beyond formal duties suggests that gaps within the healthcare system are often addressed through individual initiative rather than structured support mechanisms. This creates a context in which the consistency of care is dependent not only on professional roles, but on the willingness and capacity of individuals to go beyond them. As such, social support in this setting appears to be both embedded within clinical responsibilities and contingent on the extent to which professionals are able to stretch these responsibilities in practice.

4. Theme 2: Understandings and Conceptualisations of Social Support

Health professionals recognised the importance of social support in diabetes management; however, their interpretations varied. Many associated it with emotional and psychological support, particularly from family members, while others reflected on its role in encouraging acceptance, behavioural change, and continuity of care.

Several doctors described support as context-dependent and closely tied to the patient's social environment. Participant 1 (Male, Intern Doctor) explained, *"It's different by case… a young diabetic… is not the same support as the patient who is diabetic at 60… for me, it's according to the profile of the patient."* Participant 2 (Female, Intern Doctor) emphasised the importance of family-based lifestyle change, noting, *"If I get a patient who brings his wife… I try to explain… they should both be eating healthy."* However, she also suggested that patients should develop independence, stating, *"I usually tell them they should not rely on anyone."* This reflects a tension between collective involvement and individual responsibility in how support is understood.

Others described social support as an alliance between doctors, patients, and families. Participant 3 (Female, Intern Doctor) reflected, *"We still support our patients psychologically… in an unconscious way… [but] I see social support as like an alliance."* This alliance was often built on empathy and trust. Participant 5 (Female, Intern Doctor) stressed, *"It's more like moral or psychological support… Once you establish trust… then the patient will listen."* These accounts highlight how understanding a patient's background and environment was seen as central to tailoring communication and fostering adherence.

Family was consistently identified as the most central source of support. Nurses such as participant 10 (Female, Nurse) and participant 8 (Female, Nurse) highlighted the emotional and practical roles families play in supporting patients. Participant 10 (Female, Nurse) stated, *"If the patient feels that his family supports him… the acceptance is better."* Similarly, participant 9 (Male, Nurse) noted, *"The most important thing in this support system is family and awareness."* Others, including participant 13 (Female, Nurse), pointed to the tangible support families provide at home, explaining, *"They help them… measure their sugar… help them take their medications."*

Importantly, many professionals recognised that social support extends beyond encouragement, shaping how patients live with and adapt to the condition. Participant 4 (Male, Intern Doctor) described diabetes as *"a pathology that we become friends with,"* reinforcing the long-term role of psychosocial adjustment. Nurses such as participant 11 (Female, Nurse)

and participant 12 (Female, Nurse) emphasised the importance of normalising the condition and reducing stigma, particularly for younger patients. As Participant 11 (Female, Nurse) explained, *"We should not let them feel that they have a burden… We show them they can live their lives just like everyone else."*

Health professionals viewed social support as extending beyond basic care, describing it as part of a collective effort to help individuals living with T2D make and sustain lifestyle changes. At the same time, they demonstrated limited awareness of distinct social support components (educational, tangible assistance, emotional, and appraisal support), suggesting that support was understood in broad and integrated terms rather than as clearly differentiated elements. There was also an emphasis on personal responsibility, where patients were expected to make efforts to accept the condition and adapt their behaviours, although these efforts were seen as requiring reinforcement from family and social environments.

Interpretive analytical synthesis:

What emerges from these accounts is that social support is understood as a relational and context-dependent process, deeply embedded in both cultural expectations and everyday interactions. While health professionals consistently recognise its importance, their interpretations remain broad and fluid, with support encompassing emotional reassurance, practical assistance, and behavioural guidance without clear differentiation between these elements. This integrated understanding reflects the collectivist context in which care is situated, where responsibility is shared across professionals, families, and patients. At the same time, the tension between encouraging independence and relying on collective support highlights the complexity of translating these understandings into practice. The lack of explicit conceptualisation of different support components suggests that support is enacted intuitively rather than systematically, which may contribute to variability in how it is delivered across settings and individuals.

5. Theme 3: Relational Commitment and Going Beyond Formal Care

This theme explores how doctors and nurses extended their roles to offer support that went beyond formal clinical duties. Their actions reflected a strong sense of responsibility and empathy, often addressing gaps in diabetes care through personal initiative and relational commitment.

Doctors described maintaining contact with patients outside working hours, particularly through phone calls and messaging. Participant 2 (Female, Intern Doctor) shared, *"I usually take the phone number of patients… and try to message them every two or three days."* This follow-up allowed for real-time adjustments to treatment and reminders about measurements or appointments. Similarly, participant 3 (Female, Intern Doctor) reported using WhatsApp to support patients remotely, stating, *"We follow-up with them through messages… to either check their monitoring or send adjustments."* Several doctors highlighted that these efforts were voluntary and often directed towards patients with limited resources or those living far from the hospital. Participant 1 (Male, Intern Doctor) explained, *"We try to do good for some patients… we see patients almost continuously,"* reflecting a commitment to ongoing care and accessibility.

Support often extended to emotional and social concerns. Participant 5 (Female, Intern Doctor) recalled listening to a patient's family conflict to understand why she had stopped injecting insulin, explaining, *"I allowed myself to be nosy and try to solve the issue."* This approach aimed to uncover deeper barriers to self-management. Similarly, participant 6 (Female, Intern Doctor) described consultations as *"moments of true sharing… it makes it easy for them to remember advice,"* highlighting how emotional connection supported engagement with care. She also reported assisting patients beyond immediate medical needs, such as helping them interpret documents from other disciplines or responding to calls about unrelated concerns. Participant 7 (Female, Intern Doctor) emphasised that these efforts were not obligatory, stating, *"We are not forced to do this… but for some patients they really need close follow-up,"* noting that such engagement often resulted in strong expressions of gratitude from patients and families.

Some nurses also described extending support beyond routine care. Participant 11 (Female, Nurse) noted, *"Even if the patient does not have the means to buy insulin, we give him a needle or two extra,"* and described following up with patients after discharge. Participant 12 (Female, Nurse) shared how practical problem-solving sometimes involved checking patients' rooms when blood sugar readings were unexpectedly high, explaining, *"With experience you are obliged to just go in search the room… and you just end up finding a bottle of juice."* These actions reflect how professionals adapted their practices in response to real-world challenges faced by patients.

At the same time, such forms of support were not always consistent. Time constraints, as highlighted in Theme 1, limited the ability to maintain regular follow-up, and some patients resisted ongoing engagement. These variations suggest that while relational commitment can enhance continuity of care, it is not always sustainable across all cases or contexts.

Overall, health professionals' willingness to go beyond formal responsibilities played a key role in maintaining engagement, addressing barriers, and supporting patients in managing their condition. These efforts often bridged the gap between clinical care and the everyday realities of living with T2D.

Interpretive analytical synthesis:

What emerges from these accounts is that relational commitment functions as a mechanism through which professionals compensate for limitations within formal healthcare structures. Rather than being embedded within standardised care pathways, these extended forms of support rely heavily on individual initiative, empathy, and personal investment. This suggests that continuity of care is often sustained through informal and discretionary practices, where professionals take on additional responsibilities to address gaps in access, understanding, or patient engagement. However, the variability in these efforts also highlights a tension between what is expected of professionals and what is realistically sustainable within constrained systems. As a result, the quality and extent of support may depend on individual willingness

and capacity, rather than being consistently available to all patients. This positions relational commitment as both a strength of care delivery and a reflection of underlying structural limitations.

6. Theme 4: Delivering and Adapting Knowledge in Diabetes Care

Health professionals described the delivery of knowledge as an essential component of diabetes care, particularly in equipping patients with the practical skills and understanding needed for self-management. This support was often delivered through structured education units but also emerged in everyday clinical interactions, especially during hospital stays.

Much of this work focused on teaching patients how to perform routine tasks such as injecting insulin, monitoring blood glucose, and following treatment plans. Participant 1 (Male, Intern Doctor) explained that the nature of this support depended on the patient's profile, stating, *"You try to teach them how to manage their condition… provide all support that's technical… like taking meds and injecting insulin."* He also noted that hospitalisation provided more time for tailored education. This was supported by participant 5 (Female, Intern Doctor), who stated, *"For consultations, you only have time for checking medical reports… if hospitalised, they will visit the education unit."* The practical nature of this learning process was reinforced by nurses. Participant 8 (Female, Nurse) described using demonstration and observation, explaining, *"I do that thing by demonstrating in front of the patient… I observe how they do it and from there I know they have learned."*

Structured education was often delivered in a staged and interactive way. Participant 6 (Female, Intern Doctor) described using tools such as the lipobox to practice insulin injections and interactive materials to engage patients in learning, stating, *"They cannot leave the hospital if we do not see them practice."* Patients were gradually encouraged to take more responsibility for their care as their confidence increased. However, this form of support was not limited to structured settings. Participant 4 (Male, Intern Doctor) noted that education had become embedded in routine care, stating, *"It has become a reflex… we already offer this education directly,"* including in consultations, emergency settings, and community interactions.

Beyond technical instruction, professionals emphasised the importance of adapting communication to the patient's educational and social background. Participant 7 (Female, Intern Doctor) explained that for patients who were illiterate or unfamiliar with diabetes, education began with basic concepts, stating, *"We go over the basics… we will always show them how to measure their blood sugar levels… we watch them do it and correct them."* Similarly, participant 10 (Female, Nurse) noted that patients with limited education often required more repetition and guidance but could learn when supported appropriately.

Participants also highlighted the importance of making information relevant and actionable. Participant 2 (Female, Intern Doctor) reflected, *"I can't simply tell a patient not to eat this or that unless I have a full diet plan… generic advice doesn't work."* This underscores the need to provide alternatives that align with patients' daily lives. Participant 6 (Female, Intern Doctor) described a progressive approach to education, combining encouragement with increasing levels of responsibility, stating, *"We show them that we are proud of them… then we would probably move on to an advanced education level… for example, we might get them to learn how to auto-control their condition."* She also noted improvements in outcomes, explaining, *"I have seen patients with 10% in their HbA1c who managed to drop it down by 2% three months after they had their classes."*

Simplicity and relatability were also central to effective communication. Participant 10 (Female, Nurse) described using metaphors to explain complex concepts, stating, *"When you tell the patient that diabetes is like a table, if we remove one leg, it falls, it helps the patient understand more."* Similarly, participant 9 (Male, Nurse) emphasised that *"personalised guidance is crucial… because understanding and managing lifestyle and dietary habits significantly impact long-term management."* In some cases, education also had an emotional impact. Participant 11 (Female, Nurse) recalled, *"We found [a patient] crying after we talked to her and explained more about diabetes… she came back with better psyche and better sugar levels… I mean one piece of advice can make a difference."*

Health professionals also described the importance of involving family members in the educational process, particularly when patients faced challenges with health literacy or self-management. Participant 1 (Male, Intern Doctor) explained that family education was initiated when patients were unable to manage independently, stating, *"They are educated only if the accompanying persons can… and if we can see that the patient is unable to auto-manage their condition."* Several participants described cases where caregivers actively engaged in learning, asking questions and taking responsibility for supporting the patient. Participant 7 (Female, Intern Doctor) noted that professionals might *"sit down with the wife and educate her"* when needed, while participant 10 (Female, Nurse) described tailoring education *"as if [the caregiver] himself has diabetes."*

However, family involvement was not always consistent. Participant 2 (Female, Intern Doctor) observed, *"Most of the people who accompany don't really care. It's very rare that you even remember the ones who showed some interest."* Despite this, when family members were engaged, they played a key role in reinforcing daily practices such as medication adherence, dietary choices, and monitoring routines.

Finally, participants highlighted structural challenges that affected the delivery of knowledge. Time constraints limited opportunities for in-depth education, particularly in outpatient settings. As participant 3 (Female, Intern Doctor) explained, *"You cannot give your patient a lot of time during the space of 3 hours where you must do many consultations."* Similarly, equipment shortages reduced opportunities for hands-on learning, particularly for monitoring practices, as noted in Theme 1. These constraints affected the consistency with which educational support could be delivered across settings.

Overall, delivering and adapting knowledge in diabetes care involved a combination of structured teaching, practical demonstration, personalised communication, and family engagement. These approaches were most effective when they enabled patients to apply what they had learned in their daily lives, although their delivery was shaped by both patient context and system-level limitations.

Interpretive analytical synthesis:

What emerges from these accounts is that the delivery of knowledge is not simply about providing information, but about translating it into forms that patients can understand, relate to, and act upon in their everyday lives. Health professionals actively adapt their communication, teaching strategies, and level of engagement depending on patients' abilities, social contexts, and readiness to learn, suggesting that knowledge delivery is an inherently relational and dynamic process. At the same time, the reliance on demonstration, repetition, and family involvement highlights that understanding is achieved through practice and shared responsibility rather than information alone. However, structural constraints such as limited time and resources restrict the extent to which this tailored approach can be consistently applied. As a result, the effectiveness of knowledge delivery depends not only on what is communicated, but on how it is adapted and sustained within the realities of clinical practice.

7. Theme 5: Relational and Emotional Foundations of Diabetes Care

This theme explores how emotional and relational dynamics underpin the delivery and effectiveness of social support in diabetes care. Across participants' accounts, support was not experienced as a set of discrete actions, but as something embedded within relationships characterised by trust, empathy, and cultural expectations of care. Health professionals described how emotional engagement, therapeutic relationships, and family dynamics collectively shaped how patients responded to support, engaged with treatment, and navigated their condition. In this context, emotional and relational processes functioned as the foundation through which other forms of support were delivered, interpreted, and sustained.

Sub-theme 1: Emotionally Grounded Care and Cultural Expressions of Support

Emotional support emerged as a deeply human and culturally grounded aspect of diabetes care, characterised by empathy, relational closeness, and personalised reassurance. Within Morocco's collectivist context, healthcare providers often engaged in emotional care that extended beyond clinical norms, using touch, storytelling, and culturally meaningful expressions to enhance connection and comfort.

Several participants emphasised that emotional support helped patients accept their diagnosis and become more proactive in managing their condition. For example, participant 3 (Female, Intern Doctor) explained, *"supporting them emotionally is also key… it allows the patient to become receptive… so they become active and not passive."* She further described adapting her approach depending on the patient, stating, *"I am usually more emotional with older patients as I consider them like my mom or dad."* This reflects how emotional engagement was shaped by culturally embedded values of respect, care, and familial closeness.

Emotional support was also expressed through physical gestures, which were perceived as appropriate and meaningful within this context. Participant 6 (Female, Intern Doctor) explained, *"Even patients themselves don't mind… it became quite normal to get a kiss on the cheek or a hug from female patients at the end of consultations."* Similarly, participant 8 (Female, Nurse) noted that *"touching the patient... has a better impact than just talking to him,"* particularly when patients felt anxious or overwhelmed. These forms of physical reassurance extended emotional care beyond verbal interaction and reinforced trust.

Another approach involved using storytelling and relatable examples to foster hope and motivation. Participant 12 (Female, Head Nurse) described comforting a patient by sharing experiences of others in similar situations, explaining, *"at that point the patient just feels comfortable… they might give you a hug or a kiss… and that shows you that there is a little bit of hope in them."* Such interactions helped patients reframe their condition and engage more positively with their care.

Health professionals expressed that emotional support was most effective when it felt genuine, culturally resonant, and aligned with everyday relational practices. When patients felt understood, reassured, and emotionally supported in ways that reflected familiar social interactions, they were more likely to engage with their treatment and adopt self-management behaviours.

Sub-theme 2: Therapeutic Relationships and Professional–Patient Connection

Participants consistently emphasised the central role of the relationship between health professionals and patients in shaping diabetes care. Strong, empathetic communication was perceived as key to fostering trust, improving adherence, and supporting sustained engagement with treatment.

For many professionals, this relationship extended beyond formal clinical roles. Participant 1 (Male, Intern Doctor) reflected, *"It's the human side… it's what helps to give more to my patients… I don't do it because I'm a doctor. I do it on the human side."* This highlights how care was often grounded in personal values rather than strictly defined professional boundaries.

Health professionals also described how emotional engagement created a sense of shared responsibility and mutual investment in outcomes. Participant 2 (Female, Intern Doctor) explained, *"It makes me happy… you feel like you become a family… it feels like we succeeded together."* Similarly, participant 5 (Female, Intern Doctor) described feeling emotionally affected by patients' progress, illustrating how relational closeness shaped both professional identity and patient motivation. These interactions reinforced the idea that care was not only delivered but co-experienced.

Trust emerged as a key enabler of effective communication. Participant 3 (Female, Intern Doctor) noted that *"once a patient can trust, then it is easy to transmit your message to them,"* highlighting the importance of understanding patients' backgrounds and adapting communication accordingly. Other professionals emphasised the importance of patience and emotional regulation in difficult interactions. As participant 10 (Female, Nurse) reflected, *"You necessarily have to cool down with them better."*

However, these close relationships also introduced tensions. Some professionals expressed concern about maintaining boundaries, particularly when involving family members or addressing sensitive issues. Participant 6 (Female, Intern Doctor) explained, *"If I point out something personal that they need to change, [family members] may simply refuse my speech…*

it may ruin the trust between me and my patients." This reflects the challenge of balancing relational closeness with professional responsibility.

Overall, the effectiveness of social support in this context was closely tied to the quality of the therapeutic relationship. When trust, empathy, and mutual understanding were established, patients were more receptive to guidance and more engaged in their care. However, these relationships required continuous negotiation, particularly in emotionally complex or culturally sensitive situations.

Sub-theme 3: Family Dynamics and the Ambivalence of Support

Family relationships played a central role in shaping how social support was experienced and enacted, reflecting broader cultural expectations of shared responsibility in Morocco. Health professionals described both supportive and challenging family dynamics, highlighting that the presence of family alone did not guarantee effective support.

In positive cases, family members were actively engaged in care and reinforced treatment practices. Participant 2 (Female, Intern Doctor) described a case where *"She came back in a good shape… her son and his wife did really well to look after her."* These examples reflected what some participants referred to as strong familial responsibility, where caregivers identified with their role and actively supported the patient. As participant 8 (Female, Nurse) explained, *"If the relationship is not good… then the support doesn't work."* This suggests that relational quality, rather than mere presence, determined effectiveness.

However, not all family dynamics were supportive. Some participants described cases where family members were critical, disengaged, or undermined care. Participant 3 (Female, Intern Doctor) noted, *"They are there just to blame the patient… that type will just come to criticise and that's it."* Others described how emotional motivations could conflict with medical advice. Participant 13 (Female, Nurse) explained, *"They want to make him feel happy… so they give him whatever he wants."* These accounts illustrate how care could be shaped by emotional intentions that were not always aligned with effective diabetes management.

Participants also described cases where patients resisted or rejected family support. As participant 13 (Female, Nurse) shared, *"He would tell you that they are the ones who abandoned him… and he doesn't want them to come to him."* This highlights how past experiences and relational tensions influenced how support was perceived and accepted. In such cases, support was not only about what was offered but whether it was welcomed.

These findings suggest that family support operates as a complex and sometimes contradictory influence on diabetes management. While it can provide consistent and meaningful assistance, it can also create tension, resistance, or unintended barriers to care.

Interpretive analytical synthesis:

What emerges from this theme is that emotional and relational dynamics are not simply supportive elements of care, but the foundation through which all other forms of support are mediated, interpreted, and sustained. Across sub-themes, support was consistently shaped by the quality of relationships, the emotional tone of interactions, and the cultural expectations that defined how care should be expressed and received.

A key pattern across the data is that emotional engagement functioned as a gateway to effective support, influencing patients' receptiveness to information, willingness to engage in self-management, and ability to sustain behavioural change. When emotional support was perceived as genuine, culturally appropriate, and relationally attuned, it facilitated trust and openness, allowing other forms of support (educational, tangible, and appraisal) to be more effectively delivered. In this sense, emotional support did not operate in isolation but enabled the effectiveness of other support processes.

However, these same relational dynamics also introduced complexity and variability. Family involvement, while often central, could both facilitate and hinder care depending on the alignment between emotional intentions, relational quality, and medical guidance. Similarly, close therapeutic relationships enhanced engagement but required ongoing negotiation of boundaries, roles, and expectations. These findings highlight that support is not inherently beneficial; rather, its impact depends on how it is relationally enacted and interpreted within specific interpersonal and cultural contexts.

Importantly, identity emerges as a key underlying mechanism shaping these dynamics. Health professionals often positioned themselves beyond formal roles, acting from a sense of personal and moral responsibility, while family members engaged in support based on culturally embedded expectations of caregiving. At the same time, patients' responses to support were influenced by their own identities, including their willingness to accept help, their past relational experiences, and their perceptions of autonomy. This suggests that support is filtered through identity-based expectations and relational roles, which shape both its delivery and its reception.

Taken together, these findings indicate that effective social support in this context depends not only on what is provided, but on how support is embedded within relationships, aligned with cultural norms, and negotiated between individuals over time. Emotional and relational foundations therefore function as the organising structure through which support becomes meaningful, highlighting the importance of trust, alignment, and relational continuity in shaping diabetes care.

4.2 Study 2 - Morocco: People Living with T2D

Results

1. Overview:

This study addressed Objectives 2 and 3 of the thesis by examining how social support is understood, experienced, and enacted by people living with T2D in Morocco, and how relational, cultural, and everyday contexts shape its effectiveness in self-management. The corresponding research questions focused on how social support is experienced and enacted, and how contextual factors influence its delivery and impact.

Across the dataset, four interconnected themes illustrate that social support in this context operates as a collective, relational, and continuous process, embedded within family life and community interactions rather than delivered as discrete forms of assistance. These themes are: 1) Understanding and Orientations to Social Support, 2) Learning and Adapting Knowledge in Everyday Life, 3) Relational Support Practices in Daily Life, and 4) Consistency and Coordination of Support.

Theme 1 highlights how participants interpret social support through emotional, practical, and relational lenses, with expectations shaped by personal needs, family roles, and evolving

experiences of living with T2D. Theme 2 shows how knowledge is developed through a combination of lived experience, professional guidance, and community interactions, positioning learning as an ongoing and socially embedded process. Theme 3 captures how support is enacted in everyday life through relational practices, including practical assistance, emotional care, and ongoing feedback, all of which are shaped by family dynamics and cultural expectations of shared responsibility. Theme 4 brings these elements together by illustrating how consistent and coordinated support across family members and social networks strengthens engagement with self-management over time.

Across these themes, social support emerges not as a set of separate components, but as a dynamic system of interactions, where informational, tangible, emotional, and appraisal elements are continuously negotiated within relationships. Within Morocco's collectivist context, support is both expected and embedded in social roles, with family members, peers, and community networks contributing in complementary ways to the management of T2D.

Taken together, these findings demonstrate that effective support depends on the alignment between individuals' needs, relational dynamics, and the consistency of support sustained over time and coordinated across social networks and everyday environments.

2. Participant Demographics:

Twenty individuals living with T2D took part in this study. The sample included 17 women and 3 men, with ages ranging from 44 to 74 years (M = 60.5, SD = 6.68). Most participants were older adults, with only three under the age of 55. All were Moroccans and resided in urban or peri-urban areas of Marrakech. While detailed socioeconomic data were not formally collected, several participants made indirect references to financial hardship, reliance on family members, or limited access to healthcare resources. Most participants identified as being primarily responsible for managing their condition, though many also reported receiving formal or informal support from health professionals, relatives, particularly spouses and adult children. An overview of participant characteristics is presented in Table 3.

Table 3: Participant Characteristics – Study 2: Morocco People Living with T2D

Participant ID	Gender	Age	Duration of T2D
P1	Female	74	10 years

P2	Female	70	10 years
P3	Female	52	12 years
P4	Female	54	6 months
P5	Female	56	24 years
P6	Female	52	8 years
P7	Female	58	5 years
P8	Female	64	10 years
P9	Female	44	6 years
P10	Female	56	15 years
P11	Male	54	1 year
P12	Male	68	7 years
P13	Female	72	13 years
P14	Female	64	10 years
P15	Female	52	7 years
P16	Female	62	2 years
P17	Female	56	10 years
P18	Female	60	16 years
P19	Female	68	10 years
P20	Male	61	10 years

3. Theme 1: Understanding and Orientations to Social Support

Social support for people living with T2D in this study was understood not as a single, clearly defined construct, but as a relational and context-dependent experience, shaped by emotional needs, everyday interactions, and expectations of care within family networks. Participants

described support in ways that ranged from practical assistance and reminders to emotional reassurance and protection, reflecting the fluid and embedded nature of support in daily life.

For some participants, social support was associated with direct monitoring and guidance, particularly from close family members. Participant 7 (Female) explained, *"they always check if my diet is on point… if I had my medication on time."* In this sense, support was experienced through ongoing observation and reminders, embedded within routine interactions rather than delivered as a formal intervention. Others described support more in emotional terms, emphasising reassurance and encouragement. Participant 14 (Female) shared, *"it's more that feeling that… they want you to do well… they want you to look after your health."* Similarly, participant 9 (Female) highlighted the importance of empathy and recognition, stating, *"I want them to understand that I am suffering… that I need support."*

In some cases, support was enacted through more direct and protective behaviours, where family members intervened to prevent unhealthy choices. Participant 15 (Female) described, *"when I go to see my mother and she sees me eating pastries… she will just take it from my hand and stop me."* These forms of intervention reflect how support can be expressed through control as well as care, particularly in contexts where health is viewed as a shared responsibility.

However, not all participants experienced or desired the same forms of support. Some expressed a preference for emotional reassurance rather than practical intervention. Participant 16 (Female) noted, *"if I was to ask for support then I just want them to support me mentally… just tell you reassuring words."* This highlights how support was not evaluated solely based on its practical usefulness, but on how well it aligned with individual emotional needs and preferences for autonomy.

Across these accounts, participants' understandings of social support were shaped by both relational expectations and personal orientations towards independence and care. While family members were consistently positioned as the primary source of support, the type of support considered helpful varied depending on the individual and the situation. Social support therefore operated less as a fixed resource and more as an everyday relational practice, enacted through monitoring, emotional presence, and protective behaviours embedded within family life.

Interpretive Analytical Synthesis:

These findings suggest that social support is not simply defined by what is provided, but by how it is interpreted and negotiated within relationships. Participants' accounts highlight that support is filtered through personal expectations, emotional needs, and identity-based orientations towards autonomy and dependence. In this context, the effectiveness of support is contingent on its relational fit, where the same action (e.g., reminders or intervention) can be experienced as either caring or intrusive depending on how it aligns with the individual's preferences and sense of self. Furthermore, the central role of family reflects how support is embedded within broader social roles and cultural expectations, where care is both expected and enacted as part of everyday life.

Notably, although the Moroccan context is often characterised as collectivist, the data suggest that supportive outcomes do not flow automatically from collectivist norms. Rather, collectivist expectations shape the form that support takes (such as family-mediated reminders, shared meals, or protective interventions) without guaranteeing that this support will be experienced as helpful, sufficient, or aligned with the individual's needs. The effectiveness of support therefore depends on how cultural expectations are enacted within specific relationships, not on the presence of collectivism as such.

4. Theme 2: Learning and Adapting Knowledge in Everyday Life

Learning about T2D management was described by participants as an ongoing and socially embedded process, shaped by lived experience, interactions with health professionals, and exchanges within family and community networks. Rather than relying on a single source of information, participants developed their understanding through a combination of direct bodily experience, formal guidance, and informal knowledge-sharing, allowing them to continuously adapt their self-management practices.

A central aspect of this learning process was experiential knowledge, where participants came to understand their condition through trial, error, and the immediate consequences of their behaviours. Participant 6 (Female) reflected on how she identified dietary triggers, explaining, *"sometimes I used to eat things and [they] used to affect me on the spot so by doing such mistakes I learned what I'm supposed to avoid."* Similarly, participant 1 (Female) described how her husband only became compliant after a deterioration in his condition led to insulin treatment, stating, *"he never looked after it before then… but now with this experience he*

became more compliant." These accounts illustrate how direct experience and visible consequences often shaped understanding more powerfully than abstract advice, reinforcing behavioural change through embodied learning.

In addition to experiential learning, some participants engaged in self-directed learning, seeking information independently to better understand their condition. Participant 15 (Female) explained, *"Honestly no I only learned about it when I was diagnosed... it sparked my interest especially when I got to know more about the complications and what it can do."* Similarly, participant 16 (Female) described using online resources, stating, *"I would just go to websites and start reading about the things that I have to eat and the things I should avoid... I would simply search for the definition of diabetes."* While not the primary source of knowledge, these efforts complemented experiential learning by helping participants contextualise their symptoms and anticipate risks.

Health professionals were consistently identified as a trusted and authoritative source of knowledge, particularly when information was delivered in a practical and personalised manner. Participant 4 (Female) emphasised this trust, stating, *"there's no way I would believe what my family says opposite to what a doctor would say."* Formal education sessions were described as especially impactful. Participant 1 (Female) shared, *"I told them that I have diabetes as well and I would like to attend… I have learned a lot today in the education classes,"* while participant 20 (Male) noted, *"You know what to do if your blood sugar levels go up… I did learn a lot from the doctors."* Participants also valued how professionals adapted their communication to everyday contexts. Participant 10 (Female) recalled, *"they would remove honey next to me and say you're not gonna have this today hahaha,"* illustrating how simple, contextualised interactions made information more relatable and easier to apply.

Learning also extended beyond formal settings into community and family interactions, where knowledge was reinforced through repeated conversations and shared experiences. Participant 6 (Female) described how hearing consistent messages from others shaped her understanding, stating, *"hearing it every time kind of put it into my mind that I have to be within that level."* Similarly, participant 7 (Female) actively sought advice from others living with T2D, explaining, *"I would always ask them what did you try, what did you do to make your diabetes better?"* Family members also played a role in reinforcing and recalling information. Participant 19 (Female) shared, *"he would come and give me advice about… what I should be*

eating and things I should avoid," while participant 20 (Male) noted, *"I will kind of just rehearse that to her… and that kind of helps me to remember what the doctor said."*

However, learning through others was not always straightforward. Some participants described how exposure to negative experiences within their social network could be both motivating and distressing. Participant 12 (Male) recalled, *"my sister… got so bad… they amputated both of her legs,"* while participant 16 (Male) reflected, *"it certainly helps me to understand… but at the same time it does scare me."* These accounts suggest that informal knowledge-sharing can function as a double-edged process, reinforcing awareness while also introducing fear and emotional burden.

Overall, participants described learning as a cumulative and adaptive process, where knowledge was continuously constructed through the interaction of experience, professional guidance, and social exchange. Rather than being delivered as a fixed set of instructions, informational support was embedded within everyday life and shaped by the relationships through which it was communicated.

Interpretive Analytical Synthesis:

These findings indicate that informational support is not experienced as a discrete or one-directional transfer of knowledge, but as a relational and iterative process of meaning-making, shaped by how individuals engage with and interpret information within their social context. Participants did not passively receive information; instead, they actively integrated experiential, professional, and social sources to construct an understanding that was personally relevant and practically applicable. Importantly, the effectiveness of informational support depended on its credibility, contextualisation, and relational reinforcement, where trust in the source and alignment with everyday life determined whether knowledge translated into action. Within this process, identity also played a role, as participants' willingness to engage with and apply information was influenced by how they positioned themselves in relation to their condition and their support network. These dynamics highlight that learning in T2D management is not only cognitive but also relational, requiring ongoing negotiation between knowledge, experience, and social influence.

5. Theme 3: Relational Support Practices in Daily Life

Support for people living with T2D was enacted through everyday relational practices, embedded within family routines, social interactions, and shared responsibilities. Participants described how practical assistance, reminders, emotional care, and feedback were not experienced as separate forms of support, but as interconnected actions that unfolded within relationships. These practices were shaped by cultural expectations of interdependence, where supporting health was viewed as a collective responsibility rather than an individual task.

A key aspect of this relational support was tangible assistance, often embedded in daily routines and delivered through small but consistent acts of care. Dietary support featured prominently, with family members adapting meals or intervening to prevent unhealthy choices. Participant 2 (Female) noted, *"even my husband if he sees something sugar on the table he will just remove it from in front of me."* Similarly, participant 8 (Female) described how others adjusted their cooking when she visited, stating, *"they would adopt and make me some bread without sugar because they know that I'm coming."* These actions were often anticipatory rather than negotiated, reflecting how support was embedded within shared household practices.

Support for physical activity was also shaped by relational dynamics. Participant 6 (Female) explained how her son encouraged her to stay active, stating, *"if he comes back from the UNI he would ask me… did you have a little walk today? … and then if I say no he will just drag me for a quick one."* Similarly, participant 8 (Female) described how caring for her granddaughter created opportunities for movement, reinforced by her daughter's encouragement. In these cases, behaviour change was not imposed but facilitated through shared activities and relational proximity.

Participants also highlighted the role of appraisal support, where reminders and feedback were embedded in everyday interactions. Participant 1 (Female) described how her daughters were *"quite naggy,"* often reminding her to look after her health, while also engaging in mutual accountability with her husband: *"we try the best to remind each other you know."* In some cases, reminders extended across distances. Participant 5 (Female) noted how her daughter living abroad would call to ensure she took her medication. These interactions illustrate how monitoring and feedback were sustained through ongoing relationships rather than formal structures.

The effectiveness of appraisal support depended strongly on tone and relational context. Participant 8 (Female) described her daughter-in-law's approach as particularly effective, stating, *"she really makes her point in a very nice way, and she is very patient with me… she knows how to talk to me."* In contrast, participant 12 (Male) recalled more direct and fear-based feedback, such as warnings about amputation, which were initially experienced as distressing but later reinterpreted as concern: *"now I just understand that they are right."* These examples highlight how the same behaviour (e.g., monitoring or correction) could be perceived as supportive or intrusive depending on how it was delivered and interpreted.

Relational support also extended into community settings, where shared practices reinforced self-management. Participant 11 (Male) described how local shopkeepers with diabetes adapted their routines, stating, *"we will make it without sugar… we got used to that."* These interactions reflect how support extended beyond the household into broader social networks, normalising behaviours through collective participation.

Across these accounts, relational support was not limited to completing tasks or providing instructions. Instead, it functioned as an ongoing relational process, where care was expressed through presence, repetition, and shared responsibility. These practices were shaped by cultural norms that positioned health as a collective concern, allowing support to be integrated into everyday life rather than delivered as a separate intervention.

Interpretive Analytical Synthesis:

These findings suggest that the effectiveness of social support lies not in the type of support provided, but in how it is relationally enacted and interpreted within everyday life. Participants' accounts demonstrate that tangible assistance, reminders, and feedback are most effective when they are embedded within trusting relationships and aligned with existing social roles. In this context, support is filtered through relational dynamics, where identity plays a key role in shaping both the provision and acceptance of support. Caregivers often act in ways that reflect their perceived role within the family, while individuals living with T2D negotiate support in relation to their sense of autonomy and self-management. As a result, the same supportive action can facilitate engagement or generate resistance depending on how it aligns with these relational and identity-based expectations. These dynamics highlight that social support operates as a relational practice rather than a fixed resource, requiring ongoing negotiation between those providing and receiving support.

6. Theme 4: Consistency and Coordination of Support

Participants consistently highlighted that effective diabetes management relied not on isolated acts of support, but on the ongoing presence, coordination, and reliability of support across time and relationships. Support was most meaningful when it was sustained and predictable, becoming embedded within daily routines and distributed across multiple members of the social network.

Many participants described how consistent involvement from family members enabled them to maintain self-management behaviours over time. Participant 9 (Female), who relied on her sister due to a hand disability, explained how support extended beyond immediate care to future planning, stating, *"she also told my daughter that she has to learn how to help me with this because one day she will not be there."* This highlights how continuity of support was actively maintained through the transfer of roles within the family, ensuring that care remained stable despite potential changes in caregivers.

Similarly, participant 10 (Female) described how ongoing support from health professionals and family members created a stable foundation for managing her condition: *"they held my hand since the beginning… they are very much involved… they always give me extra medicine."* She also noted the role of her son and other relatives in monitoring her condition, illustrating how different individuals contributed to different aspects of care. These accounts suggest that support was experienced as consistent not only through repetition, but through the predictability and reliability of involvement across relationships.

In many cases, consistency was embedded within everyday routines, where support became part of normal daily interactions rather than a deliberate or exceptional effort. Participant 13 (Female) described how her daughter-in-law ensured continuity of care through repeated acts of support, stating, *"she would make sure that I take my medicine on time… she would make sure that she comes and talks me in before she goes to sleep."* These routine-based practices provided a sense of stability and reassurance, reinforcing engagement with self-management over time.

Participants also emphasised how support was often distributed across different members of the social network, with each individual contributing in a specific way. Participant 15 (Female) explained how her husband and daughter played complementary roles, from managing prescriptions to encouraging lifestyle changes. Similarly, participant 20 (Male) highlighted the importance of persistent encouragement, stating, *"regardless of my attitude and how I used to behave… they were always caring… quite persistent and reminded me that I need to look after my health."* These examples illustrate how support was not dependent on a single individual, but on the collective contribution of multiple actors over time.

Importantly, participants suggested that consistency was strengthened when support roles were implicitly understood and maintained within relationships. Some individuals focused on reminders and monitoring, others on emotional encouragement, and others on practical assistance. This distribution allowed different forms of support to be delivered simultaneously, creating a more comprehensive and stable support system.

Across these accounts, support was most effective when it was not only present, but coordinated, sustained, and shared, allowing individuals living with T2D to rely on a network of support that adapted to their needs over time.

Interpretive Analytical Synthesis:

These findings demonstrate that the effectiveness of social support is closely linked to its consistency and coordination across relationships and over time, rather than the presence of isolated supportive actions. Participants' accounts highlight how support operates as a distributed system, where different individuals take on complementary roles that together create a stable and reinforcing support environment. Within this process, identity plays a central role, as both caregivers and individuals living with T2D implicitly adopt and enact roles that shape how support is provided and received. The sustainability of support is therefore not only dependent on availability, but on the alignment between these roles, relational expectations, and everyday routines. These dynamics suggest that social support is most effective when it is integrated into the social fabric of daily life, functioning as a coordinated and continuous process that adapts to changing needs while maintaining stability over time.

4.3 Study 3 - UK: Health-Professional Perspectives

Results:

1. Overview:

This study addressed Objectives 2 and 3 of the thesis by examining how social support is understood and enacted by health professionals working in community and primary care–linked services in the United Kingdom, and how organisational and community contexts shape its delivery outside hospital settings. The corresponding research questions focused on how social support is experienced and enacted by healthcare professionals and how contextual factors influence its effectiveness.

The findings from this qualitative study generated five interconnected themes that illuminate how social support for people living with T2D is understood and delivered outside hospital-based settings. These themes are 1) Professional Responsibilities and Capacities, 2) Understandings of Social Support, 3) Social Support Dynamics, 4) Educational and Practical (Tangible) Support, and 5) Emotional and Motivational Support. Together, they reflect how social support is embedded within multidisciplinary roles that combine healthcare, behavioural change, and community-based provision.

Professional responsibilities and capacities (Theme 1) highlight how the delivery of social support is shaped by structural constraints, particularly limited formal training, leading many to rely on experience and self-directed learning. Understandings of social support (Theme 2) emphasise the role of healthcare accountability alongside family and community involvement, while also drawing attention to gaps in service availability and limited differentiation between support components. Social support dynamics (Theme 3) explore how relationship contexts, including family involvement and preferences for professional support, influence diabetes management within an individualistic cultural setting.

Educational and practical (tangible) support (Theme 4) illustrates how learning is facilitated through interactive group settings, simplified explanations, and lifestyle-focused interventions,

alongside the practical and coordinated assistance provided through monitoring, medication management, and referrals. This theme also highlights inequities in access across care environments and the extent to which patients are left to manage aspects of care independently. Emotional and motivational support (Theme 5) reflects the importance of psychological safety, compassionate listening, and the integration of emotional care within behaviour change interventions, alongside how progress is reinforced through self-recognition, structured goal setting, follow-up, and reminders.

Across these themes, social support in the UK across diabetes care is presented as a multifaceted and distributed process, delivered through a combination of professional accountability, personalised education, and relational engagement. Rather than operating as a single intervention, support is shown to emerge through ongoing interactions across services, families, and communities, shaped by structural constraints, cultural norms of autonomy, and the availability of sustained follow-up.

2. Participants description:

The health professionals interviewed in this study included one senior carer, three social prescribers, one well-being coach team leader, and one health and well-being coach. Their roles covered a broad range of support, from direct care and lifestyle coaching to community-based guidance. The senior carer provided hands-on support for daily health needs; the social prescribers focused on connecting individuals to non-clinical services and community resources; the well-being coach team leader oversaw the coordination of tailored health plans; and the health and well-being coach supported behaviour change and encouraged healthier lifestyle habits.

Participants worked in community and primary care–linked settings and were involved in supporting people living with T2D through a range of activities, including direct care, lifestyle coaching, care coordination, and signposting to non-clinical and community-based resources. While responsibilities varied across roles, all participants were engaged in supporting diabetes self-management beyond purely medical treatment. Some professionals, such as participant 1 (male, senior carer), concentrated on clinically oriented responsibilities, including monitoring blood sugar levels, while others, such as participant 2 (female, health and well-being coordinator) and participant 6 (male, health and well-being coach team leader), recognised the

broader social, psychological, and environmental influences shaping diabetes care. Together, these varied professional backgrounds provide important context for understanding how social support is delivered and conceptualised within community-based services. An overview of participant characteristics, including demographic and role-related information, is presented in Table 4.

Table 4: Participant Characteristics – Study 3: UK Health Professionals

Participant ID	Role	Gender	Setting	Years of Experience
P1	Senior Carer	Male	Community / Primary Care-linked	20
P2	Health and Well-being Coordinator	Female	Community / Primary Care-linked	3
P3	Social Prescriber	Female	Community / Primary Care-linked	3
P4	Social Prescriber	Male	Community / Primary Care-linked	1
P5	Social Prescriber	Female	Community / Primary Care-linked	2.5
P6	Health and Well-being Coach Team Leader	Male	Community / Primary Care-linked	10
P7	Health and Well-being Coach	Female	Community / Primary Care-linked	2.5

3. Theme 1: Professional Responsibilities and Capacity for Delivering Social Support

Theme 1 explores how health professionals' responsibilities and capacities to provide social support for people living with T2D were shaped by structural and training-related constraints. A key barrier identified by participants was the lack of formal training in providing social support, which limited their ability to effectively address patients' non-medical needs.

Many professionals reported relying on self-directed learning and experience rather than structured education. Participant 1 (male, senior carer) acknowledged that his expertise developed through on-the-job learning, stating, *"It was self-taught experience at work as you go along. We didn't get, like, specialised training about this."* Similarly, participant 3 (female, social prescriber) explained that her approach was based on personal knowledge and independent research, noting, *"There's no formal training for me. There's no setting. I base this all on my own knowledge and my own experience."*

Some participants described turning to online resources to compensate for the absence of formal training. Participant 4 (male, social prescriber) referred to using NHS digital e-learning materials but still identified limitations, explaining, *"Most of the training that I've done has just been online… when I encounter another person that maybe I don't know much about, then I go off and do a bit of homework."*

These accounts indicate that while professionals actively sought to develop their capacity to support patients, the lack of structured, evidence-based training in social support resulted in variability in confidence, scope, and consistency of practice. Overall, responsibilities related to social support were enacted within the limits of individual capacity rather than guided by formal preparation. Professionals drew on experience, personal judgement, and informal learning to meet patients' social and behavioural needs, highlighting how the delivery of social support in community-based diabetes care was shaped by both role expectations and systemic constraints.

Interpretive analytical synthesis:

What emerges from these accounts is that the delivery of social support is not only shaped by individual professional effort, but by the absence of consistent structural support to guide that effort. While participants demonstrate a clear willingness to support patients beyond clinical needs, the reliance on self-directed learning introduces variability in how support is understood and enacted across roles. This suggests that social support is being operationalised through personal initiative rather than shared standards, creating uneven experiences for patients depending on who delivers the support. The findings therefore highlight a broader tension between the expectation that professionals address social and behavioural aspects of T2D management, and the limited formal preparation provided to do so.

4. Theme 2: Understandings and Conceptualisations of Social Support

Health professionals' perspectives highlight the importance of structured healthcare support alongside community and familial involvement. Participant 7 (female, health and well-being coach), emphasised that individuals with diabetes often rely on health professionals for accountability, stating, *"They look to me for accountability, so they're more likely to make those changes if someone is saying, 'Are you doing that? Have you done that?'"*. This suggests that healthcare providers act as key motivators in behaviour change, particularly when other sources of support are lacking.

However, the accessibility and sustainability of support services remain a challenge. Participant 4 (male, social prescriber), described how community-based diabetes support groups, such as drop-in sessions, were valuable for newly diagnosed patients but noted that these services often face funding issues: *"I was trying to point them in the direction of this drop-in session, and I think it's now [gone]"*. The loss of tailored diabetes support services limits opportunities for individuals to seek ongoing education and peer support, making it harder for them to manage their condition independently.

The role of family and social dynamics in diabetes management was also recognised by health professionals. Participant 2 (female, health and well-being coordinator) noted that individuals' ability to manage diabetes is strongly influenced by how well their families understand the condition: *"If their family and the people they surround themselves with... seem to be a huge influence on self-management"*. This shows the need for diabetes education that extends beyond the individual and includes their support network. Similarly, Participant 3 (female, social prescriber) acknowledged the multi-dimensional nature of social support, which includes both professional and personal sources, stating, *"It can include professional and personal, so for me, it's just more getting your understanding of what it can mean for someone who has type 2 diabetes."*

Overall, health professionals recognise social support as a crucial factor in diabetes management, whether through family, community services, or healthcare accountability. However, gaps in service availability and the varying levels of support within social networks highlight the need for more sustainable and inclusive healthcare interventions. Furthermore, one should also note that while health professionals recognise the importance of social support in diabetes management, they also demonstrate a limited awareness of its distinct components,

(educational, tangible assistance, emotional, and appraisal support) which are crucial for more effective and structured support for people living with T2D.

Interpretive analytical synthesis:

What seems to emerge from these accounts is that social support is recognised by health professionals as essential yet remains only partially conceptualised in practice. While participants clearly identify multiple sources of support, including healthcare systems, family networks, and community services, their understanding appears to remain broad and intuitive rather than clearly differentiated. This lack of conceptual clarity may contribute to how support is delivered in a reactive and context-dependent manner, rather than as a structured and consistent process. In addition, the reliance on healthcare professionals for accountability, particularly in the absence of sustained community services or informed family involvement, suggests that support becomes concentrated within formal care settings when other forms of support are unstable or unavailable. Together, these findings point to a gap between recognising the importance of social support and having a clear, shared understanding of how its different components can be mobilised effectively in practice.

5. Theme 3: Interpersonal and Relational Dynamics in Social Support

Health professionals recognise the influence of relationship dynamics on T2D management, but their understanding highlights key challenges in social support integration. Many acknowledge that family involvement can either facilitate or hinder diabetes self-management, with participant 6 - (male, health and well-being coach team leader) emphasising that a lack of spousal understanding can become *"a difficulty and a barrier"* when patients attempt lifestyle changes.

Similarly, participant 2 (female, health and well-being coordinator) noted that partners who do not grasp the condition create obstacles: *"If a partner who cooks for them doesn't understand it, then they're in a difficult position because they can't change their environment".* These perspectives show that close relationships significantly impact dietary and lifestyle adherence, yet health professionals often lack structured approaches to address these interpersonal challenges.

At the same time, some individuals prefer seeking external support rather than burdening their family, as participant 4 (male, social prescriber) observed: *"Maybe they don't think they want to burden their family… so they'd rather go and speak to a healthcare professional"*. This could reflect how UK's individualistic society norms may value self-reliance over interdependence to avoid placing emotional strain on family members, even when in need of support.

Participant 6 (male, health and well-being coach team leader) spoke about an instance where *"a young patient came in with a parent… but the parent was just laughing."*, illustrating varying levels of engagement and scepticism within families. This suggests that health professionals must navigate different relationship dynamics, ensuring that both patients and their support networks are educated and engaged in a meaningful way. One can argue that the lack of intervention from the healthcare professional in this situation may reflect an ingrained respect for autonomy and personal boundaries (values often prioritised in individualistic cultures) which can limit professionals from challenging family dynamics, even when if it undermines the patient care.

Furthermore, social and psychological factors intersect with relationship dynamics, influencing support effectiveness. Participant 6 (male, health and well-being coach team leader) highlighted how mental health concerns, such as anxiety and depression, can shape engagement with social support, stating: *"Mental health plays a part… anxiety and depression impact how they engage"*. This reinforces the need for a holistic, patient-centred approach that considers not only the individual's medical needs but also their social and emotional context.

Overall, T2D management was most effective when families were understanding and practically involved, but some patients preferred seeking help from professionals to avoid burdening relatives. However, a balance between respectful autonomy and engaged support is needed to support positive outcomes in individualistic settings.

Interpretive analytical synthesis:

What emerges from these accounts is that relationships function as both a source of support and a point of tension in diabetes management. While family members can enable self-management through practical and emotional involvement, they can also unintentionally limit patients' ability to make changes when understanding of the condition is lacking. At the same time, patients' preference to seek professional support rather than rely on family highlights the complex negotiation between autonomy and interdependence within this context. Health

professionals appear to operate within these relational dynamics with a degree of caution, often balancing the need to support behaviour change with respect for personal boundaries and existing family roles. This suggests that social support is not simply present or absent, but actively shaped through ongoing interactions, where both patients and professionals navigate the limits of involvement, responsibility, and influence.

6. Theme 4: Educational and Practical (Tangible) Support Practices and Gaps

Educational support plays a crucial role in empowering individuals with T2D to manage their condition effectively, yet the quality and accessibility of education vary significantly across different healthcare settings. One of the most effective educational strategies identified was interactive, group-based learning, which promotes peer engagement and shared experiences. Participant 2 (female, health and well-being coordinator) highlighted the value of group discussions, stating, *"As soon as one person starts to speak, it sort of encourages everyone else to speak... you just have to sit back and listen to people's experiences because they're sharing it all with each other."* This suggests that group education promotes active learning and collective problem-solving, making it a more engaging alternative to one-on-one consultations.

Another key aspect of effective education is simplifying complex medical information to ensure patients fully understand their condition. Participant 6 (male, health and well-being coach team leader) illustrated this approach when explaining diabetes to a patient using a postal system analogy, stating, *"Being diabetic for over 5 years and still couldn't quite grasp what the condition was... so I explained it in an informal way, using simple visuals."* This demonstrates that simple, tailored, and accessible explanations can significantly improve patient comprehension, particularly for those who struggle with medical jargon. Similarly, participant 2 (female, health and well-being coordinator) noted that many patients do not fully understand their HbA1c readings, explaining, *"They actually don't know what the number means or they've not been told what HbA1c is... so it's useful to show them what it means."* Providing practical, real-world context to medical data can support more informed decision-making in self-management.

Additionally, integrating education into lifestyle interventions enhances long-term engagement. Participant 7 (female, health and well-being coach) described how her weight

management programme incorporates diabetes education, stating, *"We give some light education and talk about the impact on health, but it's more of a lifestyle focus rather than a medical one."* This highlights that linking education to daily habits, such as diet and physical activity, makes the information more actionable and relevant to patients' lives. Participant 3 (female, social prescriber) also reinforced the importance of 115mphasized education, stating, *"I try to tailor it... if they say to me, 'I don't like to exercise,' then I get them into a walking group."* This approach ensures that education is not only informative but also adaptable to individual needs.

Alongside educational practices, health professionals identified tangible support as a crucial aspect of T2D management, particularly in relation to monitoring, medication, and coordination of care. Many emphasised the importance of regular glucose checks to prevent complications. Participant 1 (male, senior carer) described the urgency of monitoring, stating, *"Sugar levels sometimes are quite difficult to manage. They can quickly change... and that can lead sometimes even to death. So it's important to monitor them on a regular basis."* This highlights the critical role of routine assessments in preventing severe health outcomes.

Registered nurses were frequently cited as key providers of hands-on support, particularly in medication management and insulin administration. Participant 1 (male, senior carer) explained that nurses take responsibility for medication decisions, noting, *"Registered nurses are the ones who give them medication and insulin injections."* He also acknowledged the team-based approach to patient care, stating, *"It's not only the nurses, it's also the carers."* This reflects how collaborative healthcare models contribute to the delivery of practical support.

Tangible support was also extended through coordinated referrals and access to services. Participant 5 (female, social prescriber) described how she facilitates access to necessary medical care, stating, *"If they don't understand how to do something related to medicine, I can then refer them... and book them appointments."* This highlights how non-clinical roles contribute to ensuring continuity of care beyond direct medical interactions.

Despite these structured approaches, gaps in both educational and tangible support remain. Participant 1 (male, senior carer) noted that *"for patients in nursing homes or care homes, there's nothing like that available at all,"* pointing to inequalities in access across care settings. Similarly, participant 3 (female, social prescriber) highlighted that patients are often left to manage their condition independently, stating, *"It's more left to the person to deal with it themselves... but if they don't really know what's going on, how can they teach someone else?"*

This suggests that while support may be available at specific points of care, it is not always sustained in ways that support long-term self-management.

Overall, educational and practical support in T2D management involves a combination of tailored communication, lifestyle integration, routine monitoring, and coordinated care. However, inconsistencies in access and continuity highlight the need for more structured and inclusive approaches to supporting self-management across different contexts.

Interpretive analytical synthesis:

What emerges from these accounts is that educational and practical support are not delivered as separate components, but as interconnected processes that rely on professionals' ability to translate knowledge into action within the constraints of their roles. Education is not simply the provision of information, but involves adapting, simplifying, and embedding knowledge into patients' everyday lives, while tangible support provides the means to act on that knowledge. However, the effectiveness of these processes appears uneven, as support is often concentrated within specific interactions rather than sustained over time. This creates a situation where patients may receive clear guidance and structured care at certain points, but are left to navigate self-management independently in others. These findings highlight a broader gap between what is known to support effective diabetes management and the extent to which services are able to provide consistent, ongoing support across different care settings.

7. Theme 5: Emotional and Motivational Support Mechanisms

A key aspect of effective emotional support is providing a safe and empathetic space for individuals to express their feelings. Participant 7 (female, health and well-being coach) emphasised the importance of creating an open environment, stating, *"First, providing a safe space for them to talk and share their experiences. Using motivational interviewing, a little bit of ACT, and providing tools and self-management strategies, such as breathing exercises and grounding techniques, that they can apply day-to-day."* This highlights how structured psychological techniques, such as motivational interviewing and mindfulness strategies, can support patients in managing stress and building emotional resilience.

Another important approach is integrating emotional support within lifestyle and behaviour change interventions. Participant 6 (male, health and well-being coach team leader) discussed the role of planting 'seeds' of change in resistant patients, stating, *"You'll have that conversation, plant a little bit of a seed, and then they come back."* This suggests that emotional support does not necessarily aim for immediate change, but instead supports gradual reflection and engagement. Similarly, participant 7 (female, health and well-being coach) noted that addressing emotional challenges is often a starting point for behaviour change, stating, *"I find that managing emotions is the first thing to target. Once they're better able to cope, there's more goal setting and lifestyle changes."*

Providing individualised psychological support alongside medical care was also highlighted as an important aspect of practice. Participant 2 (female, health and well-being coordinator) described how their service offers one-to-one interventions for individuals experiencing diabetes-related distress, explaining, *"We can offer one-to-one interventions for people… if they feel like they need that emotional support alongside their condition."* This reflects the value of integrating emotional and physical care within diabetes management.

Compassionate listening and reassurance also emerged as central aspects of support, even among professionals without formal psychological training. Participant 5 (female, social prescriber) highlighted the importance of being present for patients, stating, *"Just having the compassion and being able to listen… I wouldn't say it changes their behaviour completely, but it does help."* Similarly, participant 1 (male, senior carer) described how healthcare workers attempt to provide comfort despite limitations, stating, *"We all try sometimes to give them a little talk and give them a hug and try to reassure them that we are doing our best to help them."* These accounts suggest that emotional support is often delivered through everyday interactions rather than formalised interventions.

Alongside emotional support, professionals also described how motivation is reinforced through processes of self-recognition, feedback, and structured follow-up. Participant 6 (male, health and well-being coach team leader) explained how their approach encourages individuals to recognise their own progress, stating, *"The message now is to try not to praise the individual… they should get it from themselves."* This reflects a shift towards fostering intrinsic motivation, where individuals are encouraged to reflect on their own progress rather than rely solely on external validation.

However, verbal encouragement remains an important part of early engagement. Participant 5 (female, social prescriber) noted, *"If you're supporting someone and they do something to help themselves, naturally you need to praise them."* Similarly, participant 3 (female, social prescriber) described how recognising small achievements supported further progress, stating, *"She lost weight and cut out habits… I was very complimentary, and that motivated her to tell me more about her progress."* These examples suggest that external reinforcement continues to play a role, particularly in the earlier stages of behaviour change.

Structured goal setting and follow-up were also identified as important mechanisms for sustaining motivation. Participant 2 (female, health and well-being coordinator) described how reviewing goals alongside clinical measures helps individuals remain engaged, stating, *"We go over our goals and see whether they've actually met them… it's not just about a number, but about their life and what that means for them."* Participant 4 (male, social prescriber) similarly emphasised the importance of tracking progress over time, explaining, *"Creating small victories… zooming in on what they've done well, but also zooming out to compare from the first appointment to now."*

In addition, follow-ups and reminders play a role in maintaining engagement. Participant 6 (male, health and well-being coach team leader) described a structured follow-up process, stating, *"We do an initial 12-week intervention with patients and then follow-ups every quarter for over a year… we book them in every three months for a review."* Participant 3 (female, social prescriber) also highlighted the use of reminders, explaining, *"The surgeries do remind them, yes, through text messages… they will put them in, and that's going to remind them of the appointment on the day."* However, participant 7 (female, health and well-being coach) noted that these reminders often relate more broadly to well-being rather than diabetes-specific management, stating, *"It's related to their well-being. That's what they usually come back for."*

Overall, emotional and motivational support in T2D management involves creating safe spaces for discussion, integrating psychological strategies into care, reinforcing progress through feedback and reflection, and maintaining engagement through structured follow-up. While these approaches support behaviour change, they are often delivered in flexible and context-dependent ways, reflecting both the strengths and limitations of current service provision.

Interpretive analytical synthesis:

What emerges from these accounts is that emotional and motivational support operate as ongoing, relational processes rather than discrete interventions. Emotional support appears to create the conditions for engagement, allowing individuals to feel heard, understood, and capable of reflecting on their behaviours, while motivational strategies help sustain this engagement over time. However, these processes are not linear, as professionals move between providing reassurance, encouraging self-recognition, and offering structured guidance depending on the individual's needs and stage of change. The reliance on both intrinsic and extrinsic forms of motivation highlights a balancing act, where professionals aim to foster independence while still providing necessary reinforcement. At the same time, the informal and often unstructured nature of emotional support suggests that much of this work is embedded within everyday interactions rather than formally recognised within service design. Together, these findings point to the importance of emotional and motivational support as a foundation for behaviour change; while also highlighting the variability in how consistently it can be delivered across different contexts.

4.4 Study 4 - UK: People Living with T2D

Results:

1. Overview:

This study addressed Objectives 2 and 3 of the thesis by examining how social support is experienced by people living with T2D and how social, relational, and healthcare contexts shape its effectiveness in everyday life. The corresponding research questions focused on how social support is experienced and enacted, and how contextual factors influence its delivery and impact.

Across the dataset, three interconnected themes illustrate that social support for people living with T2D is not defined by its presence alone, but by how it aligns with personal expectations, is negotiated within relationships, and is enacted in everyday life. These themes are: 1) Personal Orientations and Expectations of Support, 2) Relational Dynamics as a Filter for Support, and 3) Enacting Support in Everyday Life.

Theme 1 highlights how participants' expectations of support are shaped by values such as independence, beliefs about the seriousness of T2D, and how well support fits within their daily

routines and environments. Theme 2 demonstrates that relationships act as a key filter through which support is interpreted, accepted, or resisted, with trust, reciprocity, and communication style shaping its effectiveness across both personal and professional interactions. Theme 3 brings these elements together by showing how support is enacted in practice, including how knowledge is made meaningful, how practical help is integrated into daily routines, and how emotional and motivational support is negotiated within relationships.

Across these themes, social support emerges as a dynamic and relational process rather than a fixed set of components. Participants' accounts show that the effectiveness of support depends not only on what is offered, but on how it is delivered, by whom, and whether it aligns with the individual's expectations, identity, and lived experience of managing T2D. Support was most effective when it felt relevant, respectful, and adaptable to everyday life, while mismatches between support and personal orientations often led to resistance or disengagement.

Taken together, these findings highlight that effective T2D support is shaped by the interaction between individual identity, relationship quality, and the broader structures of healthcare and social life.

2. Participant Demographics:

Eight individuals living with T2D took part in this study. The sample included four women and four men, with ages ranging from 47 to 77 years (M = 61.5, SD = 9.7). Most participants were older adults, with only two under the age of 55. All participants were based in the United Kingdom and resided in community settings.

While detailed socioeconomic data were not formally collected, participants made indirect references to differences in family involvement, partnership status, and engagement with healthcare services. Participants reported varying durations of living with T2D, ranging from 1 to 18 years (M = 9.0, SD = 5.9). Most participants described being primarily responsible for managing their condition, though many also reported receiving formal or informal support from family members, partners, friends, and healthcare professionals. An overview of participant characteristics is presented in Table 5.

Table 5: Participant Characteristics – Study 4: UK People Living with T2D

Participant ID	Gender	Age	Duration of T2D

P1	Female	58	6 years
P2	Female	58	18 years
P3	Male	47	2 years
P4	Male	52	1 year
P5	Female	77	9 years
P6	Male	73	10 years
P7	Male	69	15 years
P8	Female	58	11 years

3. Theme 1: Personal Orientations and Expectations of Support

Social support for people living with T2D in this study was experienced not simply in terms of its presence or absence, but in how it aligned with personal expectations, the emotional and relational context in which it was offered, and the extent to which it fitted into participants' everyday environments. Across accounts, support was valued when it matched individual preferences and needs, yet it was also described as limited, inconsistent, or difficult to access. These accounts reveal the interpretative nature of support, where its value is not fixed but shaped by how individuals make sense of it in relation to their own beliefs, routines, and expectations.

Sub-theme 1: Understanding and Expectations

Participants demonstrated varied interpretations of social support, with a strong emphasis on family-based systems. Many drew a clear distinction between medical support and what they considered "real" social support, often positioning family as the primary and most legitimate source. Participant 6 (male, age: 73) explained, *"I think the only social support will come from the family, really... I get support in terms of medical support through having regular diabetic reviews with my GP, but I wouldn't call that social support particularly."* This framing suggests that support is understood as inherently relational and personal, rather than institutional, narrowing what participants recognise as meaningful support.

The experience of living with T2D also shaped expectations over time. Participant 2 (female, age: 58) reflected, *"I've never really had any social support as such… my children were younger and didn't really understand it themselves."* Here, long-term adaptation appeared to normalise limited support, reducing reliance on others while reinforcing self-management as the default. This indicates that expectations of support are not static but evolve alongside illness experience, often shifting towards greater independence.

A clear divide emerged between participants who welcomed support and those who actively rejected it. Some valued consistent involvement, while others expressed a preference for managing independently. Participant 5 (female, age: 77) stated, *"Oh, no. I don't need all that. I can do it myself,"* while participant 3 (male, age: 47) noted, *"To be honest, I don't really expect any help from them."* In these accounts, independence functioned not only as a practical approach but as a core value shaping how support is judged, where unsolicited or unnecessary help could be seen as misaligned with personal identity.

Subtle gender differences were also evident. Male participants were more likely to present independence as an individual stance, whereas female participants tended to situate their self-reliance within ongoing relational awareness. For example, participant 2 (female, age: 58) reflected, *"I've never really had any social support as such… my family are aware of it,"* maintaining a relational frame even while managing alone. This suggests that expectations of support are not only shaped by illness experience but also by social and relational norms.

Perceptions of the seriousness of T2D further influenced expectations. Participant 2 explained, *"I don't think it's as significant as the insulin dependent… it's not really a big thing."* Such views appeared to reduce the perceived need for ongoing support, particularly among those who did not experience immediate disruption to daily life. In this context, the perceived normalisation of T2D acted as a mechanism that lowered expectations of external support.

Sub-theme 2: Availability and Engagement with Support

Participants highlighted concerns about the availability and consistency of support, particularly within healthcare systems. Support was often described as present but limited in frequency and depth. Participant 8 (female, age: 58) noted, *"I just don't think it's there regularly enough… it's just, it's not there."* She further explained, *"All I get… is a yearly check with the practice nurse… that is all I get to do with diabetes."* These accounts suggest that support is not

evaluated simply on its existence, but on whether it is continuous and responsive to ongoing needs.

At the same time, engagement with available support was not straightforward. Some participants described resisting support when it was perceived as repetitive or poorly delivered. Participant 7 (male, age: 69) reflected, *"I don't know… not only refusing support, angry because they kept telling me."* This highlights that support can fail not because it is absent, but because it does not align with how individuals prefer to receive it.

Taken together, these findings show that the effectiveness of support depends on both structural availability and personal receptiveness, with mismatches between the two leading to disengagement.

Sub-theme 3: Everyday Contexts and Safe Spaces

The home environment emerged as an important but complex context for support. While participants were often surrounded by others, this did not necessarily translate into effective support. Participant 7 (male, age: 69) described a highly social household, *"It's constantly… someone's staying,"* yet also noted, *"It's not comfortable when everyone's there."* This suggests that social presence alone is insufficient; support must also align with the individual's need for privacy, stability, and routine.

In some cases, highly social environments disrupted self-management by interfering with dietary control, rest, or personal space. This highlights that support is shaped not only by relationships, but also by the fit between social environments and individual needs. Even well-intentioned or socially rich settings could become counterproductive if they undermined a sense of control.

Interpretive Analytical Synthesis:

Overall, this theme demonstrates that social support is not simply received but actively interpreted by individuals in relation to their expectations, beliefs, and everyday circumstances. Participants did not evaluate support solely based on its availability, but on whether it aligned

with their sense of independence, their understanding of T2D, and how well it fitted within their daily routines.

A key mechanism emerging from the data is the role of personal orientation towards independence, which shaped both expectations of support and willingness to engage with it. For some participants, self-reliance reduced the perceived need for support, while for others it acted as a filter through which support was selectively accepted. In parallel, the normalisation of T2D as a manageable condition appeared to lower expectations of external input, particularly when the condition was not experienced as disruptive to everyday life.

At the same time, the findings highlight a tension between structural availability and personal receptiveness. While support was often described as limited or inconsistent within healthcare settings, participants also demonstrated resistance when support was perceived as repetitive, poorly timed, or misaligned with their preferences. This suggests that increasing support alone is insufficient; its effectiveness depends on how it is delivered and whether it is perceived as relevant and respectful.

Finally, the everyday environment emerged as an important but often overlooked factor shaping support. Even in socially rich settings, support could become ineffective when it disrupted routines, reduced comfort, or conflicted with the individual's need for control. This highlights that effective support requires not only the presence of others, but a fit between social context and personal needs.

Taken together, these findings show that social support in T2D management operates through a process of alignment between individual expectations, relational context, and everyday life. When this alignment is achieved, support is more likely to be engaged with and sustained; when it is not, support may be resisted, regardless of its availability or intent.

4. Theme 2: Relational Dynamics as a Filter for Support

Relationship dynamics emerged as a central factor shaping the effectiveness of social support for people living with T2D. Across participants' accounts, support was not experienced in a uniform way but was strongly influenced by the tone, delivery, and balance within relationships. Positive interactions were characterised by trust, mutual respect, and a collaborative approach that preserved autonomy, whereas strained dynamics often involved

tension, criticism, or unmet expectations. These findings suggest that relationships do not simply provide support; they actively shape how it is interpreted, accepted, or resisted.

Sub-theme 1: Supportive Relationships

For many participants, caregivers (mainly family members) played a key role in reinforcing self-care behaviours. Support was most effective when it was embedded in everyday interactions and delivered in a way that felt collaborative rather than directive. Participant 6 (male, age: 73) described how his wife motivated him to be more active: *"So my wife does encourage me to go out and exercise more… Swimming regularly now."* Here, encouragement was experienced as supportive because it was consistent yet non-intrusive, allowing the participant to retain a sense of control.

Similarly, participant 8 (female, age: 58) explained: *"Well, he always makes sure I go to my appointments… reminding me to take my tablets."* These reminders were framed as care rather than criticism, illustrating how the emotional tone of support shaped its acceptability. Participants repeatedly emphasised that support worked best when it felt like a partnership rather than an instruction. For instance, participant 3 (male, age: 47) noted that his wife's input was most effective when educational rather than forceful: *"That's when she will probably be more educated in, like, stop… you're taking too much."*

Across these accounts, support was more likely to be accepted when it respected autonomy while providing gentle reinforcement. This suggests that the effectiveness of support depends not only on what is done, but on how it is relationally positioned.

Sub-theme 2: Tensions and Resistance

While many participants described supportive relationships, others highlighted tensions when support was perceived as controlling, repetitive, or mismatched. These tensions often arose when the delivery of support conflicted with the individual's sense of independence or when expectations within the relationship were not balanced.

Participant 2 (female, age: 58) described a lack of reciprocity within her relationship: *"My husband… he's just been diagnosed… and he's not listening to what I tell him."* This suggests

that shared illness experience does not automatically translate into mutual support, and can instead expose imbalances in engagement and responsibility.

In other cases, repeated reminders led to frustration rather than motivation. Participant 7 (male, age: 69) explained: *"The wife is constantly at me…"* Although intended as support, this was experienced as pressure, highlighting how the same behaviour can shift from supportive to intrusive depending on its delivery and frequency.

These accounts show that support is not inherently beneficial; its impact depends on how it is perceived within the relationship. When support is experienced as undermining autonomy or becoming excessive, it may trigger resistance rather than engagement.

Sub-theme 3: Professional–Patient Dynamics

Interactions with healthcare professionals were also shaped by relational quality, particularly in terms of communication, continuity, and personal engagement. Some participants described routine consultations as brief and impersonal. Participant 3 (male, age: 47) reflected: *"I'm just an ordinary patient."* This sense of detachment suggested that limited relational engagement could weaken the perceived value of professional support.

This was reinforced by inconsistent or minimal feedback during consultations. Participant 3 further noted: *"You don't really get much out of them."* Such experiences reduced confidence in professional input and made it harder for participants to engage meaningfully with advice.

Frequency of contact also influenced perceptions. Participant 3 expressed a desire for more regular follow-up: *"I think you need more than one visit a year."* This highlights that support is not only relationally shaped but also structurally constrained, with infrequent contact limiting opportunities for engagement.

In contrast, positive experiences were reported in acute care situations where needs were addressed quickly and attentively. Participant 5 (female, age: 77) described rapid intervention during an emergency: *"Within four hours… she had everything done."* These experiences suggest that when care is perceived as responsive and personalised, it can strengthen trust and reinforce confidence in the healthcare system.

Interpretive Analytical Synthesis

Overall, this theme demonstrates that relationships act as a central filter through which social support is interpreted, accepted, or resisted. Support was not experienced as inherently helpful, but as something that gained meaning through the relational context in which it was delivered. A key mechanism emerging from the data is the balance between support and autonomy, where support was more likely to be accepted when it preserved the individual's sense of control and was delivered in a collaborative rather than directive manner.

The findings also highlight the importance of relational tone and reciprocity. Support that was perceived as caring, respectful, and mutual strengthened engagement, whereas support that felt repetitive, controlling, or unbalanced often led to resistance. This suggests that the effectiveness of support depends not only on the action itself, but on how it is experienced within the relationship.

In professional contexts, the data point to a tension between structural limitations and relational expectations. Infrequent or impersonal interactions reduced the perceived value of professional support, while responsive and personalised care strengthened trust and engagement. This indicates that relational quality remains important even within time-constrained healthcare systems.

Taken together, these findings show that social support operates through relational processes rather than fixed behaviours. Its effectiveness depends on how well it aligns with the individual's expectations of autonomy, the quality of the relationship, and the manner in which support is delivered. When these elements are aligned, support is more likely to be accepted and sustained; when they are not, support may be resisted, regardless of intention.

5. Theme 3: Enacting Support in Everyday Life

Theme 3 examines how social support is enacted in the everyday lives of people living with T2D, highlighting how different forms of support are experienced, negotiated, and integrated into daily routines. Across accounts, support did not operate as distinct categories but as a relational and context-dependent process, shaped by how individuals positioned themselves in relation to their condition and to others. Its effectiveness depended on how well it aligned with

everyday practices, relationship dynamics, and personal orientations towards independence and care.

Sub-theme 1: Making Knowledge Useful and Credible

Participants described how learning about T2D was shaped not only by access to information, but by who delivered it and how it connected to their everyday lives. Educational support was most effective when it came from trusted sources and was presented in a way that felt relevant and applicable.

For example, participant 1 (female, age: 58) described how her daughter supported her understanding of nutrition: *"She's helped me a little bit… in understanding a bit more about nutrition."* Here, the effectiveness of education was tied to both relational trust and perceived credibility, suggesting that informal support could carry as much weight as professional advice.

At the same time, participants described tensions within their social environments, where different influences could reinforce or contradict each other. This highlights that education is not simply transferred but negotiated within relationships, where competing voices shape how knowledge is interpreted and acted upon.

Participants also emphasised the importance of clarity and meaningful understanding. Participant 1 challenged common misconceptions, stating: *"It's about educating yourself on carbohydrates."* This reflects a move towards deeper engagement with the condition, where individuals seek to understand rather than simply follow instructions. In this sense, engaging with education becomes part of how individuals position themselves as knowledgeable and capable in managing T2D.

However, formal education was often perceived as insufficient or poorly delivered. Participant 8 (female, age: 58) described a group session as lacking depth: *"There was no written handout… that was it."* Similarly, participant 6 (male, age: 73) noted: *"I still think that's limited."* These accounts suggest that when education is not engaging or tailored, it fails to integrate into everyday life, limiting its impact.

Sub-theme 2: Practical and Everyday Support

Tangible support was experienced through everyday actions that helped individuals manage their condition, including medication routines, mobility assistance, and household tasks. These forms of support were often embedded within existing relationships and routines, making them both consistent and taken-for-granted.

Participant 6 (male, age: 73) described how his wife supported medication adherence: *"On a day-to-day basis… it's definitely my wife."* This illustrates how support becomes integrated into daily life, reducing the burden of self-management through shared routines.

Similarly, participant 8 (female, age: 58) described receiving mobility support from a friend: *"I've got a friend who helps me mobility-wise."* This highlights that support networks extend beyond immediate family and play a role in maintaining independence and access to care.

Support also extended to household tasks. Participant 5 (female, age: 77) explained: *"If I need shopping… they're all there for me."* These accounts demonstrate how practical support is embedded in everyday caregiving practices, often reflecting established roles within relationships.

Dietary support further illustrates this dynamic. Participant 7 (male, age: 69) described how his partner influenced meal preparation: *"She knows how to drain everything off."* Here, support is shaped by existing competencies and routines, showing how everyday practices become key sites for diabetes management.

Across these accounts, practical support was most effective when it aligned with the individual's routines and was delivered in a way that maintained a sense of independence. This suggests that support is not only about what is done, but about how it fits within the individual's sense of self and daily life.

Sub-theme 3: Emotional and Motivational Support

Emotional and motivational forms of support were closely intertwined, often expressed through care, concern, reminders, and encouragement. These forms of support were experienced as part of ongoing relationships, shaping both engagement and resistance.

Participant 3 (male, age: 47) described how his sister's concern prompted him to seek care: *"My sister was more concerned… I just ignored it."* This highlights how emotional engagement

can act as a trigger for behaviour change, particularly when individuals may otherwise delay action.

At the same time, participants emphasised that emotional support depends on their willingness to accept it. Participant 3 reflected: *"Somebody will only give you support… how much you let them in."* This suggests that support is negotiated, with individuals maintaining control over how much they engage with others. In this sense, accepting or rejecting support becomes part of how individuals maintain their sense of autonomy and identity.

For others, emotional support was rooted in strong and stable relationships. Participant 8 (female, age: 58) described her relationship as a source of reassurance: *"We're still madly in love… still kiss each other several times a day."* This highlights how emotional closeness can provide a foundation for sustained engagement with self-management.

Appraisal support, such as reminders and feedback, also played an important role. Participant 2 (female, age: 58) described family feedback: *"They will complain to me… you've got to think about your health."* Similarly, participant 6 (male, age: 73) described encouragement around exercise: *"She's very good at getting me out."*

However, these forms of support could also become sources of tension. Participant 7 (male, age: 69) described persistent reminders: *"The wife is constantly at me."* These examples illustrate how the same behaviour can be experienced as supportive or controlling, depending on how it aligns with the individual's expectations and sense of autonomy.

Interpretive Analytical Synthesis

Overall, this theme demonstrates that social support is enacted through everyday interactions, where its effectiveness depends on how it is integrated into daily life, relationships, and personal orientations towards the condition. A key mechanism emerging from the data is the role of identity as a point of alignment, shaping how individuals interpret, accept, or resist support.

Support was most effective when it aligned with how individuals saw themselves, particularly in relation to independence, responsibility, and their understanding of T2D. In this sense, engagement with support was not only about its availability or form, but about whether it fitted with the individual's sense of self and their preferred way of managing the condition.

The findings also show that different forms of support are interconnected rather than distinct. Educational, practical, and emotional support often operated together within relationships, with their impact shaped by trust, tone, and everyday context. This highlights that support does not function as isolated components, but as part of a broader relational process.

At the same time, tensions emerged when support was misaligned with personal expectations or delivered in ways that undermined autonomy. Even well-intentioned support could be resisted if it felt intrusive, repetitive, or disconnected from the individual's lived experience. This suggests that the effectiveness of support depends not only on what is offered, but on how it is perceived and negotiated.

Taken together, these findings show that social support in T2D management operates as a dynamic and relational process, where its success depends on the alignment between individual identity, relationship dynamics, and everyday life. When this alignment is achieved, support can be integrated into daily routines and sustained over time; when it is not, support may be resisted, regardless of its intention or availability.

Section C – Higher Order & Programme Level Analysis

Chapter 5: Integration of Evidence from Studies 1–4

1. Introduction:

This chapter extends the analysis to address Objectives 2 and 3 of the thesis and to fulfil Objective 4. Specifically, it examines how social support is experienced and enacted by patients, family members, and healthcare professionals in the United Kingdom and Morocco, analyses how social, cultural, and health system contexts shape the form, delivery, and perceived effectiveness of social support in each setting, and compares social support needs and practices across the two countries in order to identify transferable and context-specific elements.

As set out in the analytic plan in Chapter 3 (Section 12), this chapter reports the second and third phases of the overall analytic process. Phase 1, the empirical research stage, comprised

the four independent qualitative studies analysed inductively using reflexive thematic analysis (Braun & Clarke, 2006, 2021), and is reported in Chapter 4. Analysis Phase 2 (Part 1 and Part 2) and Analysis Phase 3 build on those inductive findings to deliver the higher-order synthesis, cross-case comparison, and programme-level theoretical integration that this chapter presents.

The chapter operates at the level of findings rather than at the level of primary data; the original interview transcripts are not re-coded or re-analysed. Instead, the themes, interpretations, and analytic insights generated within each study are re-examined and drawn together through a structured process of comparison, preserving the meanings established through the original inductive analyses while enabling the identification of shared patterns, contrasts, and organising principles that are not fully visible within individual studies.

The chapter is organised into three analytic sections, each corresponding to a step within Phases 2 and 3 of the analytic plan. Analysis Phase 2, Part 1: Master Theme presents the higher-order inductive synthesis across all four studies, in which identity emerged as the central organising mechanism through which social support was understood, enacted, and sustained. This was not a pattern anticipated in advance; it surfaced through the synthesis itself and is presented as the master theme. Analysis Phase 2, Part 2: Cross-Case Synthesis builds on the master theme by examining how identity and role played out differently across the UK and Morocco, exploring similarities and contrasts between the two national contexts in terms of cultural norms, relational expectations, and healthcare structures. Together, these two parts preserve participant meaning by building directly on the interpretations developed within each study, rather than imposing an external framework at the outset. Analysis Phase 3: Programme-Level Analysis then applies the COM-B model as a sense-making framework to the synthesised findings, mapping behavioural mechanisms across capability, opportunity, and motivation, and culminating in the introduction of the Social Support Consistency Model.

Analysis Phase 2: Higher Order Analysis - Part 1

5.1 Master Theme: The Importance of Identity in Social Support

2. Overview:

Across the four qualitative studies, a higher order synthesis showed that identity and role functioned as the central organising mechanism through which social support was understood, enacted, and maintained. This master theme was developed through a structured cross case analytic process conducted after completing the reflexive thematic analyses for each individual study in both Morocco and the United Kingdom. The coded datasets and thematic maps were examined side by side, supported by analytic memos and supervisory discussions, to identify patterns that consistently appeared across settings and participant groups. Through this iterative comparison and higher-level abstraction, identity and role emerged as the most coherent and explanatory thread linking the findings.

The analyses presented in this chapter do not involve re-coding or re-analysing primary interview transcripts. Chapter 5 operates at the level of findings, drawing on the themes and interpretations established in Chapter 4. The purpose of this chapter is to conduct a higher-order synthesis across the four studies, using inductive cross-case comparison followed by deductive mapping onto the COM-B framework to explore patterns, contrasts, and explanatory mechanisms across roles and contexts.

Rather than viewing social support as a collection of isolated behaviours or resources, the synthesis showed that its effectiveness was rooted in identity verification processes. People living with T2D described managing their condition more consistently once they internalised the identity of someone living with diabetes, which marked an important shift in motivation and daily routines. Caregivers offered more reliable emotional, informational, and tangible support when they recognised themselves as protectors, facilitators, or co-managers, often shaped by family position, personal values, or lived experience. Health professionals in both contexts provided care that exceeded formal expectations because they identified as helpers, guided by relational responsibility and a personal commitment to patient wellbeing.

Taken together, this cross-case synthesis shows that the real engine of social support lies not only in what people do for one another but in how they understand themselves within the care relationship. When individuals perceive their roles as meaningful and aligned with their sense

of self, support becomes more sustained, more attuned to the needs of others, and more effective. This master theme therefore reframes social support as a dynamic process grounded in identity, where meaningful and consistent support emerges from the alignment of roles across patients, caregivers, and health professionals.

3. People living with T2D: *"You Just Have to Accept It"*: How People Living with Diabetes Took Ownership of the Condition Across the UK and Morocco

Across both the UK and Moroccan contexts, people living with T2D described managing their condition more effectively when they accepted it as part of who they were. This acceptance was rarely immediate; it often followed periods of denial, fear, or frustration. However, once individuals began to identify with the role of someone living with diabetes (rather than seeing the condition as something external or imposed) they described clearer routines, improved motivation, and a stronger sense of control. Self-management became more consistent not because it was enforced by others, but because it aligned with how they saw themselves.

In the UK, several participants spoke about how this shift in thinking changed their behaviour. "*Nobody but you can help yourself… you're the only person who can solve this, fix this, or manage it*" (Participant 1, Female, UK), one participant explained, describing how she had moved from shame to ownership. Others highlighted how practical adjustments like meal sequencing or medication adherence became easier once they accepted the condition as part of daily life. This identity shift often came with a sense of responsibility. "*You learn to understand what's happening in your own body… and teach yourself what to do"* (Participant 4, Male, UK), said another, highlighting how knowledge and advocacy were central to taking charge. For many, diabetes became something they worked with rather than resisted, it became an integrated part of their self-understanding.

In Morocco, participants expressed similar patterns, though the framing was often shaped by spiritual beliefs or caregiving experiences. *"There was a bit of acceptance… anything that comes from God you just have to accept it"* (Participant 17, Female, Morocco). Acceptance in this context was often described to reduce distress and remain emotionally balanced. Others took on the patient role with confidence because of past caregiving. *"I already lived that with my mother… so I knew what to do"* (Participant 7, Female, Morocco). Faith, familiarity, and

community comparison all contributed to how individuals found peace with the diagnosis. *"I try not to fear diabetes… when you are positive about it, it just helps to drop the levels"* (Participant 20, Male, Morocco), one participant noted, suggesting that mindset was both a coping strategy and a practical tool.

What linked these accounts across both countries was the realisation that support (whether internal or external) worked best when it aligned with a deeper identity shift. Accepting diabetes was not about resignation but about recognising one's role in managing it. This identification gave patients a sense of agency. They were no longer passive recipients of care, but active participants in their own wellbeing. Whether shaped by knowledge, spirituality, life experience, or self-reflection, this sense of ownership enabled people to manage more consistently, more calmly, and more confidently. Together, these accounts show how the identity of the person living with diabetes shaped the effectiveness of support, and this identity-based pattern was mirrored among health professionals who also framed their support through who they believed themselves to be.

4. Health professionals:
"It's Who We Are": How Health Professionals in the UK and Morocco Identified with the Role of Helper

Across both the UK and Moroccan contexts, health professionals described a strong identification with the role of the helper, one that consistently extended beyond clinical expectations. This role was not defined by policy or training alone, but by personal values, moral commitment, and a sense of relational responsibility. Whether shaped by compassion, culture, or the recognition of system limitations, participants framed support not as an optional task but as a reflection of who they were and how they understood their place within patients' lives.

In the UK, many professionals described how they compensated for gaps in the healthcare system by offering tailored, emotional, and practical support. A social prescriber explained, *"My role is different. I can pick that apart and figure out what's going on… it's not you are diabetic, so this is what you should do"* (Participant 3, HP, UK,). *"It's hard not to praise them… we all on some level enjoy getting a little bit of recognition, don't we?"* (Participant 6, HP, UK),

another participant admitted. His reflection revealed a tension between institutional frameworks and human instincts.

He also described adapting how he delivered information, tailoring explanations to each patient's background. He recounted comparing glucose regulation to sorting letters in a post office so that one patient who had worked as a postmaster could understand better. "He got it," he said. "It made sense to him" (Participant 6, HP, UK). These acts revealed a deeper sense of responsibility to help where formal systems fell short. As one senior carer put it, "We are the only people helping them anyway" (Participant 1, HP, UK), capturing a broader view of care as both relational and moral.

In Morocco, professionals similarly described going beyond duty, often maintaining contact with patients through WhatsApp or phone calls. *"I usually take the phone number of patients… and try to message them every two three days" (*Participant 2, HP, Morocco), said one intern doctor, especially when patients lived far from the hospital. These voluntary acts were grounded in a personal commitment to accessibility and care. Emotional investment was also common, with professionals sharing how they comforted distressed patients, explained things slowly, or offered reassurance: *"When I feel a patient is sad or stressed, I take time to calm them down and explain"* (Participant 12, HP, Morocco). Rather than threatening professional boundaries, such closeness was described as essential to effective support. *"Even my parents tell me I have to be like a proper doctor. I personally don't mind even if a patient calls me by my name"* (Participant 2, HP, Morocco).

What united these professionals across both countries was not simply the support they provided, but the way they internalised the helper identity. Whether motivated by their role in a stretched healthcare system, by personal experience, or by spiritual and relational values, they helped because they believed it mattered. Their willingness to act was central to how they made a difference. As one Moroccan nurse summarised, "Even if they don't ask for it, I offer support. It is what we should do" (Participant 9, HP, Morocco). In both settings, effective support emerged not only from simply fulfilling a role, but from a deeper identification with being in the person who needs to notice, step in, and remain present. A similar process was reflected in the accounts of caregivers who also framed their support through deeply held role identities that influenced both the form and consistency of the help they provided.

5. Caregivers:

"They Knew What They Could Offer": How Caregiver Identity Shaped Support Across the UK and Morocco

This theme examines how caregivers supported people living with T2D across both the UK and Moroccan contexts, focusing on the significance of how caregivers identified with the role of a helper. While the structure and setting of care varied, effective support consistently emerged when caregivers felt a sense of ownership over their role as helper and clarity over what they could contribute. This identification was often rooted in family roles, professional aspirations, lifestyle, or cultural expectations, and shaped both the type and consistency of support offered.

In Morocco, caregivers frequently acted from an internalised sense of duty, linked to traditional roles or lived experience. Some husbands interpreted unspoken cues as requests for help, reflecting their identity as financial providers: *"I just put the box of medicine on the table without saying a word and he understands that I need him to go buy them"* (Participant 7, Female, Patient, Morocco). Others framed their role around medical knowledge or personal health values. One woman described how her daughter, a medical student, took the lead in teaching her how to monitor and interpret blood sugar levels. In another case, a son who identified with being active and health-conscious extended this into tangible reminders and informal motivation: *"He comes to me and acts like my mate… like 'come on bro you can't be doing this to yourself'"* (Participant 11, Patient, Morocco). Across these accounts, caregivers provided support not because they were asked, but because they felt responsible, prepared, and connected to the patient's wellbeing.

In the UK, similar patterns emerged. One participant described how her husband regularly reminded her to take her medication and adapted his food purchases to accommodate her needs: *"He won't buy it (sugar) and he won't bring it in the house*" (Participant 8, Female, Patient, UK). This practical involvement was underpinned by emotional commitment and a shared sense of managing the condition together. Another participant credited her daughter for teaching her how to inject insulin, shaped by her prior experience caring for another family member. In these cases, support was offered through a combination of emotional concern and confidence in what they knew how to do. Importantly, support was not just about being available but about recognising where they could genuinely contribute.

Across both contexts, support was strongest when caregivers did not simply perform tasks but unconsciously identified with the role of helping with a specific task or components of social support. Whether through family position, lifestyle, or occupation, caregivers who felt willing to help and confident in their contribution offered more consistent, tailored, and trusted support. Their identity shaped their engagement, turning everyday actions into sustained forms of care that responded to patients' needs both practically and relationally.

6. Relevance to Existing Literature

The findings align with previous literature showing that identity plays a critical role in chronic illness management. According to Charmaz (1995), accepting illness involves redefining the self, a process evident among both UK and Moroccan participants who managed better once they no longer resisted the diagnosis but integrated it into their identity. Similarly, Kralik et al. (2004) describe how long-term conditions reshape self-concept over time, enabling individuals to adapt behaviourally. The idea advanced by Schoen et al. (2001) that self-management improves when patients develop agency and ownership also resonates here, as participants became more engaged when they moved from passive recipients to active participants in care.

From the perspective of caregiving identity research, Revenson et al. (1991) and Mahrer-Imhof and Imhof (2008) argue that when family members perceive the caregiver role as meaningful and aligned with their values, such as being a provider or a health-informed relative, they are more likely to offer consistent and relevant support. Gallant (2003) similarly suggests that support is more effective when it comes from individuals who believe in their capacity to help. This was evident in both UK and Moroccan caregivers who provided financial, emotional, or informational support in ways that matched their strengths and role perceptions.

For health professionals, studies such as McCaughan et al. (2011) and May et al. (2009) show that when clinicians identify as helpers and not only as clinicians, they are more likely to engage in emotional and sustained support. This was reflected in the findings, where professionals across both settings offered care that extended beyond their formal duties. Together, these strands of literature reinforce the importance of role identity, not only for people living with T2D, but also for those around them, in shaping how care is understood, delivered, and maintained.

Identity theory provides a framework for understanding these findings. As Burke and Stets (2009) explain, identities function as internal standards that guide behaviour through a feedback process. When an identity is activated, the meanings that define it shape behaviour, creating consistency over time. This explains why health professionals, caregivers, and patients who identified with their roles provided ongoing support. For instance, the UK social prescriber's comment, "My role is different. I can pick that apart and figure out what's going on," illustrates how professional helper identity drove behaviour beyond formal requirements. Similarly, the Moroccan nurse's reflection, "Even if they do not ask for it, I offer support. It is what we should do," shows how helping behaviour became automatic when aligned with identity standards.

Identity Control Theory, as outlined by Burke (1991) and Burke and Cast (2007), further clarifies why identity-based helping behaviour is more consistent than duty-based action. This theory suggests that individuals continuously monitor whether their behaviour matches their identity standards, adjusting to maintain verification. This process was evident in the Moroccan intern doctor who maintained WhatsApp contact with distant patients, not as protocol but as a way of affirming her identity as a caring professional. As Stets and Carter (2012) argue, non-verification produces negative emotions such as shame and guilt, which then motivate corrective behaviour to restore alignment.

The patient theme "You Just Have to Accept It" also reflects identity theory, particularly Burke and Stets' (2009) claim that verified identities generate positive emotions and sustained motivation. Patients who accepted diabetes as part of their identity moved from reluctant compliance to autonomous motivation. For example, one UK participant reflected, "Nobody but you can help yourself... you are the only person who can solve this, fix this, or manage it." Here, adopting the identity of someone living with diabetes created internal standards for self-management, making behaviour more consistent and effective.

From a cross-cultural perspective, Burke and Stets (2023) emphasise that identity processes are fundamental social-psychological mechanisms that transcend culture. The present study supports this claim, showing that while expressions of helper identity varied, such as formal follow-ups in the UK compared with WhatsApp communication in Morocco, the underlying identity verification processes remained consistent.

Finally, drawing on Stets and Harrod (2004), contextual factors and relative social status influence the ability to verify identities. This study extends identity theory by showing how

multiple stakeholder identities, including health professionals, caregivers, and patients, can align to create supportive healthcare relationships. When these roles complement one another, they create contexts that enable mutual identity verification and sustained support. The key implication is that effective healthcare support may depend less on formal structures and more on identity alignment across the care network. This suggests that fostering identity development may be more impactful than imposing behavioural expectations.

Implications for Understanding and Redefining social support in T2D:

Drawing on Stets and Harrod's (2004), contextual factors and relative social status influence the ability to verify identities. This study extends identity theory by showing how multiple stakeholder identities, including health professionals, caregivers, and patients, can align to create supportive healthcare relationships. When these roles complement one another, they create contexts that enable mutual identity verification and sustained support. The key implication is that effective healthcare support may depend less on formal structures and more on identity alignment across the care network. In other words, it is the recognition and enactment of identity that makes social support effective, suggesting that fostering identity development may be more impactful than imposing behavioural expectations.

This perspective offers a shift in how social support is understood and utilised. Rather than viewing support only as the exchange of resources such as information, empathy, or practical help, it can also be seen as a process of identity verification. Support becomes most effective when it affirms the identities of both giver and receiver, helping caregivers act in ways that match their role perception, professionals act in ways consistent with their helper identity, and patients see themselves as capable self-managers. This reframing explains why the same behaviour may feel supportive in one context and unhelpful in another, depending on whether it aligns with identity. It also suggests that strengthening identity alignment across families and healthcare teams can enhance relationship dynamics, making social support more consistent, meaningful, and sustainable.

Conclusion:

Overall, identity and role are central to how social support is understood and enacted across all four studies. Support became most effective when it aligned with who individuals believed themselves to be, whether as someone living with diabetes, a caregiver, or a health professional.

This cross-case pattern highlights that the consistency and quality of support were shaped less by formal expectations and more by internalised role meanings that guided behaviour over time. By drawing these findings together, the synthesis demonstrates that identity-based processes underpin the relational dynamics through which social support is offered, received, and sustained across different cultural and organisational contexts.

Analysis Phase 2: Higher Order Analysis - Part 2

5.2 Integrated Cross-Case Synthesis

7. Overview:

This section presents an integrated cross case synthesis of the four qualitative studies, bringing together perspectives from people living with T2D and health professionals in Morocco and the United Kingdom. It highlights how social support was understood and enacted differently across contexts, with Moroccan participants emphasising relational, continuous, and family oriented support, and UK participants framing support within a culture of autonomy and individual responsibility. The chapter examines how professional roles, relationship dynamics, and the delivery of informational, tangible, emotional, and appraisal support shaped the consistency and effectiveness of care. It also shows how cultural norms and expectations influenced whether support was welcomed, resisted, or embedded in daily life. Taken together, the synthesis demonstrates that effective social support in T2D management depends not only on what is offered, but on how it is interpreted, negotiated, and sustained within specific relational and cultural environments.

8. How Social Support is Understood

The most fundamental difference between the two contexts was not in the forms of support that existed but in how support was understood as a category of experience. In Morocco, support was not thought of as an intervention or a resource to be deployed. It was simply part of how relationships worked. Health professionals described their practices in relational and moral terms, framing care as an empathetic alliance between patient, family, and professional. That alliance was not something they had been trained to build; it emerged from the same cultural

expectations of closeness and shared responsibility that shaped their everyday social interactions. Support, in this framing, was enacted through interpersonal relationships rather than through formalised frameworks, drawing on the social capital embedded in collectivist networks rather than on institutional systems (Bourdieu, 1986; Putnam, 2000).

People living with T2D in Morocco held a corresponding understanding. Support from family was not only expected; it was experienced as care, delivered with warmth and often without being requested. The collectivist orientation that made support available also made it morally weighted: to withhold help when a family member was unwell was not simply an absence of generosity but a breach of relational expectation. Care was understood as embedded in everyday interactions and routine behaviours rather than as something separately enacted (Mayberry & Osborn, 2012; Rosland et al., 2012). This did not mean that all support was effective. Whether it translated into anything useful depended on the quality of the specific relationship within which it was offered, and participants were clear that collectivist expectation did not automatically produce collectivist benefit.

UK professionals and patients inhabited a different conceptual world. Support was understood pragmatically, as coaching, signposting, or encouragement, and its appropriateness was always conditional. Patients described accepting help only when it aligned with their desire for independence, and several were explicit that unsolicited involvement felt intrusive even when well-intentioned. This reflects the individualistic orientation of UK healthcare culture, where autonomy is prioritised and support is negotiated rather than assumed (Hofstede, 2001; Joseph-Williams et al., 2019). Professionals echoed this framing, describing their roles in terms of behaviour change facilitation or care coordination rather than relational care, a distinction that shaped both what they offered and how they justified it.

What emerges from placing these understandings alongside each other is that social support does not have a single meaning that travels across contexts. Its content, its source of legitimacy, and the conditions under which it is considered appropriate are all culturally constructed. The same act of reminder, suggestion, or physical closeness could be interpreted as care in one context and as interference in another, not because the act was different, but because the relational and cultural frameworks within which it was received were different. Effective support must therefore attend not only to what is offered but to the framework of meaning through which it will be interpreted.

9. Professional Roles and Capacity

Health professionals in both settings recognised the importance of social support, but their capacity to deliver it consistently was shaped by markedly different conditions. In the UK, community-based professionals, including social prescribers, wellbeing coaches, and carers, developed their approach largely through experience rather than through formal training in social support. The variability this produced was not incidental but structural: what one professional felt equipped to offer depended on the particular experiences and interests they happened to have accumulated. Support was frequently described as something fitted in around other responsibilities, and the delivery of emotional or relational care in particular was carried out informally and without institutional recognition (Southby and Gamsu, 2018). Broader service pressures reinforced this pattern. Time-limited contracts, fragmented community provision, and unclear role boundaries meant that follow-up was inconsistent and continuity was rarely built into the design of care (Frost et al., 2020; Baird et al., 2016).

In Morocco, professionals operated within a more relationally embedded model. Doctors and nurses described providing medical treatment, structured education, emotional reassurance, follow-up communication, and active family engagement as parts of a single integrated practice, not as separate components to be selectively offered. These practices were often initiated informally and driven by a sense of personal and moral responsibility, consistent with multidisciplinary diabetes care models in which clinical management and relational continuity are treated as inseparable (Sørensen et al., 2020; Willens et al., 2011; Levengood et al., 2019). The hospital's use of a dedicated education unit reflected the value placed on personalised and accessible education in promoting self-management, consistent with therapeutic patient education approaches used elsewhere in Morocco (Belhaj et al., 2024; El Habchi et al., 2024).

What was shared across both settings was the gap between what professionals understood to be needed and what institutional structures made consistently possible. In the UK, this gap was filled through individual initiative that varied from professional to professional. In Morocco, it was filled through personal and cultural commitment that, while powerful, placed considerable burden on junior staff who lacked formal support for the relational labour they were performing. Early-career professionals are known to be particularly vulnerable to emotional exhaustion when role boundaries are unclear and relational demands are high (Rotenstein et al., 2018; Dornan, 2012; Mikkola et al., 2018). The personal and consistent nature of informal follow-up practices, phone calls, WhatsApp messages, check-ins after discharge, represented what Thoits (2011) describes as invisible work: unrecognised advocacy and monitoring that

sustained continuity of care without appearing in any formal account of what was being provided.

Taken together, these findings suggest that in both contexts, the delivery of social support depends more on the willingness and relational investment of individual professionals than on the design of the systems within which they work. The tension between structure and relationality is the defining feature of professional support in both settings: the UK has structures but limited relational continuity; Morocco has relational continuity but limited structural reinforcement. Effective social support requires both, and neither context has found a stable way of combining them.

10. Relational Dynamics

Relationships functioned across all four studies not simply as channels through which support was delivered but as the conditions that determined whether support was accepted, resisted, or made meaningful. This was evident in both the professional–patient relationship and in the family dynamics surrounding people living with T2D.

In Morocco, relational proximity was a defining feature of care. Health professionals frequently described their interactions in terms that echoed familial closeness, treating older patients as they would a parent, maintaining personal contact after discharge, and engaging with family members as co-managers of the patient's condition. This emotional investment facilitated trust, openness, and sustained engagement (Pettersson, 2022; Freeman & Hughes, 2007). It also created complexity. The same closeness that made care feel personal and meaningful introduced ambiguity around professional boundaries and increased the emotional demands placed on junior staff. Relational proximity operated as a double-edged mechanism, enabling engagement while generating strain (Petrak et al., 2015).

Among people living with T2D in Morocco, support was distributed across family networks, with different members contributing to medication management, dietary practice, and emotional reassurance. Caregivers who actively identified with their role provided consistent and reinforcing support; those who were disengaged, critical, or absent left patients feeling unsupported regardless of the broader cultural expectation that care should be shared (Bouldin et al., 2017; Mirhosseini et al., 2021). The quality and alignment of relationships determined the effectiveness of support far more than its nominal availability. Beverly et al. (2008) and Rintala et al. (2013) document this same pattern in the literature: family support is effective when the interpersonal dynamics are characterised by trust, shared understanding, and clarity

of role. When those conditions are absent, family presence can be as unhelpful as family absence, and in some cases more damaging (Wolff et al., 2020; Feliciano et al., 2022).

In the UK, relational dynamics were characterised by negotiation rather than assumption. Support was most effective when it was embedded in everyday interactions, delivered collaboratively, and offered in ways that preserved the individual's sense of control. Encouragement was welcomed when it felt like partnership; it was resisted when it felt like monitoring. This pattern reflects the broader principle articulated by relational autonomy theory (Feeney & Collins, 2014): autonomy is not constructed in isolation but within relationships, and the conditions under which it can be sustained determine whether support is experienced as enabling or constraining. Reciprocity shaped these experiences in important ways. Individuals with partners who also had T2D described tensions when the condition was shared but the engagement with it was not, a pattern illuminated by equity theory (Walster et al., 1978) and by social comparison processes that could simultaneously motivate and unsettle self-management (Festinger, 1954).

What cuts across both contexts is the finding that the same gesture (a reminder, a suggestion, a hand on the shoulder) could be received as caring or intrusive depending entirely on the relational conditions in which it was offered. This means that support cannot be evaluated on the basis of its type or frequency alone. Its effectiveness is always mediated by the relationship through which it is delivered, filtered through the identity and expectations of both giver and recipient, and shaped by the cultural framework that defines what counts as appropriate care.

11. How Support is Enacted in Everyday Life

The enactment of social support in everyday life differed significantly across the two settings, and these differences were most visible in how informational, tangible, emotional, and appraisal support were experienced in practice.

Knowledge was developed and shared through fundamentally different processes in Morocco and the UK. In Morocco, understanding of T2D emerged from relational and experiential encounters: conversations with family members, advice from peers living with the condition, observation of others' health trajectories, and guidance from professionals delivered through culturally familiar examples and demonstration. Knowledge was co-constructed and validated

through relational exchange rather than individually acquired (Pamungkas et al., 2017; Pesantes et al., 2018). Peer-based learning enhanced patient engagement and reduced isolation, with shared routines and mutual reminders forming a subtle infrastructure of collective vigilance (Deakin et al., 2005; Centola, 2011). The informal nature of this knowledge, however, introduced variability: participants were sometimes exposed to fear-based narratives drawn from others' experiences of complications, a dynamic that Gao et al. (2013) identify as simultaneously informing and unsettling. In the UK, knowledge was understood as an individual responsibility. Self-directed learning through online resources or personal research enabled autonomy for those with sufficient health literacy, but left those without it underserved. Formal professional education was often described as generic or poorly timed, limiting its long-term impact. Health literacy-sensitive communication (Batterham et al., 2016) and autonomy-supportive information delivery (Powers et al., 2020) have both been identified as important conditions for effective informational support, and their absence was visible in the accounts of UK participants who found professional guidance difficult to apply to their lives.

Practical support in Morocco was deeply embedded in daily life and offered, in most cases, without explicit negotiation. Family members adapted meals, assisted with medication, managed appointments, and organised household responsibilities as expressions of shared caregiving responsibility. Family-centred approaches of this kind have been shown to improve diabetes-related knowledge and self-management behaviours across cultural contexts (Armour et al., 2005; Pamungkas et al., 2017), and implicit family support embedded in routine interactions can foster self-management without threatening the patient's sense of autonomy or self-esteem (Taylor et al., 2004). The limitation of this model was its dependence on the strength and availability of family relationships and the disproportionate burden it placed on women. In the UK, practical support was negotiated rather than assumed, which protected autonomy but also created gaps for those without strong personal networks or for those who found it difficult to ask for help. Tangible support was most useful when it complemented self-management, filling temporary gaps and maintaining continuity of care (Koetsenruijter et al., 2016), rather than substituting for it.

Emotional support was expressed through different registers in each context. In Morocco, it was embodied and explicit: physical reassurance, calming tone, storytelling, and culturally meaningful expressions of care reduced fear, stigma, and resistance in ways that aligned with patient expectations rooted in collectivist norms and high-power-distance relationships (Morrow et al., 2013; Deci & Ryan, 2000). This form of support fostered relatedness and

intrinsic motivation, enabling patients to feel supported and willing to engage with their condition. The cost was the emotional labour it imposed on providers, much of which was unsupported by formal structures (Thoits, 2011; Sturt et al., 2015). In the UK, emotional support was more restrained and implicit. Patients valued reassurance that preserved their autonomy and dignity rather than requiring them to display vulnerability. Research across six European countries confirms that emotional support for diabetes management evolved over time, was integrated with informational support, and emerged through both implicit and explicit strategies within ongoing relationships (Koetsenruijter et al., 2015), and this finding was consistent with the UK data. The limitation was that emotional support was less consistently integrated into care and more dependent on the quality of individual relationships than on any design feature of the service.

Appraisal support, through reminders, feedback, and encouragement, also took different forms in each context. In Morocco, it was embedded in family and community interactions and expressed through culturally accepted modes of correction: humour, persistent prompting, adjustments to food portions. Where relationships were warm and trusting, this was received as care; where they were strained, it generated resistance or disengagement. Professional appraisal support, delivered through phone calls and WhatsApp follow-up, fostered patient motivation by strengthening the sense of relatedness and competence that self-determination theory associates with intrinsic engagement (Deci & Ryan, 2000; Resnicow and Vaughan, 2006; Fisher et al., 2017; Michie et al., 2009). In the UK, appraisal worked best when it was collaborative and autonomy-supportive, acknowledging progress without undermining agency (Hargreaves et al., 2021; Joseph-Williams et al., 2019). It failed when it became repetitive or directive, at which point patients experienced it as control rather than care and often withdrew. The shift towards fostering intrinsic recognition of progress, described by several UK professionals, reflects an awareness of the research showing that motivation is more durable when it is internalised rather than externally maintained (Teixeira et al., 2012; Fjeldsoe et al., 2009).

12. Consistency and Distribution of Support

The most consistent finding across all four studies was that support was most effective not when it was intensive at any single moment but when it was reliable across time and reinforced across multiple relationships and settings. Isolated or one-off acts of support, even well-intentioned ones, rarely produced sustained change. What made a difference was whether patients could anticipate support, rely on it over time, and draw on it from more than one source.

In Morocco, support was often continuous and embedded within the rhythms of everyday life. Family members played ongoing and clearly defined roles, and support did not need to be actively sought because it was maintained through routine interaction and shared responsibility. Some health professionals extended this continuity informally through post-discharge contact, which patients interpreted as genuine personal investment rather than as clinical protocol. This temporal consistency aligns with research showing that longitudinal and embedded support leads to more durable behavioural change and better glycaemic control than one-off interventions (Powers et al., 2020; Booth et al., 2013), and with evidence from family-centred interventions where collaborative goal-setting improved adherence over time (Rosland et al., 2019). The vulnerability of this model was structural: continuity depended on informal obligation rather than formal design, and when relational dynamics were strained or caregivers experienced fatigue, the support network could fracture without any institutional alternative in place. Family support, as Rosland et al. (2010) observe, can both facilitate and hinder chronic illness management depending on the quality of the relationship, and this thesis confirms that dynamic with particular clarity.

In the UK, the pattern was different. Support was episodic and time-limited, often concentrated in the period immediately following diagnosis and then progressively withdrawn as the condition was considered stable. Follow-up was infrequent, and the discontinuity of community-based services meant that patients who had begun to rely on a particular professional or service often found that relationship severed by funding changes, contract endings, or staff turnover (Frost et al., 2020; Goodwin et al., 2012). The effect was that support was present at the moment it was most structurally available, which was not always the moment it was most needed.

The distribution of support across social networks was equally significant. In Morocco, support was shared across multiple family members in complementary ways, different individuals contributing to medication management, dietary practice, emotional reassurance, and practical coordination. This distributed model meant that the absence or fatigue of any single person did not collapse the whole structure, though it could disrupt it, and it reflected broader social capital embedded in collectivist networks (Bourdieu, 1986; Putnam, 2000). The gendered pattern of distribution, however, placed a disproportionate share of this labour on women, a finding consistent with broader evidence on the unequal distribution of informal care within collectivist contexts (Pamungkas et al., 2017). In the UK, support was more often concentrated within a single relationship, and its resilience depended on the stability of that relationship. When the

key individual was unavailable or disengaged, few alternative sources were in place. This concentration reflects individualistic care frameworks that, while protecting autonomy, leave support structures more vulnerable to disruption (Kendall et al., 2011). Taken together, these findings support distributed support system frameworks (Thoits, 2011; Rosland et al., 2018) and the Chronic Care Model (Wagner et al., 1996), both of which emphasise that coordinated, ongoing support across multiple points of contact is a condition for sustained self-management rather than a supplement to it.

13. Cultural Context and the Meaning of Support

Participants in both settings rarely spoke about culture explicitly, but their accounts were shaped throughout by distinct cultural logics that governed who was expected to provide support, how it should be offered, and when it crossed the line into something unwelcome. Culture functioned not as a background variable but as a framework of meaning through which relational roles and expectations were interpreted and enacted.

In Morocco, social support was embedded within a collectivist orientation where interdependence, familial duty, and relational closeness were taken for granted. Caregiving was understood as something normal and expected, and the absence of support was experienced not merely as a practical gap but as a moral failure. This made support feel reliable and continuous, but it also constrained how freely it could be renegotiated. Patients who found support burdensome or misaligned with their needs had limited cultural permission to say so. Professionals operated within the same logic, seeing emotional closeness as an extension of moral obligation rather than as a departure from professional norms. But the relational depth that made care effective also made it unsustainable when driven solely by individual effort and cultural expectation, with no institutional recognition of the labour involved. Collectivist societies favour relational, holistic support rather than compartmentalised forms (Triandis, 1995; Hall, 2018), and this thesis confirms that pattern, while also showing how the assumption of support within collectivist contexts can conceal inequality and limit the ability of individuals to negotiate what they actually need. Crucially, collectivism shaped the availability and expectation of support, but not its effectiveness: that remained contingent on the quality of individual relationships (Kim et al., 2008; Morrow et al., 2013).

In the United Kingdom, the dominant cultural narrative was one of autonomy, privacy, and clearly delineated roles. Support was viewed as a resource to be opted into rather than an

obligation to be assumed. People living with T2D emphasised independence and self-reliance, and several described turning down help that they experienced as compromising their sense of control. The cultural expectation of emotional restraint meant that support was most welcome when it was subtle, negotiated, and respectful of personal boundaries (Sallay et al., 2021; Ryan et al., 2008). Health professionals worked within the same cultural frame, often cautious about becoming too relationally involved, prioritising efficiency and professional distance in ways that protected their boundaries but limited the depth of care they could offer to isolated patients. This individualistic orientation produced different constraints: where the Moroccan model could conceal caregiver burden and silence those who wanted more autonomy, the UK model could lead to under-support, where people felt obliged to manage alone even when they did not want to. Illness identity theory (Charmaz, 1995; Bury, 1982) helps explain how individuals in both contexts navigated this tension, seeking support that aligned with their self-concept and resisting forms of help that threatened their sense of independence or signalled unwanted dependency. Social capital theory (Bourdieu, 1986; Putnam, 2000) illuminates how access to support was shaped by the relational networks and cultural expectations that individuals inherited rather than chose.

The critical insight that emerges from this comparison is that culture does not simply influence how support is delivered. It shapes whether support is experienced as possible at all, and on what terms. Interventions that aim to improve social support in T2D management must engage with these frameworks of meaning rather than simply mapping the type of support onto the setting. Practices that are effective in one context may not transfer directly to another without careful adaptation to local norms, resources, and relational structures (Dankoly et al., 2023; Al Hassani et al., 2024).

14. Methodological and Contextual Considerations

While this cross-case synthesis provides a comparative understanding of how social support operates across both settings, several methodological and contextual considerations shape how the findings should be read.

The comparison between Morocco and the United Kingdom reflects two distinct healthcare systems and cultural environments. Differences in service structure, resource availability, and cultural expectations mean that findings should be understood as contextually grounded rather than directly comparable in a generalisable sense. Rather than aiming for equivalence, the

comparison offers insight into how support is shaped under different relational and structural conditions, and what each context reveals about what the other takes for granted.

The composition of the samples may have influenced the findings in both directions. The Moroccan patient sample was predominantly female, which may have amplified the visibility of caregiving roles and relational dynamics within family contexts. The UK sample was smaller, which may have narrowed the range of experiences captured, particularly in relation to variability in service provision and access to support across different socioeconomic circumstances. These differences highlight how social support is experienced unevenly across populations and should be interpreted in relation to participant characteristics rather than treated as representative of all people with T2D in either setting.

The study adopts a reflexive thematic analysis approach, meaning that findings are interpretive and co-constructed between participants and the researcher. The aim was not to produce generalisable claims but to develop a contextually grounded and theoretically informed understanding of how social support operates in practice. The analysis reflects patterns of meaning rather than objective representations of reality. The researcher's positionality as a bilingual Moroccan researcher trained in health psychology shaped both data collection and interpretation. This provided cultural insight and facilitated access but also required sustained reflexivity to ensure that familiarity with the Moroccan context did not lead to assumptions that foreclosed alternative readings.

Finally, the findings are based on participants' accounts of support rather than direct observation of behaviour. Accounts provide valuable insight into how support is perceived and negotiated in everyday life, which is precisely what the study aimed to understand, but they may not fully capture how support is enacted in moments that participants did not describe or chose not to share. These considerations do not limit the value of the findings; they situate them.

15. Relevance to Existing Literature

The findings from this cross-case synthesis are consistent with a growing body of literature highlighting the importance of social support in T2D self-management, particularly in relation to adherence, behaviour change, and psychological adjustment (Pamungkas et al., 2017; Powers et al., 2020; Booth et al., 2013). Across both Morocco and the United Kingdom, participants described social support as playing a meaningful role in shaping how they engaged

with their condition, reinforcing the established view that support is a key determinant of diabetes outcomes. Emotional wellbeing is both a driver and a consequence of those outcomes, and psychological distress can undermine patients' ability to form or sustain the supportive relationships on which self-management depends (Sturt et al., 2015; Petrak et al., 2015).

The present findings extend this literature by demonstrating that the effectiveness of social support is not determined by its presence or type alone but by how it is delivered, interpreted, and sustained within everyday life. Existing frameworks, including House's (1981) typology of informational, emotional, tangible, and appraisal support, have been influential in categorising what support looks like, but the findings suggest that these components rarely operate in isolation. Instead, support was experienced as relationally embedded and dynamically enacted, aligning with more recent work on the importance of relational continuity and patient-centred care in chronic illness management (Freeman & Hughes, 2007; Joseph-Williams et al., 2019). Research across six European countries confirms that emotional support for diabetes management evolved over time, was integrated with informational support, and emerged through both implicit and explicit strategies within ongoing relationships (Koetsenruijter et al., 2015), and this thesis finds the same pattern operating across a much wider cultural distance. The informal, relational character of support in both settings reflects the invisible work of caregiving described by Thoits (2011): unrecognised advocacy and monitoring that sustains continuity of care without appearing in any formal account of service delivery.

The cross-cultural comparison contributes to the literature by offering a more nuanced account of how support operates within and across different cultural contexts. Previous research has highlighted the role of collectivist cultures in facilitating family-based support (Pesantes et al., 2018; Pamungkas et al., 2017), and the present findings support this by showing that support in Morocco was continuous, relationally embedded, and distributed across family networks. But the findings also qualify this claim: collectivism shapes the availability and expectation of support without determining its effectiveness. Variations in relationship quality, communication style, and alignment with patient needs meant that support could be resisted, misunderstood, or experienced as burdensome even in collectivist contexts. Social comparison theory (Festinger, 1954) helps explain the tensions that arose within families when relatives with similar health profiles engaged differently with self-management, while equity theory (Walster et al., 1978) illuminates why lack of reciprocity in shared illness contexts generated frustration and disengagement.

The UK findings align with literature emphasising autonomy and self-management within individualistic healthcare contexts (Hofstede, 2001; Frost et al., 2020), and confirm that prioritising autonomy can inadvertently reduce opportunities for sustained relational support. The support that was most effective in both settings was neither purely individual nor purely collective in its orientation: it was consistent, distributed, and relationally attuned to the specific person and relationship through which it was being offered. This is the core contribution of the present study to the existing evidence base: shifting the focus from identifying what support is needed to understanding how support is organised, sustained, and experienced as meaningful in practice. This shift aligns with the Chronic Care Model (Wagner et al., 1996), with distributed support system frameworks (Thoits, 2011; Rosland et al., 2018), and with the broader argument that isolated interventions are insufficient for chronic illness management. It also lays the ground for the Social Support Consistency Model, which is developed and discussed in the following chapter.

16. Conclusion

This cross-case synthesis, taken together with the master theme that precedes it, positions social support as a dynamic and relational process that unfolds across time and context rather than as a fixed set of components to be identified and applied. The effectiveness of support depends on the alignment between the identities of those involved in the care relationship, the relational conditions within which support is offered and received, the cultural frameworks that define its meaning and appropriateness, and the degree to which it is sustained and distributed across the individual's social environment.

The comparison between Morocco and the United Kingdom illuminates how these conditions can take different forms without changing what is fundamentally required. In Morocco, identity alignment, relational depth, and cultural expectation produced continuous and embedded support, but one that relied heavily on informal labour and was vulnerable when relational dynamics broke down. In the UK, structured provision, professional boundaries, and respect for autonomy produced organised but episodic support, one that protected independence but often failed to sustain the relational continuity that makes support meaningful over time. Neither model is adequate on its own. What is needed is an approach that recognises the structural conditions required for support to be consistent and distributed, while remaining attuned to the relational and cultural conditions that determine whether it is actually received.

Self-determination theory (Deci & Ryan, 2000) offers one lens for understanding this: professionals' empathetic engagement fosters patients' sense of relatedness and competence, enabling intrinsic motivation to manage T2D. Relational autonomy theory (Feeney & Collins, 2014) adds another: autonomy is constructed and exercised within relationships rather than in isolation. Equity theory (Walster et al., 1978) illuminates why imbalanced exchanges generate frustration and disengagement. Social comparison processes (Festinger, 1954) explain how observing others' trajectories can both motivate and unsettle. Taken together, these theoretical lenses confirm that the relational and emotional dimensions of support are as important to its effectiveness as its practical content. Together with the identity mechanisms identified in section 5.1, they form the conceptual foundation from which the Social Support Consistency Model is developed in Chapter 6.

17. Summary of Cross-Case synthesis:

Table 6:Cross Case Summary of Social Support Across Morocco and the United Kingdom

Analytical Dimension	Morocco	United Kingdom
How Support is Understood	Support is constructed as a relational and moral responsibility, embedded within close family ties and everyday life. It is expected, shared, and rarely questioned.	Support is constructed as conditional and autonomy-sensitive. Help is accepted when it aligns with independence but resisted when perceived as intrusive.
Positioning of Health Professionals	Professionals often adopt relational and family-like roles, extending care beyond clinical boundaries through emotional engagement and informal follow-up.	Professionals operate within clearly bounded roles, providing structured but time-limited input shaped by service constraints and defined responsibilities.
Capacity to Provide Support	Capacity is driven by cultural expectation and personal commitment, resulting in high emotional labour that is rarely formally recognised or supported.	Capacity is shaped by structural constraints including time, training, and service organisation, leading to variability and reliance on individual initiative.
Relational Organisation of Support	Support is relationally embedded, characterised by emotional closeness, physical reassurance, and routine family involvement in care.	Support is relationally bounded, where involvement is negotiated and shaped by respect for privacy, autonomy, and role separation.
How Knowledge is Developed and Shared	Knowledge is co-constructed through relationships, reinforced through dialogue, shared experience, and family	Knowledge is individually constructed, often through self-directed learning, with formal education perceived as

	involvement, but varies in consistency and accuracy.	inconsistent or insufficiently tailored.
Embedding of Support in Daily Life	Support is integrated into everyday routines, including food preparation, medication management, and shared activities, creating continuity but also reliance on informal systems.	Support is episodic and situational, often requiring negotiation and dependent on personal networks, leading to potential gaps in everyday management.
Emotional Engagement in Care	Emotional support is explicit and relationally expressed through closeness, reassurance, and culturally meaningful practices, strengthening trust but increasing emotional burden.	Emotional support is implicit and restrained, valued when subtle and autonomy-preserving, but often limited by professional norms and time constraints.
Negotiation of Behaviour and Feedback	Behaviour is shaped through continuous relational feedback including humour, correction, and reminders, generally accepted within strong relationships.	Behaviour is shaped through carefully negotiated feedback, where encouragement must be autonomy-supportive to avoid resistance or disengagement.
Consistency of Support Over Time	Support is continuous and predictable, sustained through cultural norms and family involvement, but vulnerable to relational strain and unequal distribution.	Support is fragmented and time-limited, often concentrated around diagnosis, with reduced follow-up and inconsistency across services.
Distribution of Support Across Networks	Support is distributed across multiple family members, creating stability and reinforcement but often reflecting gendered roles and expectations.	Support is concentrated within specific individuals, making it more vulnerable to disruption when key relationships are absent or weaken.
Cultural Framing of Support	Collectivist orientation frames support as expected, relational, and morally grounded, shaping both provision and acceptance.	Individualistic orientation frames support as voluntary and negotiated, prioritising independence and personal boundaries.
Overall Pattern of Support	Support is relationally embedded, continuous, and collectively sustained, but dependent on informal labour and uneven relational dynamics.	Support is structurally organised but fragmented, with autonomy prioritised at the cost of continuity and relational integration.

5.3 COM-B Application:

As outlined in the analytic plan in Chapter 3 (Section 12), this chapter draws on the COM-B model (Michie et al., 2011; Michie & West, 2020) as a programme-level sense-making framework applied to the synthesised findings established in the master theme and cross-case synthesis. The COM-B framework is not used here to code or re-analyse the original interview transcripts; rather, it is applied to the already-generated inductive findings to map overarching behavioural mechanisms and add theoretical coherence to the integrated account of social support across the four studies.

18. Rationale for applying the COM-B model:

The COM-B model is a behaviour change framework which proposes that for any behaviour to occur, three interrelated components must be present: capability, opportunity, and motivation. Capability refers to an individual's psychological and physical capacity to engage in the behaviour, including the necessary knowledge and skills. Opportunity encompasses the external factors, both physical (such as resources and access to services) and social (such as family, cultural, and professional influences), that make the behaviour possible or prompt it. Motivation includes the reflective processes (such as intentions, beliefs, and identity) and the automatic processes (such as emotions and habits) that energise and direct behaviour. Together, these three components interact dynamically to influence whether and how behaviour is performed.

This framework was selected for two reasons. First, the cross-case synthesis identified mechanisms of social support that operated across all three of these dimensions. In Morocco, support was embedded in family and relational routines, with health professionals often extending care through emotional closeness and informal follow-up. In the UK, support was more pragmatic and autonomy-focused, delivered through signposting, coaching, or subtle reminders, but constrained by role boundaries and service fragmentation. These patterns highlight that support influences behaviour not only through knowledge and skills, but also through identification with a role or social support component, relational dynamics, cultural expectations, and the consistency with which help is sustained. The COM-B model provides a

structure for linking these mechanisms to capability, opportunity, and motivation, enabling a more systematic explanation of how social support shapes self-management across both settings.

Second, COM-B has been widely applied in chronic disease and diabetes research because it facilitates the identification of barriers and enablers across multiple levels of influence (Atkins et al., 2017), and its use in cross-cultural health research has been recommended on the grounds that it ensures behavioural influences are considered in relation to both individual capabilities and wider structural opportunities (Michie et al., 2014; Barker et al., 2016). Using COM-B as a sense-making framework after inductive analysis is consistent with established practice in health behaviour research, where inductive themes are mapped onto the framework to support synthesis and theoretical interpretation (McGowan et al., 2020; Shpendi et al., 2024). Through this comparative mapping, the chapter highlights complementary strengths and vulnerabilities across contexts and offers a coherent, theory-driven foundation for the discussion of behaviour change in chronic illness management (West & Michie, 2020).

Other behaviour change frameworks were considered during the analytic planning stage, including the Theoretical Domains Framework (TDF; Cane et al., 2012) and the Theoretical Framework of Acceptability (TFA; Sekhon et al., 2017). Each offers distinct analytic affordances. The TDF provides a more granular structure of fourteen domains and is particularly well-suited to identifying determinants of a single, clearly defined clinical behaviour, often within a specific professional group (Atkins et al., 2017). The TFA, by contrast, was developed to evaluate the acceptability of a defined intervention from the perspective of those delivering or receiving it, and is most useful when the object of analysis is a specific intervention rather than a broader behavioural process (Sekhon et al., 2017). Neither framework was considered the most appropriate fit for the present synthesis. The thesis examines how social support operates as a heterogeneous, relationally embedded process across four participant groups and two cultural contexts, rather than as a defined intervention or as a single behaviour to be explained. COM-B was selected because its higher level of abstraction accommodates this breadth, while its three components map onto the relational, structural, and motivational dimensions that emerged inductively across the studies. The TDF and TFA remain valuable frameworks, and their application to specific components of social support, particularly in intervention design and evaluation, is identified as a direction for future research in Chapter 6.

A further, more fundamental consideration concerns the epistemological role COM-B plays in this thesis. Given the constructivist and relativist orientation of the research and the centrality of identity, relational dynamics, and cultural context across the qualitative findings, relational and sociological frameworks sit closer to the explanatory logic of the thesis than COM-B does. Identity Theory (Stryker & Burke, 2000) and relational autonomy theory (Feeney & Collins, 2014), both drawn on substantively in the cross-case synthesis and in Chapter 6, are illustrative of this kind of explanatory orientation. The decision to apply COM-B was therefore not made on the grounds that it best captures why social support functions as it does in everyday diabetes care. That explanatory work is carried by the inductive, relational analysis of the qualitative data and by the identity-based and relationship-based theorising that emerged from it. Rather, COM-B is used here as a bridging heuristic that translates the inductively generated findings into a structure recognisable to the wider behaviour change and intervention design literature, where social support is increasingly evaluated through frameworks of capability, opportunity, and motivation. Positioning COM-B in this translational role, rather than as the primary explanatory theory of the thesis, preserves the relational and identity-based core of the analysis while still enabling the findings to speak to programme-level audiences concerned with intervention design and policy. The Social Support Consistency Model developed in Chapter 6 reflects this positioning: its explanatory commitments are relational and identity-based, while COM-B contributes at the level of programme-relevant translation.

19. Identity and Relationships as Cross-Cutting Mechanisms

While COM-B provides the structural framework for the comparative mapping that follows, the master theme established in Section A demonstrated that identity and relationship dynamics consistently shaped how capability, opportunity, and motivation operated in practice. Psychological capability was strengthened when information aligned with patients' sense of autonomy or with caregivers' accepted roles. Social opportunity was sustained when family members identified with caregiving identities and when professionals extended themselves through relationally embedded forms of care. Both reflective and automatic motivation were shaped by the relational tone of reminders, the degree of reciprocity within relationships, and the emotional connection between patients, caregivers, and professionals.

Positioning identity and relational dynamics as cross-cutting mechanisms helps explain why social support was sustained and continuous in Morocco yet more fragile and situational in the UK, despite both contexts containing comparable forms of capability, opportunity, and motivation. This relationally embedded application of COM-B represents a contribution of the present synthesis and lays the conceptual ground for the Social Support Consistency Model developed later in this chapter.

20. Data-integration framework: mapping findings onto COM-B

To integrate the findings of the four studies into a single analytical framework, the COM-B model was used as a mapping tool. This approach allows the themes identified in Chapter 3 to be re-examined not as isolated categories of social support, but as mechanisms that influence behaviour through Capability, Opportunity, and Motivation (Michie et al., 2011). In doing so, the data are repositioned within a behaviour change framework that is increasingly used in chronic illness management (Atkins et al., 2017). The process of mapping was undertaken in two steps. First, the themes generated in each study were revisited and were reviewed to determine how they could be understood as affecting either Capability (physical or psychological), Opportunity (physical or social), or Motivation (automatic or reflexive). For example, knowledge gained through family advice or professional education was categorised under psychological capability, whereas encouragement provided by relatives was mapped to social opportunity. Additionally, the identity theme was mapped to reflective motivation, as it reflected internal beliefs and role definitions that sustained engagement with self-management and support behaviours.

This framework also enabled a systematic comparison across contexts. By considering Moroccan and UK findings side by side within the COM-B structure, the analysis highlights both shared mechanisms of support and those shaped by cultural or health system differences. The use of COM-B for data integration has been recommended in applied health research because it offers a structured way to connect qualitative findings to theory and intervention design (Michie et al., 2014; Barker et al., 2016). Overall, this data-integration framework serves three purposes: it organises diverse forms of social support into a coherent model of behaviour change, it provides a consistent basis for cross-country comparison, and it prepares the ground for identifying implications for practice and policy in diabetes care.

21. Capability-related findings

a. Physical capability:

Across the four studies, physical capability in T2D self-management was supported through tangible acts of care. However, the effectiveness of these acts was not simply in their practicality but in whether they were delivered consistently and embedded in identity and relational roles. In Morocco, family members often assumed caregiving identities that made tangible support routine and reliable. Actions such as preparing sugar-free bread, removing unhealthy food, or encouraging exercise were framed as part of one's role as a spouse, child, or parent. Participant 6 (male, Morocco) explained how her son insisted she stayed active: "*if he comes back from the UNI he would ask me… did you have a little walk today? … and then if I say no he will just drag me for a quick one*". Here, the behaviour went beyond a single prompt; it was sustained through his identity as a young active responsible son, making support predictable and integrated into daily life. This reflects Thoits' (2011) argument that support becomes effective when it is role-consistent and part of a distributed support system. In the UK, physical capability was also supported through practical help, though it was less embedded in collective identity. Participant 6 (male, UK) explained, "*On a day-to-day basis, yeah, it's definitely my wife".* His wife's consistent management of his medication demonstrates how spousal identity can guarantee physical support. Yet across the UK dataset, the extent of such involvement varied widely. Where caregiving was embraced as a role, physical support was regular and dependable. Where it was resisted, support became fragmented or absent. This aligns with relational autonomy theory (Feeney & Collins, 2014), which emphasises that autonomy is not exercised in isolation but depends on close relationships that can either enable or constrain the individual's capacity to act. In this context, family role acceptance directly influenced sustained physical capability.

Health professionals reinforced these patterns. In Morocco, nurses and doctors routinely provided hands-on training in insulin injections and glucose monitoring, tailoring their methods to patient profiles. Participant 10 (HP, Morocco) explained, "*We will always show them how to measure their blood sugar levels… we watch them do it and correct them".* Such repetition, framed as part of their educator identity, enabled patients to translate technical skills into confident routines. Importantly, some professionals extended this training into follow-up calls and informal check-ins, ensuring that physical skills were not only acquired but maintained over time. This extension was described by 7 out of 12 Moroccan HP participants, but 4 noted emotional strain, highlighting sustainability concerns aligned with evidence on professional

burnout (Mikkola et al., 2018). By contrast, UK professionals often kept within narrower role boundaries, offering information but less ongoing reinforcement. Participants described these encounters as irregular, leaving them to sustain skills largely on their own. These findings suggest physical capability relies on relational embedding, where caregivers and professionals identify with roles that sustain involvement. In Morocco, collectivist norms encouraged families and professionals alike to see tangible support as part of their identity, creating continuity across settings. However, this reliance risked inconsistency if caregivers faced their own health or economic challenges, as noted in isolated participant accounts. In the UK, the emphasis on autonomy and professional boundaries meant that support for physical capability was available but more vulnerable to inconsistency. These contrasts underline that capability is relationally and culturally constructed, and its consistency depends on the alignment of role identities and relationship dynamics across the patient's environment.

b. Psychological capability

In both contexts, informational support enhanced psychological capability, but its effectiveness depended less on the availability of knowledge and more on how it was framed, delivered, and sustained within relationships. In Morocco, participants described embodied learning through trial and error, where mistakes around diet and treatment became lived lessons. This reflects Pomey et al., (2024) concept of "experiential learning in chronic illness", where knowledge is iterative and personally negotiated rather than passively absorbed. Crucially, this learning process only translated into consistent self-management when it was reinforced by trusted relationships and supported by family members who assumed caregiving identities. For example, Participant 6 (HP, Morocco) explained, *"sometimes I used to eat things and [they] used to affect me on the spot so by doing such mistakes I learned what I'm supposed to avoid".* Without such relational reinforcement, experiential learning risked remaining isolated, potentially forgotten or dismissed. In the UK, by contrast, psychological capability was closely tied to autonomy and self-reliance.

Participants often rejected generic advice when it felt misaligned with their values or identity, instead relying on trusted family members or their own research. Participant 1 (female, UK) explained, *"So she's [her daughter] helped me a little bit as well in, like, understanding a bit more about nutrition and things like that".* The credibility of her daughter's advice lay not just in its content but in the relationship through which it was delivered. This aligns with relational

autonomy theory (Feeney & Collins, 2014), which suggests that autonomy is exercised within, rather than outside, social relationships. It also shows that psychological capability is fragile when information delivery is inconsistent with a person's self-concept as independent. Where advice clashed with identity (e.g. framing someone as dependent), it was resisted. Health professionals further highlighted these cultural contrasts. Moroccan staff, drawing on collectivist norms, used tailored advice, family involvement, and emotional reassurance to build capability. One intern doctor explained, "We show them that we are proud of them… then we would probably move on to an advanced education level" (Participant 6, HP, Morocco). Here, capability was not just cognitive but relational, shaped by recognition and affirmation. This mirrors Self-Determination Theory (Deci & Ryan, 2000), where competence and relatedness jointly fuel motivation and learning. In the UK, professionals often provided information but within limited and fragmented structures (e.g. annual check-ups, brief education sessions). People living with T2D described these encounters as insufficient, reinforcing the perception that the healthcare system did not provide consistent opportunities to build capability.

The findings suggest psychological capability is socially constructed through identity and relationship dynamics. In Morocco, capability was collective, distributed across family and community, and strengthened through shared identity as caregivers and supporters. However, this collective approach could exacerbate inequities for patients without strong networks, as evidenced by accounts from isolated participants. In the UK, capability was conditional, accepted when aligned with autonomy but undermined by impersonal or prescriptive delivery. Conversely, the UK's structured equity ensured baseline access for all, mitigating some relational gaps. This explains why support consistency was fragile in the UK system but more resilient in Morocco's family-based model. For capability to be sustainable, identity alignment and relational reinforcement are essential.

22. Opportunity related findings

a. Physical opportunity

Physical opportunity refers to the external resources and structures that enable or constrain the management of T2D. Across the four studies, there were marked differences between the Moroccan and UK contexts in how opportunities for support were created and sustained. Building on tangible acts supporting physical capability (see 28a), physical opportunities in

Morocco extended these into broader routines. Families adapted meals, removed sugar from food, and encouraged patients to maintain exercise routines. Similarly, relatives or neighbours adjusted, such as preparing sugar-free bread or tea, to support those living with diabetes. These examples illustrate how cultural and familial routines created continuous opportunities for self-management. What made these opportunities effective was not only their practical value but also their regularity, sustained by cultural norms of caregiving and collective responsibility. Family members often identified strongly with a caregiving role, which meant that practical help was delivered consistently over time rather than occasionally. By contrast, UK participants highlighted the structural limitations of healthcare provision. Opportunities for support were often confined to an annual review with a practice nurse or occasional group education sessions. Participant 8 reflected: *"I just don't think it's there regularly enough for them to sort of guide or advise me. It's just, it's not there"* (Participant 8, Patient, UK). This lack of regular engagement left many patients navigating services on their own, and support opportunities were experienced as episodic rather than continuous. Families sometimes stepped in with practical help, such as cooking healthier meals or providing transport, but this was highly variable. Where spousal or family roles were embraced as part of identity, tangible support was consistent; where these roles were resisted, opportunities were fragmented.

Health professionals in both contexts played an important role in shaping physical opportunities, though in different ways. Moroccan professionals frequently compensated for systemic gaps by improvising solutions, such as offering extra insulin to patients unable to afford medication or following up with phone calls and WhatsApp messages. One nurse explained: *"Even if the patient does not have the means to buy insulin, we give him a needle or two extra"* (Participant 11, HP, Morocco). These acts extended opportunities for self-management beyond the hospital setting and demonstrated how professional identity as a helper could sustain care despite resource constraints. In the UK, professionals recognised the value of group education and lifestyle coaching but were constrained by service fragmentation, limited funding, and clear role boundaries. As a result, opportunities were often restricted to what the system formally allowed, limiting continuity for patients. Findings suggest physical opportunity depends on embedding and delivery. In Morocco, opportunities were integrated into daily and communal life, supported by cultural norms that emphasise shared responsibility and family duty. However, this informal model risked burnout and inequity, as professionals and families bore heavy burdens without systemic support.

In the UK, opportunities were more dependent on formal healthcare structures, which, when under-resourced, left significant gaps for patients. The contrast highlights two complementary lessons: Morocco demonstrates the value of embedding support opportunities in everyday routines to ensure consistency, while the UK underscores the importance of structured and equitable healthcare provision to avoid reliance on individual initiative or family capacity.

b. Social opportunity

Social opportunity refers to the interpersonal and cultural conditions that make social support possible. Across the studies, differences between Morocco and the UK were shaped by cultural norms and by how families, communities, and professionals engaged with people living with T2D. In Morocco, collectivist norms created strong social opportunities for support. Families, neighbours, and peers often took on responsibility for monitoring, reminding, and encouraging patients. For example, family members were described as regularly checking medication use or accompanying patients to appointments, while neighbours and shopkeepers adjusted their practices, such as serving tea without sugar, to accommodate dietary needs. These forms of accountability were not only accepted but expected, reflecting cultural norms of interdependence. What made this effective was that support was distributed across networks, creating consistency across environments. When caregivers identified clearly with their role and what component they can offer at their best, whether as a spouse, child, or sibling, opportunities were reinforced by a sense of shared responsibility and continuity of care. This builds on psychological capability reinforced by trusted advice (see 28b), where social norms shaped acceptance.

In the UK, social opportunities were shaped by the cultural emphasis on autonomy. Patients were often receptive to encouragement or reminders when these were delivered respectfully but rejected them when they felt like criticism or "nagging." One participant explained: *"The wife is constantly at me… I know what it's like. You drink a bit too much. Stops you out with the grandkids*" (Participant 7, patient, UK). While the intention was to protect health, the relational tone shaped whether this was experienced as support or as control. Social opportunities were therefore fragile and conditional, depending on relationship quality and reciprocity. In some cases, lack of reciprocity undermined support altogether, such as when spouses also had diabetes but refused to engage with care, leaving participants feeling unsupported. Health professionals further reflected these cultural contrasts. In Morocco, they

frequently involved family members in consultations and saw them as essential allies in reinforcing education and lifestyle change. This approach, however, sometimes created tension around confidentiality or patient autonomy. As one intern doctor noted, “involving relatives could backfire if they resisted or contradicted medical advice”. In the UK, health professionals tended to avoid involving families, partly due to privacy concerns and partly because role boundaries discouraged them from extending into family matters. While this approach protected patient autonomy, it also limited the possibility of mobilising collective responsibility for support.

Findings show social opportunity is culturally constructed. In Morocco, collectivist norms created reliable opportunities for distributed and consistent support, although these could sometimes conflict with medical confidentiality or patient independence. In the UK, opportunities were shaped by respect for autonomy, which protected personal boundaries but limited the capacity for collective involvement and made support more dependent on individual relationship dynamics. The comparison highlights two complementary lessons: Morocco illustrates how shared responsibility can strengthen and sustain social opportunities, while the UK demonstrates the importance of respecting autonomy and tailoring support to individual preferences to avoid resistance.

23. Motivation related findings

a. Reflective motivation

Reflective motivation refers to the conscious, reasoned processes that shape how people living with T2D engage with self-management. These include personal beliefs about the illness, expectations of the future, identity, values, and the meaning placed on health. Across the four studies, reflexive motivation was shaped not only by cognitive appraisals but by deeper identity and relationship dynamics. These mechanisms influenced how individuals interpreted risk, responsibility, and the need for support, and explain why certain behaviours were sustained or resisted over time.

Fear and Social Comparison in Morocco, fear of complications was a significant driver of reflective engagement. Participants often drew on the experiences of others around them,

comparing their own condition to more severe cases in their community. This social comparison acted as a cognitive warning and supported ongoing motivation. One participant explained that acceptance came more easily once she recognised what could happen if she did not manage her condition: "Accepting my disease was a big step because when you look around there are a lot of people who had worse complications than me… it was easier for me to manage" (Participant 6, patient, Morocco). Others described trying to remain positive in order to prevent further deterioration. As one man shared, *"I try not to fear diabetes… you have to stay positive… when you are positive about it, it just helps to drop the levels"* (Participant 20, patient, Morocco). These reflections show how fear and hope interacted in motivating self-care. Health professionals in Morocco echoed this reflective concern. One nurse explained her own emotional reaction to the condition, which shaped the way she approached patients: *"The disease of diabetes is a disease that scares me personally a lot… so I feel we must help them understand it"* (Participant 11, HP, Morocco). This sense of shared vulnerability strengthened her commitment to supporting patients, demonstrating how reflexive motivation also shaped professional practice.

Faith and Acceptance Beliefs about the nature of diabetes shaped reflexive motivation across both countries. In Morocco, acceptance was often framed through faith and meaning making. Several participants described their diagnosis as something that needed to be absorbed into everyday life:

- *"There was a bit of acceptance… anything that comes from God you just have to accept it"* (Participant 17, patient, Morocco).
- "*I am thankful to God for whatever he gives or takes… you just get used to it"* (Participant 8, patient, Morocco). Others grounded acceptance in past caregiving experiences. One woman felt confident because she had already supported her mother with diabetes: *"When I had diabetes I already knew what to do 'cause I already lived that with my mother"* (Participant 7, patient, Morocco). Similarly, a participant who had observed her daughter's healthy life with diabetes described an easier adjustment: *"My daughter already has diabetes… so when I got diagnosed, it was quite normal… she lived her life normal with it… so it was fine with me as well"* (Participant 18, patient, Morocco). These beliefs supported a reflective shift from seeing diabetes as an external threat to viewing it as something manageable within familiar relational narratives.

Turning Points and Identity in Both Contexts Some participants described a turning point that triggered more serious engagement. One man explained this clearly: "*About 3 months ago I started being more serious about my diabetes… I got hospitalised and realised that I need to look after my health"* (Participant 20, patient, Morocco). Such moments of reflection transformed the condition from something to be tolerated into something that required active responsibility.

In the UK, reflexive motivation was strongly shaped by identity and personal responsibility. Participants often emphasised the importance of self-reliance and internal control. One woman described this shift clearly: *"Nobody but you can help yourself... you're the only person who can solve this, fix this, or manage it"* (Participant 1, patient, UK). Another participant explained that reflective learning helped him adapt: *"You learn to understand what's happening in your own body… and teach yourself what to do"* (Participant 4, patient, UK). These accounts reflect an identity-centred approach in which motivation grows from a sense of personal agency. However, these beliefs also shaped the boundaries participants placed around external support. Some explicitly rejected assistance because it conflicted with their sense of independence. As one participant explained, *"Oh, no. I don't need all that. I can do it myself"* (Participant 5, patient, UK). Another added, *"To be honest, I don't really expect any help from them"* (Participant 3, patient, UK). These statements illustrate how reflexive motivation in the UK could reinforce autonomy but also restrict the mobilisation of support, especially when the condition was perceived as manageable. Participants also reflected on how support must be allowed, not imposed. As one man said, *"Somebody will only give you support and how much you let them in, to be honest"* (Participant 3, patient, UK). This comment highlights the reflective negotiation involved in accepting or rejecting help, guided by an internal sense of identity and boundaries.

Health professionals in the UK confirmed that many patients preferred independence and carefully managed their relational boundaries. One practitioner described how some individuals avoided relying on relatives: "*Maybe they don't think they want to burden their family… so they'd rather go and speak to a healthcare professional"* (Participant 4, HP, UK). Others highlighted how emotional or psychological states could influence reflective motivation. As one professional noted, *"Mental health plays a part… anxiety and depression impact how they engage"* (Participant 6, HP, UK). These observations show how reflective motivation in the UK is intertwined with emotional wellbeing, identity, and autonomy.

Values also played a central role in shaping reflexive motivation, particularly in Morocco. Many participants linked their motivation to religious interpretations or moral responsibilities within family life. Expressions such as *"anything that comes from God you just have to accept it"* (Participant 17, HP, Morocco) were not passive but signalled an emotional adjustment that supported long-term engagement. When professionals shared these values, their role acceptance strengthened. For example, a doctor said, *"I feel happy and I express that to them to keep them motivated"* (HP 3, Morocco), while a nurse explained, "*Even if they don't ask for it, I offer support. It is what we should do"* (HP 9, Morocco). These quotes show how collective and moral values shaped both patient and professional motivation. Across both contexts, reflexive motivation was shaped by how individuals made sense of diabetes, the identities they adopted, the values they drew upon, and the relationships around them. Moroccan participants drew on faith, family experiences, and social comparison to form acceptance and responsibility, while UK participants anchored their motivation in personal autonomy and reflective self-reliance.

Health professionals in both settings also reflected on their roles, with Moroccan practitioners describing emotional and moral duties, and UK practitioners identifying autonomy, mental health, and relational boundaries as key influences. These findings show that reflexive motivation cannot be separated from identity and relationship dynamics, which function as cross-cutting mechanisms that shape how capability, opportunity, and motivation are enacted across both cultural contexts.

b. Automatic motivation

Automatic motivation refers to the emotional and habitual processes that influence how people sustain diabetes management, often operating outside deliberate reflection. Across both contexts, emotional support, relational bonds, and everyday cues played a central role in shaping engagement. In Morocco, patients frequently described emotional gestures as powerful motivators. Expressions such as hugs, kisses, and affectionate presence were seen as natural extensions of care, reinforcing belonging and reducing distress. One participant recalled the comfort of her family's attentiveness: *"my husband and daughter were consistently attentive, from managing prescriptions to enrolling me in a gym closer to home" (*Participant 15, patient, Morocco). For others, reassurance from spouses or siblings provided a sense of security that made adherence feel less burdensome.

Health professionals also embraced these practices, often blurring professional and personal boundaries by treating patients as family. One intern doctor explained, *"I am usually more emotional with older patients as I consider them like my mom or dad"* (Participant 3, HP, Morocco). These overt expressions, embedded in a collectivist culture, normalised diabetes care as part of relational life. The consistency of emotional presence made motivation less dependent on conscious drive and more embedded in everyday interactions. However, professionals also noted the emotional labour this required, describing exhaustion and the difficulty of maintaining such engagement over time.

In the UK, automatic motivation was often shaped by subtler forms of emotional support. Participants valued companionship, quiet reassurance, and understated gestures that respected personal boundaries. One participant described the comfort of her marriage: *"We've been married 11 years and we're still madly in love… still kiss each other several times a day"* (Participant 8, patient, UK). These implicit forms of support fostered a sense of stability that encouraged adherence without overt direction. Reminders were most effective when framed as care rather than control, as one participant noted: *"It's the constant reminders, just so that it's like a little voice at the side reminding you so you don't forget"* (Participant 2, patient, UK). By contrast, repeated or forceful reminders were interpreted as nagging, provoking irritation or withdrawal. This shows that in individualistic contexts, automatic motivation is fragile when relational tone conflicts with the value of autonomy. Health professionals in both settings contributed to automatic motivation, but in culturally distinct ways.

In Morocco, closeness, touch, and empathy were seen as central to professional practice, helping patients feel emotionally supported and motivated. While effective, this blurred the line between professional and personal identity, creating risks of emotional fatigue and inconsistent delivery. In the UK, professionals acknowledged the importance of empathy and emotional support, but provision was often inconsistent, shaped by individual initiative rather than systemic expectation. Patients frequently described consultations as brief or impersonal, limiting the potential for emotional reinforcement. Positive experiences tended to occur in acute situations where professionals were highly responsive, suggesting that automatic motivation from healthcare staff was situational rather than continuous. Automatic motivation was strongest when emotional support matched cultural expectations and relational identities. In Morocco, overt expressions of care reinforced belonging and made supportive behaviours habitual but placed strain on professionals to sustain such involvement.

In the UK, subtle and autonomy-respecting gestures reinforced motivation effectively, but their inconsistency limited their impact. The comparison suggests that Morocco demonstrates the value of emotionally explicit and relationally embedded support, while the UK highlights the importance of subtle, autonomy-preserving approaches. In both contexts, however, automatic motivation was most consistent when emotional support was aligned with trusted roles (spouse, sibling, or professional), embedding encouragement in everyday life rather than relying solely on conscious reflection.

24. Cross-component synthesis

a. Capability across contexts

The interaction between capability and other components revealed how knowledge and practical skills only became effective when embedded in social and relational contexts. In Morocco, psychological capability was often developed through experiential learning, reinforced by family members and contextualised by health professionals who adapted explanations to patients' literacy levels and social environments. Technical training on tasks such as glucose monitoring was accompanied by encouragement and repetition, which helped patients integrate new skills into daily routines. This process illustrates that capability was not simply individual but relationally reinforced. In the UK, patients reported having access to structured information and group education sessions, which offered opportunities to enhance capability. However, these interventions were often perceived as generic, insufficiently interactive, or too infrequent to support lasting behavioural change. As one participant noted, "There was no written handout, so I think it was all on a big screen and someone talking to you, and that was it" (Participant 8, patient, UK). This points to a disconnect between capability and opportunity: although knowledge was provided, there were few mechanisms to reinforce it or ensure it was applied in practice. The absence of regular reinforcement weakened the interaction between capability and motivation, making it harder for patients to sustain behaviour over time. Capability was most consistently developed when embedded in trusted relationships and reinforced by caregivers or professionals identifying as educators or helpers; without this, it remained fragile even with formal structures.

b. Opportunity across contexts

Physical and social opportunities also revealed significant contrasts. In Morocco, physical opportunity was embedded in everyday cultural practices and collective routines. Family members routinely adapted meals, neighbours served sugar-free tea, and relatives provided transport or financial support to enable access to gyms or appointments. These consistent opportunities emerged from cultural expectations of shared responsibility and caregiving, meaning that support was rarely a one-off act but part of a sustained pattern of involvement. In the UK, opportunities were more dependent on the healthcare system, which participants often described as fragmented and episodic. Annual reviews or brief consultations were the main points of contact, with limited follow-up in between. This created a gap between what patients knew and what they could consistently apply. Families sometimes helped by cooking healthier meals or reminding patients of appointments, but these opportunities varied widely depending on relationship quality and role acceptance. Where carers identified strongly with their role, opportunities were more consistent; where they did not, patients were left to manage alone. Social opportunity further emphasised the cultural divide. In Morocco, collectivist norms normalised reminders and shared vigilance. Family members were expected to monitor adherence, and patients largely accepted this involvement. The distributed nature of caregiving across multiple relatives created consistency across settings. In contrast, UK participants often resisted reminders when they felt intrusive, describing them as "nagging." The effectiveness of social opportunity was therefore conditional, dependent on whether support was delivered in a relationally sensitive way that respected autonomy.

c. Motivation across contexts

Motivation was also shaped differently in the two countries, with distinct patterns of reflexive and automatic motivation. In Morocco, reflexive motivation was tied to fear of complications, family recognition, and faith-based acceptance. Participants spoke of recommitting to self-management after hospitalisation or celebrating improvements with family encouragement. These forms of motivation were relationally reinforced, as families often acknowledged progress and provided feedback. Automatic motivation was strengthened through overt emotional expressions, such as hugs, kisses, and verbal reassurance, which embedded care into everyday interactions and made adherence feel habitual. In the UK, reflexive motivation was more commonly framed in terms of independence and moral responsibility. Participants emphasised that diabetes management was ultimately their own responsibility, a stance that

reflected autonomy but also risked minimising the seriousness of the condition. For some, this reduced the perceived need for support. Automatic motivation was supported by subtler emotional gestures, such as companionship or quiet reassurance. When reminders were consistent but respectful, they encouraged adherence. However, when they crossed into perceived criticism, they provoked irritation or withdrawal. These findings show Morocco's motivation as relationally embedded and collectivist, while the UK's was autonomy-driven but fragile amid inconsistent support or minimised illness seriousness.

d. Cross-country contrasts

The contrasts between the two systems highlight complementary strengths and vulnerabilities. In Morocco, capability, opportunity, and motivation interacted in ways that created continuity across hospital, family, and community environments. Patients were supported not only by technical knowledge but also by relational reinforcement and collective responsibility. However, this system depended heavily on informal effort. Health professionals often described giving extra medication from personal supplies or taking extra measures to check in with patients. Families carried the ongoing burden of reminders and monitoring. While effective in the short term, such reliance on personal initiative raised questions about sustainability and equity. In the UK, support was shaped by structured but fragmented services. Capability was supported by formal education and access to healthcare professionals, but opportunities for reinforcement were limited by infrequent contact. Motivation was driven by autonomy and personal responsibility, which could empower patients but also left them vulnerable when self-reliance faltered or the seriousness of the condition was minimised. This system’s strength lay in its respect for independence and its potential for structured delivery, but weaknesses in continuity and relational engagement made support inconsistent in practice. However, Morocco's relational model carries vulnerabilities like caregiver burnout from informal overextension, everal health professionals reported emotional fatigue from blurred boundaries (e.g., Participant 11, HP, Morocco) and gender norms burdening women, exacerbating inequities for patients without strong networks. Conversely, the UK's structured approach promotes equity through universal access, mitigating some fragmentation via standardised pathways like annual reviews for isolated individuals.

e. Role of identity and relationships

Although not the primary focus of the COM-B analysis, identity and relationship dynamics help explain why support was consistent or inconsistent across contexts. In Morocco, patients, caregivers, and professionals often accepted roles that aligned with collective responsibility, embedding support across environments. In the UK, patients' moral identity as independent and professionals' adherence to role boundaries meant that support was conditional and often resisted when misaligned with autonomy. Across both contexts, trust, reciprocity, and role acceptance acted as mechanisms that linked capability, opportunity, and motivation, determining whether they reinforced one another over time.

f. Analytical takeaway

The synthesis across COM-B components demonstrates that effective support for people living with T2D requires capability, opportunity, and motivation to be aligned and reinforced together. Morocco demonstrates the strength of relational and collective embedding, but this model is fragile without systemic structures to share the burden. The UK highlights the importance of autonomy and structured care, but weaknesses in continuity and relational connection limit its consistency. Both systems illustrate that support falters when these domains are misaligned, for instance, when patients are motivated but lack opportunities, or when knowledge is provided without relational reinforcement. A conclusive answer to what makes each of the four social support components effective remains elusive, because effectiveness is context dependent, shaped by cultural expectations, healthcare systems, and how individuals identify as patients, caregivers, or professionals.

Drawing on House's (1981) typology of informational, emotional, tangible, and appraisal support, the findings suggest that presence alone was insufficient. Instead, what mattered most was the consistency of support across time and environment. Consistency was evident in Moroccan families versus the UK. This consistency was underpinned by identity processes and relationship dynamics. When individuals embraced their roles as carers or care recipients, and when relationships rested on trust and reciprocity, social support was more likely to be sustained. Relational autonomy theory (Feeney & Collins, 2014) helps to explain this by showing how autonomy and capability are shaped through supportive social relationships, while identity theory (Burke & Stets, 2009) highlights the influence of role-based identification

on behaviour. Evidence from caregiving research illustrates this clearly. Hughes, Locock, and Ziebland (2013) showed that relatives and friends of people with multiple sclerosis varied in whether they accepted, rejected, or felt burdened by the "carer" identity, with these differences directly shaping the support they provided. Similarly, Beatie et al. (2021) found that family and friend carers of people with mild cognitive impairment engaged differently depending on how they constructed their caregiver identity. Patient identity demonstrates a parallel dynamic. In the context of type 2 diabetes, integrating the condition into one's sense of self-characterised by acceptance or enrichment of that identity, has been associated with better self-management, reduced distress, and enhanced life satisfaction (Commissariat, Helgeson, & Wiebe, 2025).

Professional identity adds a further dimension. Health professionals who strongly identify with the responsibility to promote patient autonomy show greater motivation to engage consistently in care (Graffigna et al., 2015), and those working within interprofessional diabetes care teams benefit from strengthened role clarity and collaboration, which enhances the sustainability of the support they deliver (Gucciardi et al., 2015). Consistency was also underpinned by relationship dynamics. In the context of T2D, relational processes such as trust, reciprocity, and open communication have been shown to directly influence management. For example, family support improves medication adherence and glycaemic control, whereas relational strain undermines these outcomes (Mayberry & Osborn, 2012). Similarly, participatory patient–provider relationships strengthen patient activation and adherence (Parchman, Zeber, & Palmer, 2010), while peer support interventions highlight the sustaining role of trust and mutual understanding (Heisler, 2007). These strands of evidence show it is not mere presence of social support that matters, but its anchoring in identity alignment and reciprocal relationship dynamics, explaining sustained support across time and context. From a COM B perspective, capability, opportunity, and motivation were necessary but not sufficient. Their effectiveness depended on identity alignment and relational embeddedness, which allowed support to remain stable across time and context. These insights form the theoretical basis for developing a model of social support consistency, presented in the following chapter.

25. What Each Health System Can Learn from the Other

This section addresses Objective 4 of the thesis by comparing social support needs and practices across the United Kingdom and Morocco in order to identify transferable and context-specific elements. The comparative analysis of Morocco and the UK demonstrate how social

support in T2D management is shaped by both cultural norms and health system design. Morocco represents a collectivist context where support is relationally embedded in family and community networks, while the UK reflects an individualistic context where autonomy and structured service provision dominate. Each system has strengths, but also limitations, and a comparative approach allows us to identify lessons that may be adapted and transferred. Importantly, not all lessons can be transplanted; they require cultural and organisational adaptation. This section therefore explores what Morocco can learn from the UK, what the UK can learn from Morocco, and what both systems might gain through mutual exchange.

a. Lessons for Morocco

1. Structured continuity of care Morocco demonstrates relational strength but lacks systematic continuity of care. Health professionals often described informal follow-up via WhatsApp or phone calls and occasionally providing spare medication to patients unable to afford prescriptions. While these practices reflect a strong sense of moral duty, they are unsustainable and inconsistent. Evidence from the UK shows that structured Diabetes Self-Management Education (DSME) programmes, such as DESMOND (Diabetes Education and Self-Management for Ongoing and Newly Diagnosed), improve glycaemic control, weight, and diabetes-related knowledge at six months and maintain benefits over time (Khunti et al., 2012). From a COM-B perspective, DSME directly strengthens psychological capability (knowledge, skills) and reflective motivation (confidence, ownership) by providing consistent reinforcement within structured programmes, rather than relying on ad hoc relational opportunity. Introducing similar group-based and structured programmes could reduce reliance on informal professional initiative and ensure equity of access. However, resource constraints in Morocco mean that these programmes would need cultural and logistical adaptation aligning with collectivist norms. The potential for adapting such models to Morocco is supported by a strong international evidence base. Multiple systematic reviews demonstrate that diabetes self-management education provides significant effectiveness for lifestyle changes and self-care in people with T2DM, with statistically significant decreases in HbA1c levels (Chowdhury et al., 2024). Moreover, consensus confirms that DSMES improves quality of life and health outcomes while also being cost-effective (ElSayed et al., 2023). Importantly for Morocco's context, a meta-analysis specifically focused on low- and middle-income countries found DSME reduced HbA1c levels by 0.64% compared with standard care, showing that such programmes can be successfully adapted to resource-constrained settings (Captieux et al.,

2018). Yet, systematic reviews of DSME implementation in low- and middle-income countries also caution that while DSME can be acceptable and cost-effective, gaps remain in adoption, acceptability, and fidelity research (Odgers-Jewell et al., 2017).

2. Another lesson for Morocco concerns the sustainability of professional roles. Intern doctors and nurses frequently blurred professional and personal boundaries, describing how they treated older patients like parents, or followed up beyond their clinical duties. This emotional investment deepened trust and motivated patients, but it risks emotional exhaustion and role confusion. Research shows that overextension without institutional recognition or support contributes to professional burnout (Furler et al., 2008; Mikkola et al., 2018). These risks are further reinforced by systematic reviews, which identify occupational stress leading to burnout syndrome as one of the greatest challenges for healthcare workers, with significant impact on both mental and physical well-being (Salvagioni et al., 2017). Moreover, clinicians often struggle to meet treatment targets within limited time and resources, with shifting professional boundaries creating uncertainty about where clinical responsibility resides (Furler et al., 2008). By contrast, in the UK, clearer role boundaries exist using specialist diabetes nurses, health coaches, and social prescribers, which distribute responsibility for psychosocial support more evenly. In COM-B terms, clarifying roles ensures that social opportunity is equitably available across patients, while protecting professionals' automatic motivation by reducing emotional exhaustion and ensuring sustainability. Morocco could therefore benefit from formalising roles for psychosocial support within the health system, thereby reducing dependence on individual initiative while still recognising the importance of relational engagement. Evidence also shows that effective coping strategies for healthcare professionals include social and emotional support, physical activity, and emotional distancing (Shanafelt & Noseworthy, 2017), which aligns with the need for clearer role boundaries and institutional support. These insights suggest Morocco could formalise psychosocial roles, reducing individual dependence while preserving relational engagement.Morocco could therefore formalise roles for psychosocial support within the system, reducing dependence on individual initiative while recognising relational importance.

3. In Morocco, patients with strong family support benefitted disproportionately, while those without supportive relatives risked neglect. This reliance on bonding social capital, meaning close family and community networks, creates inequities for isolated individuals

(Dankoly et al., 2023). Social capital theory distinguishes between bonding social capital, which refers to trusting relations among members who share a social identity, and bridging social capital, which refers to respect and mutuality between people who do not share social identities (Putnam, 2000). Social capital promotes better health, while lack of social support is associated with poorer outcomes in diabetes (Hill-Briggs et al., 2021). Consistent with this, research confirms that social determinants of health are key drivers of diabetes outcomes and disparities, making it essential to target SDOH at individual, organisational, and policy levels in order to advance equity (Hill-Briggs et al., 2021). By contrast, the UK system is built on the principle of universal access to structured healthcare, with annual reviews, blood monitoring, and referral pathways provided irrespective of family involvement (Diabetes UK, 2019). Linking to COM-B, equity in access ensures that physical opportunity (e.g., resources, services) is not conditional on family context, while also widening social opportunity by developing bridging peer networks. Morocco could learn from this principle by ensuring that structured diabetes education and follow-up are available to all patients, not only those with strong family networks. Supporting this approach, research highlights the importance of transforming medical and social care for adults with diabetes through cross-sector collaborations that reduce disparities and promote health equity (Galaviz et al., 2018). These insights suggest Morocco could ensure structured education and follow-up for all, including peer support to foster bridging networks beyond family.

b. Lessons for the UK

1. Embedding support in everyday life The Moroccan model demonstrates how social support can be woven into everyday family and community practices. Patients described meals adapted by spouses, reminders from children, and even shopkeepers adjusting their products, such as offering sugar-free tea. These examples highlight how collectivist norms distribute responsibility for care across the patient's social environment, making support continuous and normalised. This offers an important lesson for the UK, where patients often

described care as fragmented, reliant on sporadic appointments, and sometimes unsupported at home. In COM-B terms, embedding support in everyday family and community life strengthens social opportunity (reminders, collective routines) and automatic motivation (habitual cues and relational reassurance), thereby reinforcing self-management between clinical encounters.

The UK could therefore benefit from family-inclusive diabetes education and stronger community-based interventions. Such experiences contrast with evidence showing that continuity of care and everyday reinforcement are associated with improved long-term outcomes in chronic illness management (Freeman & Hughes, 2007). A systematic review of diabetes and hypertension similarly found strong associations between high continuity of care and reduced healthcare utilisation, lower mortality, and decreased risk of complications (Saultz & Albedaiwi, 2021). Further reviews also confirm that higher continuity of care is linked with improved patient satisfaction, particularly among people managing chronic conditions (Health Quality Ontario, 2013). These findings suggest the UK could adopt family-inclusive education and community interventions to extend support beyond clinics, drawing on Morocco's relational model.

2. Extending support beyond the clinic While UK patients had access to structured education and annual reviews, many reported that these encounters were too brief and infrequent to provide sustained motivation. In Morocco, by contrast, professionals often extended their care informally into patients' homes and communities. From a COM-B perspective, community health workers and peer networks expand physical opportunity (resources and contact) and bolster reflective motivation by ensuring consistent feedback and encouragement. Adopting such models in the UK could reduce fragmentation and strengthen continuity. Although these practices are not directly transferable, they highlight the potential value of investing in community health workers or structured peer-support networks in the UK.

   The evidence supporting this approach is strong. Systematic reviews confirm that community-delivered DSME improves HbA1c and self-management behaviours, particularly in underserved populations (Chrvala, Sherr, & Lipman, 2016). Recent studies also demonstrate that peer support is effective in improving complex health behaviours in disease prevention and management, including diabetes, with 83% of studies reporting significant benefits across diverse settings (Dale et al., 2012). Similarly, a systematic

review of community-based peer and health worker–led diabetes self-management programmes in low- and middle-income countries found that such interventions can significantly benefit diabetes care (Werfalli et al., 2020).

3. Reflecting growing evidence, the American Diabetes Association Professional Practice Committee (2025) now explicitly recognises the value of community health workers and peer support interventions for improving glycaemic control and self-management. Integrating such approaches could help address fragmentation in the UK by extending support beyond episodic clinical reviews, while drawing on lessons from Morocco's more relational and community-embedded model of care.

4. Normalising emotional engagement Moroccan accounts highlighted how emotional presence, whether through affectionate touch, personalised reassurance, or treating patients as family, reinforced motivation. In the UK, patients also valued emotional connection but often described professional interactions as impersonal or transactional. While cultural norms make overt physical affection less appropriate in UK healthcare settings, structured compassion-based approaches such as motivational interviewing or narrative-based care can provide emotional engagement in ways that are both effective and culturally acceptable.

   In COM-B, emotional engagement strengthens automatic motivation by embedding care into affective bonds and habitual reassurance, while supporting reflective motivation by affirming patient identity. By acknowledging emotional support as a professional responsibility, UK practitioners could enhance both engagement and adherence. Motivational interviewing directly addresses emotional engagement through four key elements: expressing empathy, rolling with resistance, developing discrepancy, and supporting self-efficacy. The first two elements focus on the practitioner–patient relationship (Rollnick et al., 2006).

   Patient experiences of motivational interviewing in diabetes care highlight themes such as "being heard and responded to as a person," "encouragement and empowerment," and "nonjudgmental accountability". Diabetes UK also explicitly recognises that psychological and emotional wellbeing must be an integral part of diabetes care, emphasising that effective management depends not only on clinical treatment but also on how people care for themselves (Sachar et al., 2023). By acknowledging emotional support as a core professional responsibility, UK practitioners could strengthen both patient engagement and long-term adherence.

26. Shared Lessons

The greatest shared lesson is the need to balance structural provision with relational embedding. Morocco illustrates how relational depth can sustain consistency across environments, but without structural reinforcement this approach risks exhaustion and inequity. The UK demonstrates the benefits of structured and equitable provision, but without relational embedding it risks fragmentation and disengagement. Integrated care literature highlights that neither relational nor structural approaches alone can deliver sustainable care for long-term conditions, and that the two must be combined (Baxter et al., 2018; Frost et al., 2020). Evidence from type 2 diabetes care reflects this principle. Research shows that integrating primary and secondary care can enhance clinical outcomes and is cost-effective for patients with chronic illnesses, with effective interventions including multidisciplinary teams and patient education (Busetto et al., 2016). The Chronic Care Model further demonstrates that systematic approaches to restructuring medical care through partnerships between health systems and communities can improve diabetes outcomes (Coleman et al., 2009).

Prioritising consistency across COM-B domains Both systems revealed that support falters when capability, opportunity, and motivation are not aligned. Strengthening one domain in isolation (e.g., knowledge without relational reinforcement) is insufficient, sustained self-management requires alignment across all COM-B domains. In Morocco, motivation and relational reinforcement were often strong, but limited material resources weakened opportunities. In the UK, knowledge and structured opportunities were present, but motivation waned when diabetes was minimised or when support lacked relational reinforcement. This suggests that achieving consistency across all domains (not simply improving one component in isolation) is critical for sustained self-management. Supporting identity and relationships through frameworks Identity and relational dynamics explained why support was sustained in Morocco and why it was sometimes resisted in the UK when autonomy was threatened. However, these dynamics need formal support. For Morocco, this could mean protocols for family-inclusive education; for the UK, policies that legitimise relational engagement within professional roles. By integrating identity and relational dynamics into care frameworks, both systems could achieve more reliable support over time.

Table 7: Linking Policy/Practice Lessons to COM-B Domains in Morocco and the UK

COM-B Domain	Lesson for Morocco (from UK)	Lesson for UK (from Morocco)	Shared Lesson
Capability	Introduce structured DSME programs (e.g., DESMOND) for consistent knowledge and skills building, reducing ad hoc reliance.	Embed experiential learning in family/community routines for relational reinforcement of psychological and physical skills.	Align education with identity/roles (e.g., caregiver acceptance) to sustain capability over time.
Opportunity	Formalise professional roles and peer networks to ensure equity and prevent burnout from informal efforts.	Extend support via community health workers or family-inclusive interventions for everyday embedding and continuity.	Balance physical resources with social norms for reliable access across environments.
Motivation	Promote bridging social capital (e.g., peer groups) for isolated patients, enhancing reflective acceptance and automatic emotional support.	Normalise emotional engagement (e.g., motivational interviewing) to build relational bonds and habitual reassurance.	Integrate reflexive processes (e.g., identity shifts) with automatic ones (e.g., emotional cues) through trust and reciprocity.

27. Contribution to New Knowledge and Theoretical Innovation

Previous research has applied the COM-B framework to understand behaviour change in diabetes management, demonstrating its usefulness for analysing self-management behaviours such as medication adherence, physical activity, and dietary change through the domains of capability, opportunity, and motivation (Michie et al., 2011; Presseau et al., 2014; Cradock et

al., 2017). These studies show that COM-B provides a robust structure for identifying behavioural determinants and informing intervention design. However, existing applications have largely focused on individual behaviour change and clinical self-management, with limited attention to the relational processes through which social support is delivered, negotiated, and sustained. Moreover, little research has examined how COM-B operates across different cultural and health system contexts, particularly in relation to social support in diabetes care.

This chapter addresses this gap by demonstrating how the COM-B framework can be applied comparatively across cultural and health system contexts to explain social support for T2D. While COM-B offers a robust structure for analysing behaviour through capability, opportunity, and motivation, the analysis revealed that these domains do not operate in isolation. Instead, their effectiveness depends on identity and relationship dynamics that determine whether support is accepted, resisted, or sustained over time. This represents a theoretical contribution that extends COM-B in two ways.

First, the findings highlight identity (e.g., patient, caregiver, and professional role identities) and relational processes (trust, reciprocity, relational autonomy) as cross-cutting mechanisms that condition how COM-B operates in practice. For example, informational support builds psychological capability when aligned with patient autonomy or caregiver identity; tangible support strengthens physical capability when embedded in accepted caregiving roles; and reminders reinforce automatic motivation when delivered through trusted relationships.

Second, the analysis demonstrates that these mechanisms are culturally contingent. In Morocco, collectivist norms embed COM-B processes within family and community life, while in the UK, individualist norms mean that COM-B processes are sustained only when support respects autonomy and personal boundaries. By integrating COM-B with identity and relational theories, this chapter advances a more relational and culturally responsive account of behaviour change. It shows that COM-B is necessary but not sufficient for understanding social support in chronic illness, as consistency across capability, opportunity, and motivation depends on their embedding within trusted identities and reciprocal relationships.

This extension of COM-B has implications for global health equity, particularly for adapting interventions to migrant populations or low- and middle-income countries with hybrid cultural systems (e.g., urban Morocco blending collectivism with Western influences). It provides a

theoretical foundation for developing the Social Support Consistency Model presented in the following chapter.

Conclusion

The comparison between Morocco and the UK reveals complementary strengths and limitations. Morocco's strengths lie in relational depth, collectivist embedding, and everyday consistency, but these are undermined by lack of structure, equity, and professional sustainability. The UK's strengths lie in structured pathways, equity of access, and professional clarity, but these are undermined by fragmentation, impersonality, and a lack of everyday embedding. Each system has valuable lessons for the other: Morocco could benefit from structured continuity and clearer role definitions, while the UK could learn from Morocco's relational embedding and emotional engagement. The most important shared lesson is that neither relationality nor structure alone is sufficient. Effective social support requires both, integrated in a way that ensures consistency across time and environment. This conclusion directly informs the development of the consistency model presented in the following chapter.

28. Summary: COM-B Application

This section has addressed Objectives 2, 3, and 4 of the thesis. Specifically, it examined how social support is experienced and enacted by patients, family members, and healthcare professionals in the United Kingdom and Morocco (Objective 2), analysed how social, cultural, and health system contexts shape the form, delivery, and perceived effectiveness of social support in each setting (Objective 3), and compared social support needs and practices across the two countries to identify transferable and context-specific elements (Objective 4). Collectively, these findings provide the empirical and conceptual foundation for Objective 5, which is to develop a context-sensitive model of social support for people living with T2D.

This chapter applied the COM-B model to integrate findings from four qualitative studies conducted in Morocco and the UK, involving both health professionals and people living with T2D. The aim was to understand how the four components of social support (informational, tangible, emotional, and appraisal) influence diabetes self-management across different cultural and healthcare contexts. The analysis showed that capability was shaped through both psychological and physical dimensions. Informational support enhanced psychological

capability, particularly when knowledge was grounded in lived experience in Morocco or delivered through structured education and coaching in the UK. Tangible support contributed to physical capability, with Moroccan participants describing family members embedding practical help into daily routines, and UK participants emphasising support that was linked to formal care roles or coordinated through professionals.

Opportunity was influenced by both physical and social conditions. In the UK, opportunity was constrained by fragmented services and role boundaries, which limited continuity of care and often left patients to self-manage in isolation. In Morocco, opportunity was strengthened by collectivist values and informal continuity, such as professionals and families maintaining contact through WhatsApp or regular reminders. Social opportunity was particularly shaped by cultural norms, with Moroccan families assuming active roles in managing diet, medication, and emotional wellbeing, while UK families were more cautious, balancing help with respect for autonomy.

Motivation was supported through reflexive and automatic processes. Reflexive motivation was strengthened when individuals accepted diabetes as part of their identity and took ownership of their role in managing the condition. This was a turning point in both contexts, enabling clearer routines and greater self-determination. Automatic motivation was reinforced through emotional presence and consistency. In Morocco, emotional support often involved physical closeness, reassurance, and affectionate gestures, reflecting collectivist norms. In the UK, motivation was sustained through quieter forms of reassurance and partnership, where subtle reminders and respectful encouragement preserved autonomy while maintaining support.

The cross-component synthesis highlighted that effective social support operated most strongly when identity, relational quality, and consistency worked across capability, opportunity, and motivation. Support was not simply about the presence of information or reminders, but about how these were delivered, who delivered them, and whether they aligned with personal values and cultural expectations. The comparison of Morocco and the UK revealed important lessons. Morocco demonstrated the value of collectivist practices, consistent family involvement, and relational continuity that extended beyond formal healthcare. The UK illustrated the benefits of structured education, professional clarity, and autonomy-respecting approaches that allowed people to feel in control of their condition. Each system has strengths that the other could learn

from, suggesting that a more integrated model of social support for diabetes should combine relational consistency with structured frameworks for education and care delivery.

In conclusion, applying the COM-B model to the four studies provided a systematic way to explain how social support shapes behaviour in T2D self-management. The findings show that effective support is multi-dimensional, culturally embedded, and dependent on identity and relationship dynamics as much as on tasks or advice. This demonstrates the importance of seeing support not only as discrete behaviours but as processes that interact with capability, opportunity, and motivation within different cultural and healthcare systems.

Section D – Discussion & Conclusion

Chapter 6: Discussion, Implications & Future Directions

1. Synthesising insights across all chapters

This section summarises how the different chapters of the thesis addressed its objectives and how, collectively, they provided the foundation for the development of the Social Support Consistency Model. The thesis set out to identify which components of social support are effective in the management of T2D, to explore how such support is understood and experienced in different cultural and healthcare contexts, to compare findings across Morocco and the United Kingdom, and to integrate these insights into a context-sensitive theoretical model to inform practice and policy.

Chapter 2 addressed the first objective by reviewing and synthesising the evidence on the effectiveness of social support interventions. The meta-analysis showed that interventions including informational, emotional, tangible, and appraisal support could improve glycaemic control, yet the findings were inconsistent. Some interventions demonstrated significant benefits, while others showed no improvement. This suggested that effectiveness depended on factors such as the duration of support, the intensity of the intervention, and how well support was embedded in relationships. The review confirmed that social support has potential benefits

but also highlighted that the type of support alone does not explain outcomes, pointing to the importance of context, implementation, and consistency over time.

Chapter 4 addressed the second and third objectives by presenting qualitative findings from studies with health professionals and people living with T2D in Morocco and the United Kingdom. The Moroccan studies showed that support was relational and embedded in daily family life, with health professionals often extending their care beyond clinical boundaries. Patients described support as a moral duty, provided consistently through distributed family roles. In contrast, the UK studies revealed that health professionals tended to view support in pragmatic terms, such as coaching, signposting, or reminders, and that these efforts were limited by service structures and role boundaries. Patients in the UK often valued support only when it respected autonomy, sometimes resisting involvement if it was perceived as intrusive. These studies provided detailed accounts of how informational, tangible, emotional, and appraisal support functioned in practice and revealed the influence of cultural expectations, relational dynamics, and health system organisation.

Chapter 5 addressed the fourth objective by integrating findings across the four qualitative studies through cross-case synthesis and deductive mapping onto the COM-B model. The comparative analysis highlighted that, while support was delivered differently across contexts, its effectiveness depended on consistency, distribution across roles, and the quality of relationships. Support was more likely to be sustained when caregivers and professionals identified with the role of helper and when patients accepted diabetes as part of their identity. Where roles were unclear or relationships strained, support often faltered, even when resources were available. Mapping the findings onto capability, opportunity, and motivation provided a behavioural explanation of how social support enables or constrains self-management across contexts. Capability was strengthened when knowledge and skills were reinforced through relationships. Opportunity was most effective when embedded in everyday routines, as in Morocco, or supported through structured services, as in the UK. Motivation was sustained when encouragement aligned with identity and cultural expectations but weakened when inconsistent or mismatched with autonomy.

Taken together, these chapters show how the thesis objectives were addressed in sequence. The meta-analysis clarified what was known and where gaps remained. The qualitative studies provided rich accounts of how support was lived and understood in Morocco and the United Kingdom, revealing that continuity across time and distribution across relationships were

central to effectiveness. Chapter 5 moved these observations beyond description by demonstrating, through cross-case and COM-B analysis, that support could only be sustained when capability, opportunity, and motivation were aligned and reinforced across environments such as family, healthcare, and community.

This synthesis moved consistency from an observed pattern in the data to a theoretical principle sustained by identity and relationship dynamics. Together, these processes provide the foundation for the four components of social support and enable them to be effective for people living with T2D. When this foundation is absent, support becomes fragmented and difficult to sustain, even when resources are available. Effective social support therefore emerges not as a collection of techniques that can be applied uniformly, but as a relational process that becomes effective only when grounded in identity, trust, and continuity across contexts. When these conditions are established, they enable consistency in social support, aligning assistance with the day-to-day demands of managing T2D and sustaining long-term behaviour change.

2. Conceptual Model - Social Support Consistency Model (SSCM)

The findings of this thesis led to the development of the Social Support Consistency Model (SSCM; Madroumi et al., 2026), a theoretical model that explains how social support becomes effective and sustained for people living with T2D. The model is interpretive in orientation rather than predictive, and the relationships it describes are advanced as plausible explanatory mechanisms grounded in the data, not as causal generalisations that have been empirically tested.

The SSCM was derived inductively from the qualitative findings and cross-case synthesis presented in Chapters 4 to 5, with the results of the COM B analysis used only to support higher level interpretation rather than to generate the model itself. Rather than emerging from a pre-existing behavioural model, it was built from participants' accounts of how support was accepted, resisted, negotiated, and maintained across everyday life, family relationships, and healthcare interactions. The model integrates insights from Identity Theory and relational autonomy, and was later interpreted using behavioural science, to explain not what support looks like, but how it becomes workable, meaningful, and consistent over time. This represents a conceptual shift away from typologies of support towards a theory of consistency, relational alignment, and identity negotiation.

At the core of the SSCM is the argument that social support is not a set of techniques but a relational and identity-based process. Support only becomes effective when patients, caregivers, and health professionals occupy roles that are mutually recognised and relationally aligned. This alignment allows support to be delivered in ways that feel legitimate rather than intrusive, collaborative rather than controlling, and sustainable rather than episodic. Consistency, in this sense, refers not simply to frequency of contact, but to stability in roles, expectations, and relational patterns across settings and over time.

To guide the reader, the SSCM is presented across two figures. Figure 1 provides an overview of the actors and processes involved, while Figure 2 presents the theoretical structure through which consistency is generated.

2.1 Overview of the model (Wheel representation)

The wheel representation offers a simplified overview of the Social Support Consistency Model. At its centre are identity and relationship dynamics, which act as the binding processes that sustain social support across contexts. These processes reflect repeated patterns observed across the qualitative data. Patients' engagement with support depended on whether they had integrated diabetes into their identity, while the quality of relationships between patients, caregivers, and professionals shaped whether support was experienced as enabling or burdensome.

Figure 5 places people living with T2D, health professionals, and caregivers as three interdependent levels within a single relational system. Each level contributes distinct but

Figure 6: Wheel representation of the Social Support Consistency Model

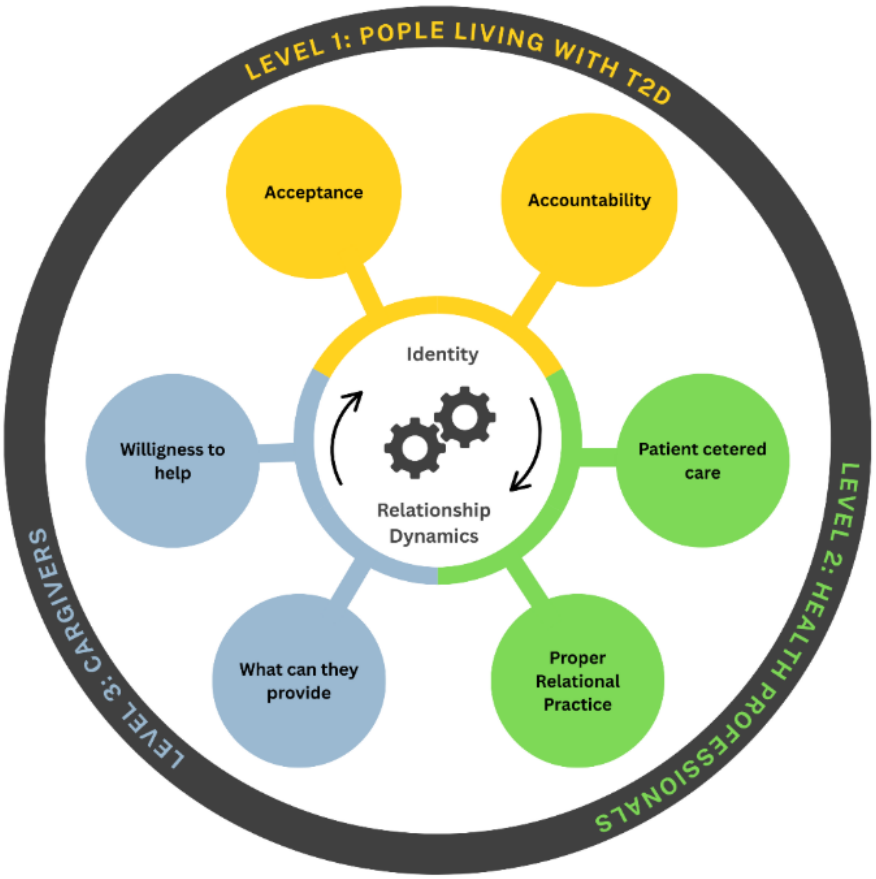


Figure 5. *Wheel representation of the Social Support Consistency Model. The model centres on identity and relationship dynamics, with three interconnected levels (patients, health professionals, caregivers) each contributing distinct but complementary roles.*

The wheel highlights two key processes (Identity and Relationship Dynamics) as the core mechanisms that allow for consistency in social support across environments and over time. At the heart of the model, these processes bind together the contributions of three levels of actors. However, consistency can only be achieved if each level fulfils key aspects of its role.

Level 1: People living with T2D - Acceptance and Accountability

Acceptance and accountability provided the foundation for effective self-management. Identity theory (Burke & Stets, 2009) and chronic illness research (Charmaz, 1995; Kralik et al., 2004)

suggest that patients who integrate illness into their identity are more likely to engage consistently with treatment. In this thesis, acceptance emerged not simply as a psychological adjustment but as the key relational opening that allowed patients to make use of available support without conflict or defensiveness. Patients who accepted their condition were more willing to build stronger relationship dynamics with health professionals and caregivers, which made them more receptive to the support available in their environment. By contrast, resistance to identifying with diabetes limited opportunities for constructive engagement and reduced the likelihood that support could remain consistent over time.

Building on this, acceptance can be understood as a gateway process that shapes how patients interpret and respond to support. Without acceptance, reminders from family members could be perceived as nagging, and professional advice as judgmental or burdensome. With acceptance, the same interactions were reframed as care, encouragement, or shared responsibility. This interpretive shift reduces relational friction and aligns the patient's identity with the collaborative nature of support, creating the conditions under which consistency becomes possible.

The diabetes literature reinforces this finding. Schmitt et al. (2014) demonstrated that patients with higher acceptance scores were more adherent to treatment and achieved better glycaemic control, indicating that acceptance enhances the capacity to use available support effectively. Similarly, Powers et al. (2020) showed that structured education programmes were most effective when patients had reached a level of acceptance that allowed them to engage actively with self-management strategies. These findings resonate with this thesis, which illustrates that the effectiveness of support depends on how it fits with patients' identities, preferences for autonomy, and relational expectations.

In sum, acceptance and accountability underpin consistency in social support by opening relational space, shaping how support is interpreted, and enabling patients to integrate guidance into daily routines. Whether patients preferred directive guidance or a more autonomous approach, acceptance allowed support to be aligned with their values and identities, transforming potentially conflictual interactions into cooperative ones.

Level 2: Health professionals - Willingness, Role Clarity, and Relational Practice

Professionals' willingness to help and clarity about their role were crucial for building consistent support. The findings showed that many professionals identified with the helper role and often extended their involvement beyond routine clinical duties. However, willingness alone was not sufficient; clarity about boundaries, responsibilities, and relational expectations ensured that support felt balanced and sustainable for patients. This echoes research on patient-centred care, which stresses that support should be guided by respect, partnership, and responsiveness to patient needs (Epstein & Street, 2011; Mead & Bower, 2000).

Patient-centredness was particularly important in diabetes care, as people living with T2D needed support that addressed both the medical and personal aspects of their condition. The findings of this thesis showed that health professionals were most effective when they not only provided direct advice but also recognised the wider needs of patients and referred them to other forms of expertise where appropriate. This broader responsiveness ensured that support remained coherent rather than fragmented, an important precondition for consistency.

Relational practice also emerged as a central condition of consistent support. Professionals who were professional, fair, and balanced created relationships where patients felt respected and safe to disclose difficulties. Conversely, when interactions were rushed or overly directive, patients disengaged or withheld information, limiting the effectiveness of support. These findings align with evidence that the quality of the therapeutic relationship shapes trust, communication, and engagement, all of which are essential to maintaining consistency across time and settings (Street et al., 2009).

Finally, professionals' role in supporting self-management cannot be understood only in terms of knowledge provision. Empowerment in diabetes care requires professionals to share responsibility with patients rather than dictate behaviour (Funnell and Anderson, 2004). In this thesis, consistency emerged not from isolated clinical tasks but from the combination of willingness, role clarity, patient-centred practice, and the ability to coordinate or refer as part of a wider system.

In sum, health professionals contributed to consistency by aligning their behaviours with patient-centred principles, by balancing direct involvement with appropriate referral, and by cultivating relational conditions that supported trust and engagement across diverse patient groups.

Level 3: Caregivers - Willingness, Identity, and Everyday Support

Caregivers embedded support into the everyday routines of people living with T2D. The findings of this thesis showed that caregivers did not typically provide all four components of House's typology at once. Instead, they tended to focus on the form of support they felt most confident in or that best suited their relationship with the patient. These variations reflected differences in identity, experience, time availability, and cultural norms, demonstrating that the quality rather than the quantity of support was what sustained consistency.

Despite these variations, a common feature across caregivers was their willingness to provide support, whether consciously or unconsciously. This willingness was critical for strengthening relationship dynamics and for ensuring that at least one form of support was consistently available. Equally important was the fit between caregiver identity and the type of support they offered; support was most effective when caregivers operated within roles that felt authentic and manageable.

Cultural differences were also significant. Collectivist contexts, such as Morocco, encouraged shared responsibility for diabetes management, resulting in daily consistency through monitoring, reminders, and communal mealtimes. By contrast, individualistic contexts (e.g., the UK) tended to emphasise autonomy, leading caregivers to support more cautiously. These cultural patterns shaped how support was interpreted and whether it was experienced as care or intrusion, reinforcing the importance of good relational dynamics for consistency.

Across both contexts, support was most effective when caregivers identified with the helper role and provided forms of assistance that respected the patient's values and independence. In this sense, caregiver involvement should be understood not as the amount of support provided but as the alignment between identity, willingness, and relational quality.

2.2 Theoretical Structure: Helix Representation

Figure 7 : Helix triangle representation of the Social Support Consistency Model

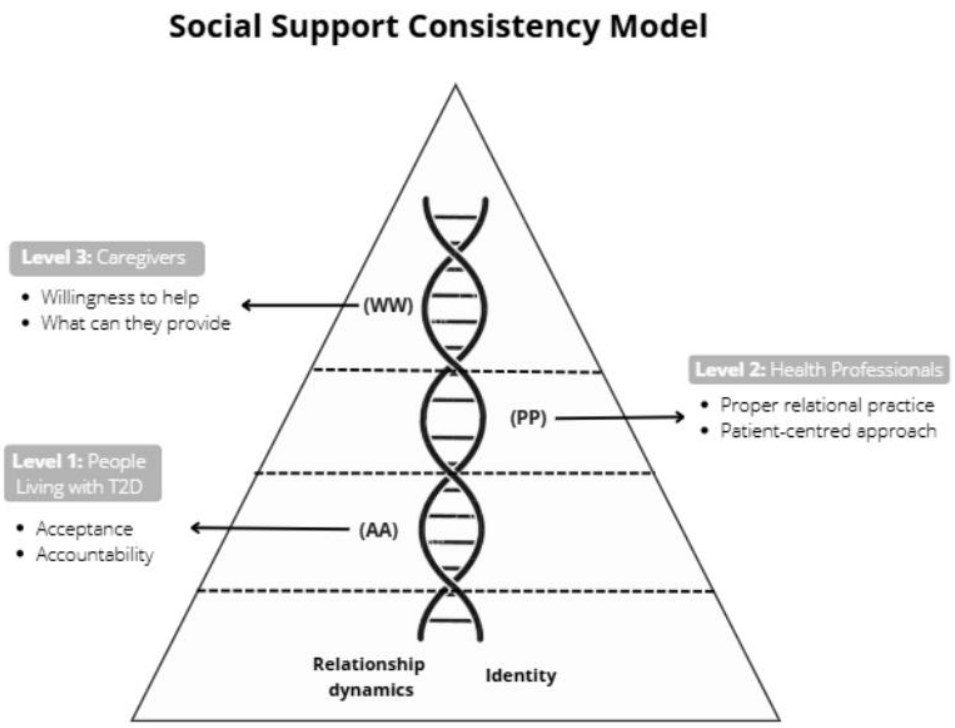


Figure 6. *Helix triangle representation of the Social Support Consistency Model. The three levels (people living with T2D, health professionals, and caregivers) are bound together by identity and relationship dynamics, represented as a double helix running through the model.*

Figure 6 presents the theoretical structure of the Social Support Consistency Model. The three levels of actors are connected through identity and relationship dynamics, represented as a double helix running through the model. This helix captures the reciprocal and evolving nature of support. Identities shape relationships, and relationships in turn reinforce or undermine identities, creating feedback loops that either stabilise or destabilise support over time.

The base pairs at each level represent the contributions required to sustain consistency. For patients, this involves acceptance and accountability. For professionals, it involves willingness, role clarity, and relational practice. For caregivers, it involves willingness, identity fit, and

everyday engagement. Consistency emerges when these contributions align across levels, allowing support to be interpreted in similar ways across different interactions and settings.

Importantly, this structure shows that consistency is not produced by any single actor. It is a property of the relational system as a whole. Support becomes durable when identities, expectations, and roles are mutually recognised and reinforced, creating shared understandings of what help means and how it should be given.

3. Positioning the Social Support Consistency Model within Existing Frameworks

The Social Support Consistency Model (SSCM) is proposed as conceptual and interpretive model for understanding how social support operates in the context of Type 2 Diabetes (T2D) management. Rather than conceptualising support as a fixed set of components or behaviours, the SSCM focuses on the relational and contextual processes through which support may become meaningfull. Central to the model is the notion of consistency, understood as the alignment between patients, caregivers, and healthcare professionals in how support is understood, delivered, and sustained over time. In this sense, the SSCM does not represent an intervention at this stage, but rather a model that explains the conditions under which different forms of support can become meaningful, acceptable, and effective within specific cultural and healthcare contexts.

This perspective differs from established psychological models of social support, such as the stress-buffering model (Cohen & Wills, 1985), which primarily conceptualises support in terms of its capacity to mitigate the negative effects of stress on health outcomes. Within this framework, social support is typically understood as a resource that protects individuals from the impact of stressful life events, with an emphasis on individual-level psychological processes. While this provides a valuable account of the potential benefits of support, it offers limited insight into how support is enacted in practice, particularly within ongoing, relational contexts such as chronic illness management. In contrast, the SSCM shifts attention from the outcomes of support to the processes through which support is constructed and negotiated. It emphasises that support is not simply received or perceived, but actively shaped through interactions between individuals, and that its effectiveness depends on how well it aligns with the expectations, roles, and identities of those involved.

Similarly, sociological approaches, including network models of social support, have focused on the structure and composition of social relationships, often examining the size, density, and

characteristics of individuals' support networks (Berkman et al., 2000; Heaney & Israel, 2008). These models provide important insights into who is involved in providing support and how resources may be distributed across social ties. However, they tend to treat networks as relatively static structures, offering less explanation of how support functions within these relationships on a day-to-day basis. The SSCM extends beyond this structural perspective by foregrounding the relational dynamics that shape how support is delivered, interpreted, and responded to. Rather than focusing solely on the presence or absence of support within a network, the model highlights how support is negotiated within relationships, and how differences in communication, expectations, and cultural norms can influence whether support is experienced as helpful, intrusive, or ineffective.

Taken together, the SSCM contributes to existing literature by integrating psychological, relational, and contextual perspectives into a unified framework. It proposes consistency as a candidate mechanism through which support may become effective, emphasising the importance of alignment across patients, caregivers, and healthcare professionals. In doing so, the model offers an interpretive account of why similar forms of support may produce different outcomes. It also extends beyond typological approaches, such as those based on House (1981), by focusing not only on what type of support is provided, but on how it is embedded within relationships and enacted over time. As such, the SSCM offers a model for understanding social support not as a set of discrete components, but as a relational system that must be coherently aligned in order to support effective self-management.

4. Equity Implications of the Model

Importantly, inconsistent support does not affect all groups equally. Disadvantaged and marginalised populations often face additional barriers, such as reduced access to stable relationships, culturally attuned care, or flexible service structures, making consistency more difficult to achieve. By foregrounding identity, relational dynamics, and role clarity, this model provides a conceptual understanding why inequities arise and how they might be mitigated. It therefore offers a theoretically informed basis for designing interventions and services that promote equitable, sustainable support across diverse social and cultural contexts.

5. Contribution of the Social Support Consistency Model

The development of the SSCM is grounded directly in the empirical findings presented in Chapters 4 and 5. Across the four qualitative studies, recurring patterns were identified in how social support was experienced, particularly in relation to identity, relationship dynamics, and the continuity of support over time. For example, findings from the Moroccan datasets highlighted how support was embedded within family roles and relational expectations, while the UK datasets revealed fragmentation linked to professional boundaries and service structures. These cross-context patterns, further synthesised through the COM-B analysis, informed the conceptualisation of consistency as a central mechanism. The SSCM therefore represents an integrative model that is directly derived from, and grounded in, the empirical data rather than introduced as a pre-existing framework.

This thesis contributes to the literature on social support in T2D management by moving beyond conceptualisations of support as a singular or static construct, and instead demonstrating its relational, contextual, and dynamic nature. Through the integration of a systematic review and four qualitative studies conducted across Morocco and England, the research provides a cross-cultural perspective on how social support is understood, enacted, and experienced within different healthcare systems and social environments. In doing so, it highlights that the effectiveness of social support cannot be fully explained by its type alone, but must be understood in relation to the interactions, expectations, and contexts in which it is embedded.

The primary theoretical contribution of this thesis is the development of the Social Support Consistency Model. The SSCM is proposed as a conceptual and interpretive model that shifts attention from the classification of support types towards the processes through which support becomes effective in practice. Central to the model is the concept of consistency, defined as the alignment between patients, caregivers, and healthcare professionals in how support is understood, communicated, and sustained over time. By incorporating identity, relational dynamics, and contextual influences, the SSCM offers an account of why similar forms of support may lead to different outcomes depending on how they are negotiated within relationships. In contrast to existing models, which often focus on either individual psychological outcomes or structural characteristics of support networks, the SSCM provides an integrative framework that captures the interaction between these levels.

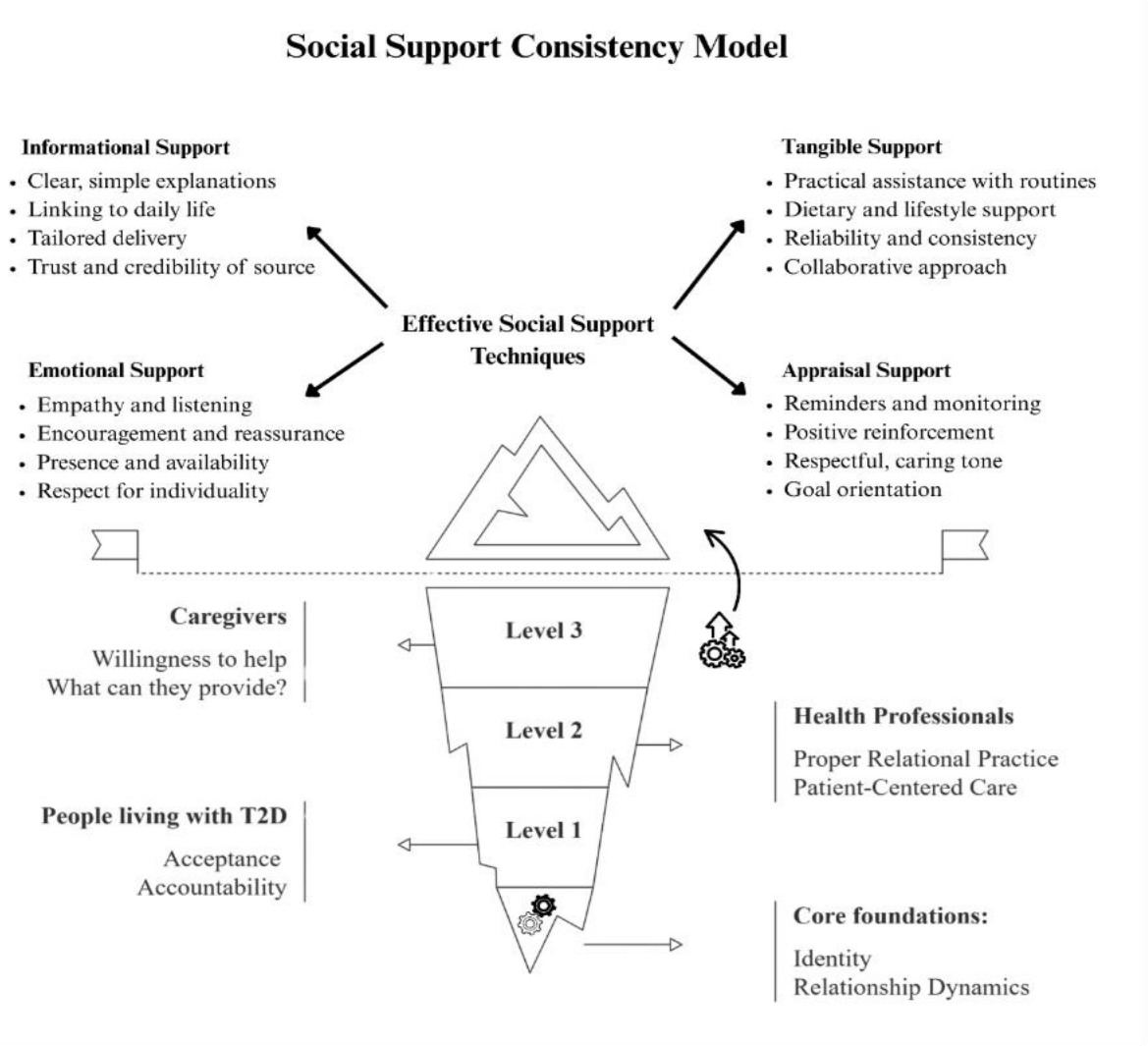
This contribution has important implications for both research and practice. It suggests that future interventions should move beyond simply increasing the availability of support, and instead focus on enhancing the coherence and alignment of support across different actors involved in care. It also provides a framework for understanding variability in intervention outcomes, particularly in cross-cultural contexts where expectations, roles, and communication styles may differ. By reframing social support as a relational system rather than a set of discrete components, this thesis offers a novel perspective that can inform the design of more context-sensitive and person-centred approaches to T2D management.

6. Linking the Social Support Consistency Model to House's Four Components of Support

House's typology defines four domains through which social support is delivered, namely informational, emotional, tangible, and appraisal support. However, it does not explain how different people, in different cultural and relational contexts, come to receive the particular combination of these components that best supports their self-management. The Social Support Consistency Model (SSCM) addresses this gap by explaining how consistency is generated across patients, caregivers, and health professionals through identity alignment, relationship dynamics, and role clarity. When these SSCM processes are in place, they create the conditions under which different configurations of House's four components can be realised for different people living with T2D.

Figure 3 is designed to make this relationship visible. It shows House's four components as the visible outcome layer of social support, meaning the techniques people experience in everyday life, while the SSCM is shown beneath the surface as the system that makes those techniques possible. The techniques listed within each component in Figure 3 are drawn from the empirical findings presented in Chapter 4 and illustrate how support was experienced as effective across the studies. They are not fixed prescriptions but examples of how support can be configured differently depending on what each person living with T2D needs, regardless of cultural background or personal preferences.

Figure 8: How the Social Support Consistency Model generates effective House-style social support (Iceberg visualisation).



Iceberg description

Above the waterline are the four visible domains of support described by House, which are informational, emotional, tangible, and appraisal support. The techniques listed within each component in Figure 3 are drawn directly from the empirical findings presented in Chapter 4 and reflect patterns consistently identified across both Moroccan and UK datasets. In this thesis, these domains capture what participants recognised as support in their lived experience, including how information was communicated, how emotions were acknowledged, how practical help was provided, and how progress was monitored or encouraged.

Below the waterline sit the core processes of the Social Support Consistency Model. These include identity alignment, relationship dynamics, and role clarity across patients, caregivers,

and health professionals. These submerged processes determine whether the visible techniques above the surface are experienced as supportive or as intrusive, helpful or burdensome, and whether they can be sustained over time. For example, a reminder from a family member could be experienced as caring encouragement when grounded in positive relationship dynamics, but as controlling when those dynamics were strained. Similarly, professional advice was taken up when patients identified with their illness role and when the interaction reflected constructive relational practices but dismissed when these conditions were absent.

The iceberg therefore illustrates a central theoretical claim of this thesis. House's four components do not operate independently. Their effectiveness depends on whether the SSCM is functioning across the three levels of patients, caregivers, and health professionals. When consistency is achieved through these relational and identity-based foundations, the balance of informational, emotional, tangible, and appraisal support can be flexibly tailored to fit each person living with T2D. When consistency is absent, even well-designed techniques are unlikely to be effective or sustainable.

7. Policy implications for the UK and Morocco

The findings of this thesis underline the need to move from standardised, one-size-fits-all forms of support towards a consistent and structured system that can be embedded within healthcare and community settings. The proposed Social Support Consistency Model responds to this need by providing a model that integrates informational, emotional, tangible, and appraisal support across patients, caregivers, and health professionals. Policy implications can be drawn for both the United Kingdom and Morocco, with shared areas of emphasis but also country-specific priorities.

From a theoretical perspective, the application of the SSCM resonates with social capital theory, which highlights the value of trust, reciprocity, and social networks in shaping health outcomes (Putnam, 2000). Policies that promote consistent support build social capital by reinforcing reliable and reciprocal relationships. The model also aligns with patient-centred care models, which emphasise relational practice, shared decision making, and care that extends beyond the biomedical to include emotional and social dimensions (Epstein & Street, 2011). Furthermore, self-determination theory suggests that supportive contexts foster autonomy, competence, and relatedness, all of which are critical to sustained self-management

(Ryan & Deci, 2000). Taken together, these theories provide a foundation but do not account for the relational and identity-based mechanisms that determine whether support is sustained over time, which is the specific value added by the Social Support Consistency Model.

What this means for policy is a shift towards models of care that explicitly recognise the four components of social support alongside the processes outlined in the SSCM. Policies should move away from standardised; one size fits all interventions and instead promote systems that adapt support to individual needs. Each patient has specific circumstances and challenges, so recommendations of care must remain flexible, focusing on the source of the problem rather than addressing it solely from a medical perspective. This requires mobilising all available resources including health professionals, families, peers, and community services to ensure that each component of support is addressed in ways that are sustainable across time and environments. The model can also be used by policymakers as a practical tool to benchmark relational consistency across care pathways, evaluate the design and quality of structured peer support programmes and identify gaps in identity alignment and relational practice that may undermine intervention effectiveness. By embedding both the components of support and the relational and identity-based processes that guarantee their consistency, policy can create models of care that are not only comprehensive but also adaptable to the lived realities of people managing T2D.

A further implication concerns economic value. Consistent support is likely to reduce acute complications, crisis presentations and unplanned hospital admissions by improving adherence, emotional stability and self-regulation. This increases the long-term cost effectiveness and sustainability of diabetes care, providing an economic rationale for adopting the model within national strategies.

At a shared level, both countries would benefit from integrating the SSCM into their national diabetes strategies, ensuring that social support is treated as a fundamental element of long-term management. Policies should encourage collaboration between patients, caregivers, and health professionals, recognising that effective diabetes care depends on coordinated networks of support. Education about the meaning and forms of social support should be made available to patients, families, communities, and professionals to build a collective knowledge capital. Such education would allow individuals to recognise the different components of support and to apply them in ways that complement clinical care.

Equally important is the need to professionalise and structures peer support, moving away from random or informal practices. Recent UK guidance on peer support has already established principles for good practice, highlighting values such as reciprocity, accessibility, and complementarity with formal services (NHS England, 2022). Evidence reviews confirm that structured peer support can improve glycaemic control and self-efficacy in people with T2D (Werner et al., 2024). In Morocco, recent studies demonstrate that many patients experience fragmented and insufficient support, with health professionals reporting that only a small minority of patients receive lifestyle coaching or self-management guidance (Dankoly et al., 2023). Embedding structured peer-to-peer interventions within both health systems could therefore provide consistent, accessible, and culturally sensitive forms of support. Policies must also strengthen community-based initiatives, allocate resources to peer support structures, and include robust evaluation mechanisms to assess quality and equity. The SSCM provides policymakers with criteria for assessing whether peer support structures are relationally coherent, identity sensitive and capable of sustaining support within different cultural contexts.

In the United Kingdom, policy development has already shown recognition of the role of support in diabetes management. The *National Service Framework for Diabetes* identified empowerment and shared care planning as central goals (Department of Health, 2001). More recently, the *Health and Care Bill* positioned early intervention and the reduction of health inequalities as policy priorities (House of Commons, 2021). Alongside this, *Health Matters: Preventing type 2 diabetes* highlighted the importance of behavioural interventions and lifestyle support (Public Health England, 2016). Despite these developments, the *Diabetes UK Tackling Inequality Commission* has pointed to persistent disparities in care and outcomes, particularly among minority ethnic and deprived groups (Diabetes UK, 2021). These reports highlight the importance of policies that not only expand structured support but also ensure that such support is culturally inclusive and equitably distributed. Policies in the United Kingdom should therefore prioritise reducing inequalities by ensuring access to consistent support across diverse communities, embedding family and peer support within diabetes care pathways, training professionals in relational and patient-centred approaches, and integrating emotional and social support into routine practice alongside biomedical care. In addition, situating the model within wider international frameworks such as the WHO Global Diabetes Compact (World Health Organization, 2021) and the WHO HEARTS technical package (World Health Organization, 2020) can support alignment with global standards on prevention, continuity and people centred care.

In Morocco, policy challenges are different but equally pressing. Studies highlight that a large proportion of people with diabetes remain unsupported by the Ministry of Health and experience poor disease control (Dinar & Belahsen, 2014). Research has also shown that barriers related to poverty, geography, and institutional shortcomings reduce access to care (El Hanafi & Lmejjati, 2024). At the same time, promising evidence from small-scale interventions, such as culturally tailored education programmes, suggests that structured support can improve self-care practices, although such interventions remain limited in reach (Adarmouch et al., 2017). A recent study in Morocco also found that levels of perceived social support among patients with chronic diseases were variable and strongly related to quality of life, signalling the need for policy action to strengthen consistent support ((El-Hamaoui et al., 2024). Research on self-care in Morocco further shows uneven practices and emphasises the need for supportive policies to build patient capacity (Adarmouch et al., 2020). Policies in Morocco should therefore focus on strengthening primary healthcare infrastructure, creating guidelines that formally integrate families and caregivers, training professionals in relational care, supporting community and religious organisations to deliver support, and scaling up educational and peer-based interventions. Embedding the framework within Morocco's national strategy would support progress towards Universal Health Coverage (World Health Organization, 2010) and contribute directly to Sustainable Development Goal 3 on Good Health and Wellbeing (United Nations, 2015).

Taken together, these implications suggest that both the UK and Morocco stand to gain from embedding the SSCM into their policy agendas. In the UK, the model offers a way to build on existing strategies and address persistent inequalities. In Morocco, it offers a means of filling critical gaps in access, infrastructure, and support provision. In both contexts, policies that acknowledge and formalise the role of social support can enhance self-management, reduce health inequalities, and improve outcomes for people living with diabetes.

Overall, these implications demonstrate that the Social Support Consistency Model is transferable across high-income and low- or middle-income contexts. While the specific barriers faced by the UK and Morocco differ, both systems require support that is reliable, coordinated and relationally grounded. Embedding consistency can therefore reduce structural inequalities in both settings by ensuring that support does not depend on chance, personal networks or local resources. The novel contribution of this thesis lies in establishing consistency as the missing policy principle in diabetes care, shifting the focus from whether support is available to whether it is reliable, coordinated and sustained.

A brief comparison between the UK and Morocco highlights what is shared and what is context specific. The UK benefits from established care pathways and formal structures but faces persistent inequalities in access and quality. Morocco faces infrastructural limitations and unequal access to care but has strong cultural and community networks that can support relational consistency if properly structured. Across both contexts, the generalisable lesson is that the consistency principle provides a foundation for scalable, culturally adaptable and sustainable support systems.

8. Clinical and patient-education implications

The SSCM also carries important implications for clinical practice and patient education. Unlike the policy level, which addresses system-wide structures, these implications centre on the daily interactions between health professionals, patients, and caregivers.

In clinical practice, the model highlights the need for health professionals to integrate social support into their routine consultations. This requires moving beyond a purely biomedical focus and adopting relational approaches that recognise the patient as a partner in care (Epstein & Street, 2011). Clinicians should be encouraged to assess and respond to patients' social support needs in a structured way, asking about emotional, informational, tangible and appraisal support during appointments. Such assessments can guide more personalised care plans and prevent gaps in support. The incorporation of multi-disciplinary teamwork is equally important, as patients often engage with general practitioners, nurses, dietitians and psychologists at different stages of their care. Consistency across these professional roles is necessary to avoid fragmented messages and to reinforce supportive relationships. The findings of this thesis also suggest that existing clinical encounters often fail not because advice is inaccurate but because relational consistency is missing. The SSCM therefore gives clinicians a mechanism for understanding why certain messages is taken up while others are ignored, allowing them to refine how support is delivered rather than only what is delivered.

For health professionals themselves, training and professional development are key. In the United Kingdom, clinical training already promotes shared decision making and multi-disciplinary collaboration (Department of Health, 2001), but there is limited focus on how to deliver consistent support in everyday practice. In Morocco, professional training remains primarily biomedical, and research suggests that lifestyle coaching and patient empowerment are often absent from consultations (Dankoly et al., 2023). Embedding modules on

communication, empathy and patient-centred care into medical and nursing curricula would ensure that professionals have the skills to provide consistent and effective support. The SSCM adds value by showing that training must also target identity alignment, relational sensitivity and role clarity, elements that are largely absent from current curricula yet central to whether support remains sustainable across encounters.

Patient education is another area where the SSCM offers direction. Education programmes should go beyond the transfer of biomedical knowledge to include the psychosocial aspects of living with diabetes. Evidence from Morocco indicates that self-care practices are uneven, often constrained by limited health literacy (Adarmouch et al., 2020). Small scale culturally adapted interventions have demonstrated positive outcomes (Adarmouch et al., 2017), yet these remain isolated. The model helps explain why such programmes succeed when they do, as they often incorporate relational continuity and cultural alignment, whereas others fail because they rely solely on information transfer without addressing identity or relational dynamics. By embedding structured education within routine services, patients and caregivers can build a more reliable knowledge base. In the UK, national education programmes such as DESMOND and the NHS Diabetes Prevention Programme have proven useful (Public Health England, 2016), but participation is inconsistent and follow up is often limited. From the perspective of this thesis, these limitations arise because educational support is not consistently reinforced across clinical, family and community contexts. The SSCM therefore provides a guide for strengthening long term engagement by highlighting the relational mechanisms that sustain learning beyond the session itself.

A particularly promising direction is the integration of peer led education. Reviews show that structured peer support can improve both glycaemic control and patient self-efficacy (Werner et al., 2024). NHS guidance has also set out principles for safe and effective peer interventions (NHS England, 2022). In Morocco, where family and community play central roles in health, training caregivers and community members as peer educators could enhance the reach of education programmes and reduce the burden on primary healthcare services (Dinar & Belahsen, 2014). In both contexts, co designing education resources with patients and caregivers would increase their relevance and uptake. The SSCM adds a mechanism for evaluating peer interventions by showing that their success depends not simply on shared experience but on the consistency of relational interactions, the reliability of the support offered and the clarity of the helper's role.

To support this integration, clinical and educational practice should adopt structured feedback mechanisms that capture patients' and caregivers' experiences of support. This allows professionals to understand where inconsistency arises and to refine their approach accordingly. Ensuring that clinical encounters, education sessions and peer programmes reinforce consistent messages would reduce confusion and strengthen patients' sense of continuity. Ultimately, the model positions relational and emotional support as essential to the practical application of biomedical knowledge, creating a more coherent pathway from education to daily self-management.

Building on this, the findings of this thesis emphasise that social support education itself must be made a central part of clinical and community practice. Assessments should be developed to identify which component of support (informational, emotional, tangible or appraisal) each patient needs most, as this facilitates targeting gaps directly. Health psychologists can play a critical role in this process, working with both patients and caregivers to address the identity and relational aspects of support. Patients should also be given opportunities to reflect on the type of support they value (whether they prefer directive guidance or approaches that preserve autonomy) and to map which people in their environment are both willing and able to provide it. For caregivers, social support education should help them communicate what forms of support they feel comfortable providing, reducing strain and clarifying roles. Importantly, the model does not assume that caregivers or health professionals must provide every component. If certain elements are lacking, referrals can fill the gap. For example, counselling may address emotional support, education classes can strengthen informational support, regular follow ups may sustain appraisal support and practical workshops, or community services may enhance tangible support.

Together, these clinical and educational implications demonstrate how the SSCM offers a new mechanism for understanding why certain interventions succeed while others fail. It moves beyond existing clinical and educational approaches by emphasising the processes that make support stable, coordinated and sustainable. In doing so, the model positions consistency not as an additional consideration but as a foundational principle for clinical training, patient education and health psychology practice, with relevance across diverse healthcare systems.

9. Future research agenda

This thesis has generated a conceptual model that highlights the role of consistency in social support for the management of T2D. While the findings offer valuable insights, they also open new avenues for research. A future research agenda is needed to test, refine, and extend the SSCM, as well as to explore its wider applications. Although several directions are possible, the most immediate priorities relate to testing the model empirically and translating it into intervention and system level tools.

A first area of research concerns the testing and validation of the SSCM. While the present study developed the model through qualitative enquiry, further research should employ quantitative and mixed method designs to test its applicability across different populations. Longitudinal studies are particularly needed to examine how consistent social support influences self-management behaviours, clinical outcomes, and psychosocial wellbeing over time. Future work might also investigate whether the model can be applied to other chronic conditions, such as cardiovascular disease or cancer, where social support plays an equally important role. Given the importance of equity highlighted in this thesis, validation studies should also examine whether consistency functions differently across socioeconomic groups, gender, ethnicity and urban rural divides in both high-income and low- or middle-income settings.

A second area is the development and evaluation of interventions informed by the model. There is a need to design interventions based on the social support consistency model and to evaluate their impact in both individualistic and collectivist cultures. Similarly, research could examine whether social support education enhances the consistency and quality of support provided to people living with T2D. Digital innovation represents another promising avenue, as artificial intelligence, telehealth platforms and mobile applications could be designed to reinforce consistent support through personalised reminders, relational coaching and adaptive feedback systems. Linking such approaches to contemporary digital health policy agendas would extend the model's relevance to emerging health technologies. Moreover, evaluating how digital tools can sustain relational and identity-based processes over time represents a particularly important direction for ensuring that support remains coherent across different environments.

A third area involves the practice of health professionals. Research should investigate how training in relational and patient-centred care affects professionals' ability to provide consistent support, and what barriers and facilitators influence the integration of social support into routine clinical practice. Understanding how professionals perceive their roles in providing

emotional, informational, tangible and appraisal support is critical for embedding the model into practice. Future studies should also explore interdisciplinary approaches, bringing together psychology, medicine, nursing, public health, digital health and community organisations to examine how consistency can be maintained across professional boundaries and service settings.

Fourth, there is a need for policy and system level research. Studies could examine how national policies in the UK and Morocco incorporate social support and identify areas where support is neglected. Evaluating the cost effectiveness of embedding the social support consistency model within healthcare systems would also provide valuable evidence for policy makers. Another area of interest is how voluntary and community organisations can be sustainably integrated into formal care pathways when using this model, particularly in resource constrained settings. Linking this work to global frameworks such as NICE guidance, the WHO Global Diabetes Compact and the Universal Health Coverage agenda would further clarify the model's international relevance and provide opportunities for large scale comparative research on how consistency can reduce structural inequalities.

While this thesis employed COM-B as the organising lens for integrating findings, future research could extend the model using the broader Behaviour Change Wheel. The BCW builds on COM-B to identify intervention functions and policy levers and therefore offers a structured pathway for translating the Social Support Consistency Model into practical tools for intervention design and health system reform. Although a full BCW application was beyond the scope of this thesis, recognising this translational potential provides a bridge between conceptual development and future applied work.

Finally, future research should continue to foreground the perspectives of patients and caregivers. Further work is needed to explore people living with T2D's lived experiences of consistent versus inconsistent support, and how these experiences shape their engagement with self-management. Similarly, caregivers' perspectives on their roles, challenges and resource needs remain underexplored. Investigating the relationship between support consistency and quality of life would also enrich understanding of the wider psychosocial benefits of reliable support systems. Research should also examine whether enhancing consistency reduces inequalities in access, outcomes and wellbeing, particularly among marginalised or underserved groups.

In summary, future research should prioritise validating the model empirically, translating it into structured interventions and policies, examining its economic and equity implications and expanding its application across digital, clinical and cultural contexts. Together, these directions ensure that the SSCM advances academic knowledge while offering a foundation for real world improvements in practice, policy and patient outcomes.

10. Research reflectivity/ development section

a) Reflexive learning across the PhD journey

At the beginning of this PhD, I understood social support as a concept that was difficult to define. Encountering the four-component framework of social support provided an initial structure that allowed me to conceptualise the field more clearly. Initially, I viewed social support primarily as a collective responsibility to assist the person living with T2D. Over the course of the PhD, however, my understanding evolved to recognise that responsibility exists across multiple levels. Effective support requires not only collective engagement but also individual awareness, agency, and clarity about what kind of support is needed and appropriate in a given context.

A major insight from this journey was the recognition that social support is not a set of techniques that can be applied immediately to produce outcomes. Rather, it is something built over time, whose effectiveness derives from consistency. Support becomes meaningful through ongoing relationships, cultural alignment, and responsiveness to individual context rather than through isolated interventions. This realisation became particularly salient during interviews in Morocco, where participants frequently discussed responsibilities, identities, and relational expectations in managing diabetes.

In the early stages of data collection in Morocco, I initially interpreted the additional support provided by some doctors, particularly support that extended beyond formal clinical responsibilities, as the key factor making social support effective. I considered whether such practices could be translated into the United Kingdom context. However, discussions with my supervisory team prompted a critical reconsideration of this assumption. Through these dialogues, I began to recognise that professionals in Morocco may sometimes extend beyond their formal roles in ways that, while supportive, could also risk inconsistency, blurred professional boundaries or inequities in care provision. For instance, support that depends on

whether a professional personally connects with a patient may unintentionally disadvantage others who do not receive the same level of engagement.

This reflexive process shifted my focus from viewing additional support as inherently beneficial to considering the importance of structured relational practices that ensure fairness, professionalism, and sustainability. It was through this re-evaluation that the idea of relational consistency began to emerge more clearly, ultimately contributing to the development of the Social Support Consistency Model.

There were moments during the PhD where I felt uncertain and lost, particularly when navigating complex analyses and integrating multiple strands of findings. However, continued engagement with the data, alongside supervisory guidance, enabled me to gain perspective. Ultimately, this process allowed me to centre participants' voices and experiences in the development of a model intended to operate across cultures by adapting to individuals' priorities and needs rather than requiring individuals to adapt to the model.

b) Methodological growth

This project significantly advanced my analytical and methodological skills. Conducting the systematic review, meta-analysis, and multiple qualitative studies required me to develop competencies beyond those I possessed at the outset of the PhD. Chapters Four and Five demanded high-level synthesis across datasets and contexts, pushing my ability to integrate findings into a coherent conceptual contribution.

Supervisory discussions played a crucial role in this development by challenging initial interpretations and encouraging deeper critical analysis. These conversations helped refine the direction of the research and ensured that emerging conclusions were grounded in careful consideration of ethical, professional, and contextual factors.

Through this process, I became more reflexive, more attentive to detail, and better able to identify broader patterns across studies and contexts. I learned to tolerate ambiguity, recognise the limits of predefined frameworks, and appreciate the importance of iterative analysis. The development of the Social Support Consistency Model represents the culmination of this methodological growth, requiring the integration of diverse findings into a unified explanation of how social support operates in practice.

c) Managing positionality in cross-cultural research

My positionality as a Moroccan researcher trained in the United Kingdom played a significant role in shaping the research process. Being Moroccan facilitated access to participants in Morocco, enhanced trust, and enabled a nuanced understanding of cultural meanings and social norms expressed during interviews. At the same time, my UK training provided methodological rigour, ethical grounding, and advanced interviewing skills that strengthened the quality of the research.

Conducting research in the United Kingdom presented different challenges, particularly in accessing participants and navigating a more individualistic healthcare context. The contrast between experiences in Morocco and the United Kingdom highlighted important cultural differences, especially between collectivist and individualist orientations to health, responsibility, and support. Analysing data across these contexts allowed me to identify both similarities and differences, deepening my understanding of how culture shapes expectations of support.

This cross-cultural positionality placed me in an in-between perspective that, while challenging at times, ultimately enriched the analysis by allowing sensitivity to both contexts without full alignment to either.

d) Implications for my development as a health psychologist

This PhD has shaped my identity as a researcher and future health psychologist. It has provided a broader perspective on how psychological concepts operate within real-world health systems and diverse cultural contexts. The project clarified my interest in developing and testing interventions that are adaptable rather than prescriptive, and that respect individuals' social realities.

The research has also influenced my future career trajectory by establishing a pathway to apply and evaluate the Social Support Consistency Model in diabetes care and potentially in other chronic conditions. More broadly, it has reinforced the importance of culturally sensitive, relational approaches to health psychology practice.

Overall, this journey transformed my understanding of social support from a difficult to define concept into a dynamic process embedded in relationships, identities, and contexts. It has

strengthened my commitment to research that prioritises participants' lived experiences and seeks solutions that are flexible, culturally responsive, and sustainable over time.

11. Overall thesis conclusions

This thesis has examined the role of social support in T2D management in the United Kingdom and Morocco, with a particular focus on identifying the conditions under which support becomes effective. Although social support is widely recognised as important in diabetes care, previous research has largely focused on single populations, specific intervention types, or individual components of support. There has been a lack of research examining how social support operates across different stakeholders and cultural contexts, particularly in comparative settings such as the United Kingdom and Morocco. Moreover, existing studies have tended to assess the availability of support rather than the conditions that determine whether it is experienced as effective and sustainable. This thesis addressed this gap through a systematic review and meta-analysis followed by four qualitative studies conducted with patients, family members, and healthcare professionals across two contrasting health system and cultural contexts.

A central premise running through the thesis is that social support is not a monolithic construct. The systematic review demonstrated that no single component of support, informational, emotional, tangible, or appraisal, consistently outperformed others in producing clinical or behavioural change, indicating that effectiveness cannot be understood in terms of support type alone. The qualitative studies extended this insight by showing that the same form of support can be experienced as helpful, intrusive, or insufficient depending on relational context, identity alignment, and the consistency with which it is sustained. Across the studies, identity emerged as a cross-cutting mechanism shaping how support was understood and enacted, and the cross-case synthesis demonstrated that while the form of support varied across the two contexts, the relational mechanisms underpinning effectiveness operated across both.

The central conceptual contribution of the thesis is the development of the Social Support Consistency Model (SSCM). Distinguished from typological approaches such as House's four-component framework, and from stress-buffering and network models, the SSCM is offered as a conceptual and interpretative model that articulates how support becomes effective rather than categorising what support exists. The model identifies three interlinked levels at which

consistency must be sustained. At the patient level, acceptance of the condition and accountability for self-management are foundational. At the healthcare professional level, relational practice and patient-centred care are required to ensure continuity and trust. At the family-member level, willingness to identify with a caregiving role and to provide reliable assistance is essential. Together, these conditions underpin the four components of social support, enabling them to function effectively and to reinforce one another over time.

The model advances knowledge in several ways. First, it moves beyond the focus on the availability of support to emphasise the importance of its alignment, reliability, and coordination. It argues that sporadic or ad hoc support can be confusing or even counterproductive, while consistent and identity-aligned support fosters confidence, stability, and motivation. Second, it integrates insights from different theoretical traditions, drawing on social capital theory, patient-centred care, and self-determination theory to position social support as a relational, motivational, and structural process. Third, it complements rather than replaces existing models, working alongside House's typology by explaining the relational conditions under which the four components become effective in practice.

The findings also highlight the importance of cultural context. In Morocco, where collectivist values shape everyday life, family and community are central providers of support, yet caregiver involvement can create tensions between cultural norms and biomedical expectations. Importantly, the data caution against assuming that supportive outcomes flow automatically from collectivist settings; collectivist norms shape the form support takes without guaranteeing it will be experienced as helpful. In the United Kingdom, where care is more individualised, structured programmes and voluntary sector organisations provide opportunities for support, but accessibility and cultural responsiveness vary considerably across roles and settings. The model demonstrates that while the principle of consistency is universal, its implementation must be tailored to local contexts.

Beyond theory, the thesis has practical implications for policy and practice. At the policy level, it calls for national diabetes strategies in both countries to recognise social support as a fundamental part of care rather than as an optional complement, with investment in structured peer support, education programmes, and mechanisms to ensure equitable access. At the clinical level, it underlines the importance of training professionals in communication and relational practice, and of embedding structured education and peer support into care pathways. For patients and family members, it demonstrates the value of building knowledge about the

meaning and conditions of effective support so that individuals can both access and provide it more deliberately. The thesis also identifies directions for future research, including empirical testing of the SSCM, evaluation of interventions designed around its principles, and further comparative work across cultural and health system contexts.

Taken together, the thesis makes three central contributions. Conceptually, it introduces the SSCM, which redefines social support as a process sustained by alignment and consistency across patients, professionals, and family members. Empirically, it provides comparative qualitative evidence from two countries with distinct health systems and cultural settings. Practically, it generates recommendations for policy, clinical practice, professional education, and future research. By foregrounding the principle of consistency, the thesis shifts the discussion from whether support is available to whether it is sustained, aligned, and responsive to patients' lives. In doing so, it offers a new lens for understanding social support and a foundation for designing interventions that improve both self-management and quality of life in T2D care.

Final Note

This thesis stands as a statement about the distinctive contribution that Health Psychology can make to the field of chronic illness management. By approaching T2D not only as a medical condition but as a lived experience shaped by relationships, culture, and systems of support, it repositions how care is understood and delivered. Health psychology brings the tools to uncover the social and psychological processes that underpin health behaviours, and to translate these insights into a model that guide practice and policy. The Social Support Consistency Model emerged directly from the voices and experiences of patients, caregivers, and professionals, ensuring that it is grounded in lived realities rather than abstract assumptions.

In doing so, the thesis has remained faithful to its aims, allowing the data to drive the analysis and to shape conclusions that are both theoretically meaningful and practically relevant. More broadly, it demonstrates how health psychologists can change perspectives, offering ways of looking at health that move beyond the biomedical model to capture the social and human dimensions that make care effective and sustainable. In this way, the thesis not only addresses its original aims but also lays a foundation for future work at the intersection of psychology, healthcare, and society.

Finally, I wish to acknowledge the role of my supervisory team in shaping this journey. Their guidance and challenge empowered me not only to grow as a researcher but also to find my identity as an academic and a future health psychologist. They encouraged me to apply research in line with its true principles, to remain faithful to the voices of participants, and to allow the data to lead the analysis. By questioning my assumptions and refining my ideas, they helped transform this project into a piece of work that reflects both intellectual rigour and psychological insight. For this, I remain deeply grateful.

This thesis therefore closes with the conviction that Health Psychology has much more to offer in shaping the future of diabetes care, and in reframing how health is understood and supported in society.

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Appendices:

Chapter 2 appendices

Appendix 2.1:

This appendix presents the full search strategy used in the systematic review and meta-analysis reported in Chapter 2. Searches were conducted across four electronic databases between March and April 2024, covering studies published from 1990 onwards. The strategy combined three core concept areas: type 2 diabetes, social support, and interventions, using Boolean operators, as described below.

1. Databases Searched

Database	Date Searched	Search Limits Applied
Medline	March–April 2024	1990–2023; English; peer-reviewed
Web of Science	March–April 2024	1990–2023; English; peer-reviewed
ProQuest	March–April 2024	1990–2023; English; peer-reviewed; dissertations included
CINAHL	March–April 2024	1990–2023; English; peer-reviewed

2. Search Terms by Concept

The search strategy was structured around three concept groups. Terms within each group were combined using OR; the three groups were then combined using AND.

Concept	Search Terms	Notes
1. Type 2 Diabetes	"type 2 diabetes" OR "T2D" OR "type II diabetes" OR "diabetes mellitus type 2" OR "non-insulin-dependent diabetes"	MeSH heading used in Medline: Diabetes Mellitus, Type 2
2. Social Support	"social support" OR "family support" OR "peer support" OR "peer mentoring" OR "peer coaching" OR "community support" OR "caregiver support"	MeSH heading used in Medline: Social Support

3. Intervention	"intervention*" OR "program*" OR "trial" OR "randomised controlled trial" OR "RCT" OR "quasi-experimental"	Truncation (*) used to capture variants (e.g. programme, programming)

3. Boolean Search Logic

Operator	How it was applied
OR	Used to combine synonyms within each concept group (e.g. "type 2 diabetes" OR "T2D")
AND	Used to combine the three concept groups, ensuring retrieved studies addressed all aspects of the research question

4. Example Search String

The following example illustrates the overall search structure as applied across databases (syntax adapted per database):

("type 2 diabetes" OR "T2D" OR "type II diabetes" OR "diabetes mellitus type 2")

AND

("social support" OR "family support" OR "peer support" OR "peer mentoring" OR "peer coaching" OR "community support")

AND

("intervention" OR "program*" OR "trial" OR "randomised controlled trial" OR "RCT" OR "quasi-experimental")*

5. Additional Search Methods

In addition to database searching, a berry-picking approach was employed (Bates, 1989). This involved iterative searching through the reference lists of included studies to identify additional eligible interventions. This supplementary method identified a further 10 studies, contributing to the final sample of 27 interventions included in the review.

6. Inclusion Criteria

The following criteria were applied during title, abstract, and full-text screening:

Criterion	Inclusion	Exclusion
Population	Adults (≥18 years) diagnosed with T2D; may include family members, caregivers, or peers	Type 1, gestational, or other diabetes types; diagnosed psychological conditions or significant comorbidities; single-sex/gender studies
Intervention	Social support intervention targeting T2D outcomes	Interventions not incorporating any social support component
Outcome	HbA1c reported as primary or secondary outcome	No HbA1c outcome reported
Study Design	RCTs, quasi-experimental, mixed-methods designs	Qualitative-only studies, reviews, editorials
Publication Date	1990 onwards	Before 1990
Language	English	Non-English publications

Note: The 1990 start date was selected to capture the emergence of contemporary diabetes self-management approaches and structured social support interventions as distinct areas of clinical and research focus.

Appendix 2.2:

Mixed Methods Appraisal Tool (MMAT) - Risk of Bias Assessment

Risk of bias was assessed independently by four authors (RM, LN, KU, HP) using the Mixed Methods Appraisal Tool (MMAT; Hong et al., 2018). Studies were assigned qualitative ratings of Low, Medium, or High quality based on design-specific criteria. Studies are grouped below by design type.

Table 8 : MMAT Assessment Results

Section 1: Randomised Controlled Trials (RCTs)

Study	Research Question?	Data Addresses RQ?	2.1 Randomisation Appropriate?	2.2 Groups Comparable at Baseline?	2.3 Complete Outcome Data?	2.4 Outcome Assessors Blinded?	2.5 Participants Adhered to Intervention?	Score	Overall Quality
Khosravizade Tabasi et al. (2014)	Yes	Yes	Yes	Yes	No	No	No	High	Medium
Spencer et al. (2011)	Yes	Yes	Yes	Yes	Can't Tell	No	No	High	Medium
Thom et al. (2013)	Yes	Yes	Yes	Yes	No	No	Yes	High	Medium
Lujan et al. (2007)	Yes	Yes	Yes	Yes	No	No	Yes	High	Medium
Withidpanyawong et al. (2018)	Yes	Yes	Yes	Yes	Can't Tell	No	Yes	High	Medium
Shaya et al. (2014)	Yes	Yes	No	Yes	No	No	No	Low	Low
Trento et al. (2001)	Yes	Yes	Yes	Yes	No	No	No	Medium	Medium
McEwen et al. (2017)	Yes	Yes	Yes	Yes	Can't Tell	No	No	Medium	Medium
Hemmati Maslakpak et al. (2017)	Yes	Yes	Yes	Yes	No	No	Yes	High	High
Tang et al. (2015)	Yes	Yes	Yes	Yes	No	No	No	Medium	Medium
Smith et al. (2011)	Yes	Yes	Yes	Yes	Can't Tell	No	Yes	High	High

Kang et al. (2010)	Yes	Yes	Yes	Yes	Can't Tell	No	Yes	High	High
Trief et al. (2016)	Yes	Yes	Yes	Yes	No	No	No	Medium	Medium
Presley et al. (2020)	Yes	Yes	Yes	Yes	No	No	Yes	High	High
Gomes et al. (2017)	Yes	Yes	Yes	Yes	No	No	No	Medium	Medium
Johansson et al. (2016)	Yes	Yes	Yes	Yes	No	No	Yes	High	High
Safford et al. (2015)	Yes	Yes	Yes	Yes	No	No	Yes	High	High
Lorig et al. (2009)	Yes	Yes	Yes	Yes	No	No	Yes	High	High
Feng et al. (2023)	Yes	Yes	Yes	Yes	Can't Tell	No	Yes	High	High

Section 2: Quasi-Experimental / Non-Randomised Studies

Study	Research Question?	Data Addresses RQ?	3.1 Participants Representative?	3.2 Measurements Appropriate?	3.3 Complete Outcome Data?	3.4 Confounders Accounted For?	3.5 Intervention Administered as Intended?	Score	Overall Quality
Assah et al. (2015)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	*****	High
García-Huidobro et al. (2011)	Yes	Yes	Yes	Yes	Yes	No	No	****	Medium
Haltiwanger (2012)	Yes	Yes	Yes	Yes	Yes	Yes	No	****	Medium
Hu et al. (2016)	Yes	Yes	Yes	Yes	Yes	Yes	No	****	Medium

McEwen et al. (2010)	Yes	Yes	Yes	Yes	Yes	Yes	No	****	Medium
Hu et al. (2013)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	*****	High

Section 3: Mixed Methods Studies

Study	Research Question?	Data Addresses RQ?	5.1 Rationale for Mixed Methods?	5.2 Components Integrated?	5.3 Outputs Adequately Interpreted?	5.4 Divergences Addressed?	5.5 Quality Criteria Met?	Score	Overall Quality
Haltiwanger & Brutus (2011)	Yes	Yes	Yes	Yes	Yes	No	No	***	Medium
Baumann et al. (2014)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	*****	High

Quality Rating Key

Rating	Score Range	Criteria Met
High	***** (5/5)	All or nearly all criteria met
Medium	*** – **** (3–4/5)	Most criteria met; some limitations
Low	* – ** (1–2/5)	Significant methodological limitations

Note: Screening questions (research question present; data allow addressing the research question) were answered Yes for all studies. RQ = Research Question. MMAT = Mixed Methods Appraisal Tool (Hong et al., 2018).

Appendix 2.3:

Table 9: Systematic review and Meta-analysis characteristics table

Study title	Study design	Population (Country, Sample Size, Age, Gender)	Type of intervention	Aim	Social Support providers	HbA1c follow up periods	HbA1c Results
Community-based peer support significantly improves metabolic control in people with type 2 diabetes in Yaoundé, Cameroon Assah et al., (2015)	Quasi Experimental Design	Country: Cameroon Sample size192 participants (96 in the intervention group, 96 in the control group) Mean Age: 57 years (intervention) vs. 57 years (control) Gender: 51 women (53%) and 45 men (47%) in both groups	Peer support (community based)	Examine effectiveness of peer support on glycaemic control	Peer supporters who were type 2 diabetes patients with past history of better control	HbA1c in baseline and 6 months	HbA1c reduced from 9.6% to 6.6% in intervention group vs. 9.8% to 8.5% in control after 6 months ($p < 0.001$)

Impact of family support improvement behaviours on anti-diabetic medication adherence and cognition in type 2 diabetic patients. Khosravizade Tabasi et al. (2014)	RCT	Country: Iran Sample size: 45 in the intervention group, 46 in the control group (Total = 91) Mean Age: 53.53 ± 7.58 years Gender: 23 women (51%) and 22 men (49%) in the intervention group; 25 women (54%) and 21 men (46%) in the control group	Family	Test impact of family support on medication adherence and cognition in type 2 diabetic patients.	A family member/close relative.	HbA1c at baseline and 3 months follow-up	HbA1c decreased by 1.2% in intervention group, increased by 0.3% in control group ($p < 0.001$)
Effectiveness of a Community Health Worker Intervention Among African American and Latino Adults with type 2 diabetes: A Randomized Controlled Trial. Spencer et al. (2011)	RCT	Country: USA Sample size: 164 participants (72 in the intervention group, 92 in the control group) Mean Age: 50 years (intervention) vs. 55 years (control) Gender: 54 women (75%) and 18 men (25%) in the intervention group; 62	Community health worker	Test effectiveness of community health worker intervention on glycaemic control	Community Health Workers (CHW)	HbA1c at baseline and 6 months	HbA1c reduced from 8.6% to 7.8% in 6 months ($p < 0.01$)

		women (67%) and 30 men (33%) in the control group					
Impact of Peer Health Coaching on Glycaemic Control in Low-Income Patients With Diabetes: A Randomized Controlled Trial. Thom et al. (2013)	RCT	Country: USA Sample size: 299 participants (148 in the intervention group, 151 in the control group) Mean Age: 56 years (intervention) vs. 54 years (control) Gender: 76 women (51%) and 72 men (49%) in the intervention group; 80 women (53%) and 71 men (47%) in the control group	Peer coaching	To test if clinic-based peer health coaching, compared with usual care, improves glycemic control for low-income patients who have poorly controlled diabetes.	Peer health coaches	HbA1c at baseline and 6 months	HbA1c decrease more significant in coached patients (1.07% vs. 0.30%; p = .01)
Family intervention to control type 2 diabetes: a controlled clinical trial. Garcı´a-Huidobro et al. (2010)	Quasi Experimental Design	Country: Chile Sample size: 243 participants (83 in the intervention group, 76 in control clinic 1, 84 in control clinic 2) Mean Age: 53 years (intervention) vs. 54 years	Family intervention with motivational interviewing	To determine the effectiveness of a culturally sensitive family-oriented intervention designed to improve metabolic control in primary care patients with	Family members	HbA1c at baseline and 6 months and 12 months follow-up.	At 12 months, significant HbA1c reduction in intervention group from 10.3% to 9.2% (p < 0.001); no significant difference between centers

		(control clinic 1) vs. 56 years (control clinic 2) Gender: 61 women (73%) and 22 men (27%) in the intervention group; 50 women (65%) and 26 men (35%) in control clinic 1; 53 women (62%) and 31 men (38%) in control clinic 2		uncontrolled T2DM.			
Promotora diabetes intervention for Mexican Americans. Lujan et al. (2007)	RCT	Country: USA Sample size: 150 participants (75 in the intervention group, 75 in the control group) Mean Age: 58 years (overall sample) Gender: 60 women (80%) and 15 men (20%) in the intervention group; 60 women (80%) and 15 men (20%) in the control group	Promotoras (Peer support - community lay workers)	To determine the effectiveness of an intervention led by Community lay workers on the glycaemic control, diabetes knowledge, and diabetes health beliefs of Mexican Americans with type 2 diabetes living in a major city on the Texas-Mexico border.	"promotoras"	HbA1c at baseline, 3 and 6 months	While there were no significant differences at the 3-month assessment, the A1C mean change of the intervention group was significantly greater than that of the control group at the 6-month assessment, [$F(1, 148) = 10.28$, $P < .001$].

Family-based intervention by pharmacists for type 2 diabetes: A randomized controlled trial. Withidpanyawong et al. (2018)	RCT	Country: Thailand Sample size: 196 participants (98 in the intervention group, 98 in the control group) Mean Age: 61 years (intervention) vs. 58 years (control) Gender: 64 women (73%) and 24 men (27%) in the intervention group; 69 women (75%) and 23 men (25%) in the control group	Family-based pharmacist intervention	To investigate the effectiveness of family intervention for type 2 diabetes and to examine predictors of glycaemic control.	Family members	HbA1c at baseline and 9 months follow-up	Over the 9-month intervention period, HbA1c reduced by 1.37% in intervention vs. 0.21% in control ($p < 0.001$).
Effect of a group adherence intervention for Mexican-American older adults with type 2 diabetes Haltiwanger (2012)	Quasi Experimental Design	Country: USA Sample size: 20 participants (5 peer mentors and 15 mentees) Mean Age: 60–85 years (range, no mean reported) Gender: 12 women (75%) and 4 men (25%)	Peer mentoring	To evaluate the effect of a culturally tailored, peer-led support group intervention on improvement in adherence behaviours of Mexican American older	Peer mentors	HbA1c at baseline 2, 4 and 6 months	The HbA1c results were significant at the ($P < 0.05$) level between pre-test and the 4-mo post-test 2, and a stabilizing effect was found at the 6-months post-test.

				adults with type 2 diabetes mellitus.			
A Family-Based, Culturally-Tailored Diabetes Intervention for Hispanics and Their Family Members Hu et al. (2016)	Quasi Experimental Design	Country: USA Sample size: 92 participants (51 in the intervention group, 41 in the control group) Mean Age: 49 years (intervention) vs. 49 years (control) Gender: 29 women (57%) and 22 men (43%) in the intervention group; 25 women (61%) and 16 men (39%) in the control group	Family-based culturally tailored intervention	The purpose of this study was to test efficacy of a family-based, culturally tailored intervention for Hispanics with type 2 diabetes and their family members.	Family members	HbA1c at baseline, 1 and 6 months	Significant HbA1c reduction post-intervention (7.7% intevrention vs. 8.7% in control; $p = 0.020$)
A Culturally Sensitive Diabetes Peer Support for Older Mexican Americans. Haltiwanger and Brutus (2011)	Mixed Methods	Country: USA Sample size: 42 participants (32 in the intervention group, 10 in the control group) Mean Age: 72 years (median 74 years, range 60–85)	Peer support	To determine the effectiveness of a peer-led diabetes support group intervention in improving self-management adherence for Mexican-	Peer mentors	Follow-up: 2,4 and 6 months (also referred to as post-test 1,2 and 3 respectively).	Significant HbA1c reduction at post-tests; 1.0% or more drop in 49.6% of intervention patients ($p < 0.001$)

		Gender: 26 women (62%) and 16 men (38%)		American elders with type 2 diabetes.			
Effect of social networks intervention in type 2 diabetes a partial randomised study. Shaya et al. (2013)	Partially Randomized Study	Country: USA Sample size: 138 participants (68 in the intervention group, 70 in the control group) Mean Age: 54 years (intervention) vs. 52 years (control) Gender: 38 women (56%) and 30 men (44%) in the intervention group; 35 women (50%) and 35 men (50%) in the control group	Peer support (Social network intervention)	Assess the impact of social networks on type 2 diabetes management in a largely African American population in Baltimore.	Peers' supportive group	HbA1c at baseline and two follow-ups at 3 and 6 months	Greater HbA1c reduction in intervention group at 6 months (-0.77% vs. -0.51%; $p < 0.03$)
A demonstration of peer support for Ugandan adults with type 2 diabetes. Baumann et al., (2014)	Mixed Methods	Country: Uganda Sample size: 46 participants (19 peer champions, 27 peer partners) Mean Age: 53 years (overall sample)	Peer support	Test the feasibility of a peer intervention to improve the following: (1) diabetes self-care behaviours, (2) glycaemic control,	Peer supporters	HbA1c at baseline (T1 - two weeks before the intervention) and 4 months (T2)	Significant drop in HbA1c from 11.1% to 8.3% in 4 months ($p < 0.005$)

		Gender: 10 women (63%) and 6 men (37%) in the champion group; 18 women (72%) and 7 men (28%) in the partner group		(3) social support and emotional well-being, (4) linkages to health care providers, and (5) to assess the sustainability of the intervention 18 months later.			
Group Visits Improve Metabolic Control in type 2 diabetes. Trento et al., (2001)	RCT	Country: Italy Sample size: 112 participants (56 in the intervention group, 56 in the control group) Mean Age: 62 years (intervention) vs. 61 years (control) Gender: 27 women (48%) and 29 men (52%) in the intervention group; 34 women (61%) and 22 men (39%) in the control group	Group visits	Evaluate if group visits, delivered as routine diabetes care and structured according to a systemic education approach, are more effective than individual consultations in improving metabolic control in non–insulin-treated type 2 diabetes.	Social support was facilitated by the group sessions, where patients interacted with each other and the healthcare providers in a structured, educational setting.	HbA1c at baseline and 2-year follow-up	Stable HbA1c in intervention group after 2 years, worsened in control ($p < 0.002$)

Effects of a Family-based Diabetes Intervention on Behavioural and Biological Outcomes for Mexican American Adults. McEwen et al., (2017)	RCT	Country: USA Sample size: 157 participants (83 in the intervention group, 74 in the control group Mean Age: 54 years (intervention) vs. 53 years (control) Gender: 49 women (59%) and 34 men (41%) in the intervention group; 53 women (72%) and 21 men (28%) in the control group	Family-based diabetes intervention	The purpose of the study was to investigate the effects of a family-based self-management support intervention for adults with type 2 diabetes (T2DM).	Family members	HbA1c at baseline, T1 3(months post intervention), and T2 (6 months post intervention)	No significant change in HbA1c over time, slight decrease in intervention group
Effects of Face-to-Face and Telephone-Based Family-Oriented Education on Self-Care Behavior and Patient Outcomes in type 2 diabetes A Randomised Controlled Trial.	RCT	Country: Iran Sample size: 90 participants (30 in the face-to-face education group, 30 in the telephone-based education group, 30 in the control group) Mean Age: 50 years (face-to-face group), 49 years	Family-oriented education (Face-to-Face and Telephone-Based)	Compare the effects of a face-to-face and telephone-based family-oriented educational program on self-care behaviour and patient outcomes in type 2 diabetes patients.	Family members	HbA1c at baseline and 3 months follow-up	No significant change in HbA1c levels ($p > 0.05$) for both intervention groups*)*.

Hemmati Maslakpak et al., (2017)		(telephone group), 49 years (control) Gender: 15 women (50%) and 15 men (50%) in the face-to-face group; 13 women (43%) and 17 men (57%) in the telephone group; 11 women (37%) and 19 men (63%) in the control group					
Peer-Led, Empowerment-Based Approach to Self-Management Efforts in Diabetes (PLEASED): A Randomised Controlled Trial in an African American Community. Tang et al., (2015)	RCT	Country: USA Sample size: 106 participants (54 in the intervention group, 52 in the control group) Mean Age: 57 years (intervention) vs. 56 years (control) Gender: 17 men (31%) and 37 women (69%) in the intervention group; 18 men (35%) and 34 women (65%) in the control group	Peer-Led Empowerment-Based Approach (PLEASED)	Compare a 3-month diabetes self-management education (DSME) program followed by a 12-month peer support intervention with a 3-month DSME program alone in terms of initial and sustained improvements in glycated hemoglobin (HbA1c).	Peer leaders	Baseline and 3,9 and 15 months.	Neither the intervention nor the control group showed any change in mean HbA1c at 3, 9, or 15 months ($P > 0.05$).

Peer support for patients with type 2 diabetes: cluster randomised controlled trial. Smith et al., (2011)	RCT	Country: Ireland Sample size: 395 participants (192 in the intervention group, 203 in the control group) Mean Age: 66 years (intervention) vs. 63 years (control) Gender: 88 women (46%) and 104 men (54%) in the intervention group; 93 women (46%) and 110 men (54%) in the control group	Peer support	Test effectiveness of peer support on glycaemic control	Peer supporters.	HbA1c at baseline and 2 year follow-up	No significant differences in HbA1c at 2-year follow-up (mean difference −0.08%).
Comparison of family partnership intervention care vs. conventional care in adult patients with poorly controlled type 2 diabetes in a community hospital: a randomised controlled trial	RCT	Country: Taiwan Sample size: 56 participants (28 in the intervention group, 28 in the control group) Mean Age: 55 years (intervention) vs. 52 years (control) Gender: 16 men (57%) and 12 women (43%) in the	Family	This study compares family partnership intervention care (FPIC) with conventional care (CC) in patients with poorly controlled T2DM	Primary family member.	HbA1c at baseline and 6 months	Slight but non-significant HbA1c reduction in FPIC vs. CC ($p = 0.46$)

Kang et al., (2010)		intervention group; 14 men (50%) and 14 women (50%) in the control group					
Health and Psychosocial Outcomes of a Telephonic Couples Behaviour Change Intervention in Patients With Poorly Controlled type 2 diabetes: A Randomized Clinical Trial. Trief et al., (2016)	RCT	Country: USA Sample size: 280 participants (104 in the couples intervention group, 94 in the individual intervention group, 82 in the diabetes education group) Mean Age: 57 years (couples intervention), 56 years (individual intervention), 57 years (diabetes education) Gender: 65 women (63%) and 39 men (37%) in the couples intervention group; 58 women (62%) and 36 men (38%) in the individual intervention group; 49 women (63%) and 29 men	Couples	To compare glycemic control and secondary outcomes of a 4-month telephonic couples' behavioral intervention.	Patients' partners in the intervention group – also referred to as Couples Call group (CC).	HbA1c at baseline, 4, 8 and 12 months	Significant HbA1c reductions at all follow-ups; no significant group differences.

		(37%) in the diabetes education group					
Mobile-Enhanced Peer Support for African Americans with type 2 diabetes: a Randomised Controlled Trial. Presley et al., (2020)	RCT	Country: USA Sample size: 120 participants (70 in the intervention group, 50 in the control group) Mean Age: 55 years (intervention) vs. 55 years (control) Gender: 42 women (68%) and 20 men (32%) in the intervention group; 27 women (77%) and 8 men (23%) in the control group	Mobile-enhanced peer support	To compare a community-based diabetes self-management education (DSME) plus mobile health (mHealth)–enhanced peer support intervention to community-based diabetes self-management education (DSME) alone for African American adults with poorly controlled type 2 diabetes.	Community health workers	HbA1c at baseline and 6 months follow-up	Significant HbA1c reduction in both groups; no significant difference between them ($p = 0.21$)
Contribution of family social support to the metabolic control of people with diabetes mellitus A randomised	RCT	Country: Brazil Sample size: 164 participants (108 in the	Family social support	Evaluate the contribution of family support to metabolic control	Family members were included in the education program as a source of social support.	HbA1c at T0 (Before the start of the intervention - baseline) and T6 (Six months after	Clinical improvement was evident in the comparison analysis between study times within groups; there was

controlled clinical trial. Gomes et al., (2017)		intervention group, 114 in the control group) Mean Age: 60 years (overall sample) Gender: 61 women (57%) and 47 men (43%) in the intervention group; 66 women (58%) and 48 men (42%) in the control group				the start of the intervention) and T12 (3 months after the end of the intervention).	a greater HbA1c reduction in intervention group at 6 and 12 months
type 2 diabetes Self-Management Social Support Intervention at the U.S.-Mexico Border. McEwen et al., (2010)	Quasi Experimental Design	Country: USA Sample size: 21 participants Mean Age: 54 years (overall sample) Gender: 17 women (81%) and 4 men (19%)	Peer support	Pilot test efficacy of a culturally tailored diabetes self- management social support intervention for Mexican American adults with type 2 diabetes (T2DM) in the Arizona-Mexico border region.	Peer supporters	HbA1c at baseline, T1 3(months post intervention), and T2 (6 months post intervention)	Participants' A1C did not significantly change over time (group by time interaction). For both groups, A1C decreased slightly from baseline to T2, with the decrease greater for the intervention group ($p >$ 0.05).

Effectiveness of a Peer Support Programme versus Usual Care in Disease Management of Diabetes Mellitus Type 2 regarding Improvement of Metabolic Control A Cluster-Randomised Controlled Trial. Johansson et al., (2016)	RCT	Country: Austria Sample size: 337 participants (148 in the intervention group, 189 in the control group) Mean Age: 62 years (intervention) vs. 64 years (control) Gender: 76 women (51%) and 72 men (49%) in the intervention group; 97 women (51%) and 92 men (49%) in the control group	Peer coaching plus Disease Management Program (DMP)	Testing the effectiveness of peer support additionally to a DMP for type 2 diabetes patients.	Social support in the intervention was provided peer supporters and facilitated through group interactions	HbA1c at baseline and 2-year follow-up	No significant differences in HbA1c reduction between groups ($p > 0.05$).
Peer Coaches to Improve Diabetes Outcomes in Rural Alabama: A Cluster Randomized Trial. Safford et al., (2015)	RCT	Country: USA Sample size: 424 participants (198 in the intervention group, 226 in the control group) Mean Age: 60 years (overall sample) Gender: 131 women (78%) and 37 men (22%) in the intervention group; 140	Peer coaches	Examine peer coaching's effect on diabetes outcomes in rural Alabama	Peer coaches	HbA1c at baseline and within 15 months	The intervention arm participants had significant differences in changes in secondary outcomes; no significant change in HbA1c

		women (73%) and 52 men (27%) in the control group					
Community-Based Peer-Led Diabetes Self-management. Lorig et al., (2009)	RCT	Country: USA Sample size: 345 participants (186 in the intervention group, 159 in the control group) Mean Age: 67 years (intervention) vs. 65 years (control) Gender: 70 women (38%) and 116 men (62%) in the intervention group; 60 women (38%) and 99 men (62%) in the control group	Community-based peer-led self-management	Determine the effectiveness of a community-based diabetes self-management program comparing treatment participants to a randomized usual-care control group at 6 months.	Peer leaders	HbA1c at baseline and 6 months and 1 year follow-up	No significant improvement in HbA1c at 6 months
A Family-Based Diabetes Intervention for Hispanic Adults and Their Family Members. Hu et al., (2013)	Quasi Experimental Design	Country: USA Sample size: 36 participants with diabetes, 37 family members (total = 73) Mean Age: 50 years (participants with diabetes), 41 years (family members)	Family-based intervention for Hispanic adults	Examine the effects of a family-based intervention program on diabetes self-management behaviors, A1C, other biomarkers,	Family members	HbA1c at baseline, post-test and 1 month follow-up	Significant changes in A1C over time ($P > 0.001$), with a notable difference at 1 month post-intervention ($p = 0.005$)

		Gender: 27 women (75%) and 9 men (25%) in the participant group; 26 women (70%) and 11 men (30%) in the family member group		psychosocial factors, and health-related quality of life in Hispanics with diabetes.			
The Effectiveness of an eHealth Family-Based Intervention Program in Patients With Uncontrolled type 2 diabetes Mellitus (T2DM) in the Community Via WeChat: Randomised Controlled Trial. Feng et al., (2023)	RCT	Country: China Sample size: 225 participants (113 in the intervention group, 112 in the control group) Mean Age: 66 years (intervention) vs. 65 years (control) Gender: 53 men (47%) and 60 women (53%) in the intervention group; 56 men (50%) and 56 women (50%) in the control group	eHealth family-based intervention via WeChat	The study aimed to develop and validate an eHealth family-based intervention program for type 2 diabetes mellitus (T2DM) patients at community health centers, focusing on improving knowledge, attitudes, and behaviors to enhance glucose control through a well-designed trial.	The intervention in the study was delivered by family practitioners and doctors in the prevention and health section of the community health service centers.	HbA1c at baseline and 1 year follow-up	Significant reduction in HbA1c after 12 months; intervention group achieved 7.3% vs. 7.9% in control (p = 0.004)

Appendix 2.4:

Table 10: Classification of Interventions by Social Support Components

Study title	Social support components			
	Tangible	**Informational**	**Emotional**	**Appraisal**
Community-based peer support significantly improves metabolic control in people with type 2 diabetes in Yaoundé, Cameroon Assah et al., (2015)	N/A - Nothing stated in the description of the intervention	6 Monthly Group meetings that covered the following: (Diet and healthy eating, physical exercise, observance to treatment, feet and body care, complications of diabetes and living with diabetes).	N/A- Nothing stated in the description of the intervention	5 Personal encounters + Phone calls. The following components were included with the aim of implementing peer support. However, the rationale behind this was not stated and its components were not specified. - were included in the appraisal section as they were and addition to the group meetings.

Impact of family support improvement behaviours on anti-diabetic medication adherence and cognition in type 2 diabetic patients. Khosravizade Tabasi et al. (2014)	N/A - Nothing stated in the description of the intervention	3 educational sessions for the patients' family members In each session, every 15 min is allocated to for answering questions and exchanging views between family members. *Content of the educational sessions was not disclosed	N/A- Nothing stated in the description of the intervention	N/A- Nothing stated in the description of the intervention
Effectiveness of a Community Health Worker Intervention Among African American and Latino Adults with type 2 diabetes: A Randomized Controlled Trial. Spencer et al. (2011)	N/A - Nothing stated in the description of the intervention	Group education sessions: The diabetes education classes were culturally tailored group classes in both English and Spanish. Eleven 2-hour group sessions of 8 to 10 participants were held every 2 weeks at community locations. The curricula, The Journey to Health for African American participants and El Camino a la Salud for Latino participants, were designed to reduce risk factors associated with diabetes complications by increasing participants' diabetes self-management understanding, self-efficacy, and autonomous motivation. Building on culturally relevant knowledge and activities,	No emotional support aspect was described to be offered - Family health advocates were trained in empowerment-based approaches to inform their approach to each component on the intervention. They also used empowerment theory in the diabetes education classes by eliciting participants' experiences and requests for information to be provided during the sessions. In home visits, family health advocates assisted participants in setting patient specific goals and supporting their progress. In addition, family health advocates helped participants improve their patient---provider communication	Home visits to help patients with goal setting and supporting their progress. Additionally, family health advocates helped with patient-provider communication to improve their access to services. Phone call once every two weeks. Clinic visits with a primary care provider

		the program sought to help participants gain knowledge and skills related to healthy eating, physical activity, and stress reduction.	skills and facilitated necessary referrals to other service systems.	
Impact of Peer Health Coaching on Glycaemic Control in Low-Income Patients With Diabetes: A Randomized Controlled Trial. Thom et al. (2013)	N/A - Nothing stated in the description of the intervention	N/A - Nothing stated in the description of the intervention	Peer coaches were trained on providing social and emotional support - there was no activity assigned to this, the assumption is that it was delivered during the intervention.	The target goals for coaching sessions were telephone contact at least twice a month and 2 or more in-person contacts over 6 months. Coaches helped patients design action plans to achieve goals chosen by the patient.
Family intervention to control type 2 diabetes: a controlled clinical trial. Garcı´a-Huidobro et al. (2010)	To reinforce the importance of the family, during home visits, families received a recipe book for diabetes and during family meetings, they received a framed family picture.	Interdisciplinary family meetings or home visits where providers talked about family or other psychosocial factors that could interfere with their diabetes control. During the 12-month intervention period, patients and relatives were encouraged to attend multifamily group sessions, where health behaviours and control strategies were discussed.	Nothing was explicitly mentioned about emotional support in this intervention, but one can speculate that this was offered as part of the counselling sessions.	The activities of this intervention were guided through semi-structured interviews, and at the end of the activities, patients and relatives signed an agreement making a commitment to change. One individual counselling session One counselling session with relatives where the importance of family support

				was discussed. As part of the intervention, the organization of the clinic changed towards a family-oriented health centre. All members of the health care team promoted family participation in the care of T2DM patients. As example, medical assistants, pharmacists and administrative staff counselled patients and family members when measuring vital signs, dispensing medications or making appointments.
Promotora diabetes intervention for Mexican Americans. Lujan et al. (2007)	Visual audio teaching aids such as flip charts, food models, food product labels, and handheld mirrors to enhance their teaching. The class handouts used.	**8 weekly group education classes** Content of the course: - Diabetes: causes, diagnosis, incidence and prevalence - Blood glucose testing, hypoglycaemia, and hypoglycaemia - HbA1c definition, reference	N/A - Nothing stated in the description of the intervention	During phase 4, a diary for weekly monitoring of body weight and food intake was distributed as homework to be collected during phase 1 of the following session. Relatives were instructed in the procedure to help patients with literacy problems. During the group sessions: The patients were encouraged to report their personal

		range, and foot care - Eye care, how to read food labels - Dental care and sick-day guidelines - Long-term complications of diabetes: nephropathy and neuropathy - Hypertension and diabetes – Cardiovascular complications of diabetes		experiences, if they so desired. If patients related examples of unintentionally incorrect behaviour, this was not criticised but was used as a source of positive learning for the group. The emergence of group leaders was encouraged, while maintaining the full involvement of all other members. Less extroverted patients were helped, but never forced, to participate during all phases. To reinforce cohesion and interpersonal relationships, the same patients and facilitators took part in the same groups over time.
Family-based intervention by pharmacists for type 2 diabetes: A randomized controlled trial.	A booklet covering information on diabetes as presented in the educational sessions was given to the participants and their family members.	3 Group education sessions (Patients and a family member) covering the following topics: Diabetes, the importance of adherence to medications, appropriate nutrition for diabetes, hypertension and dyslipidaemia, and proper physical activity.	Participants were offered counselling sessions – nothing mentioned about receiving emotional support through family members.	The group sessions served as a mean to identify issues in relation to diabetes management. In case of non-compliance, the intervention was tailored for the family member individually to take an active role in the care of their relative particularly in improving adherence to

Withidpanyawong et al. (2018)				treatment and healthy lifestyle including diet and physical activity. To ensure continuity of family support, follow-up visits with their family members were supplemented with two phone calls at one month after the second and the third visits.
Effect of a group adherence intervention for Mexican-American older adults with type 2 diabetes Haltiwanger (2012)	Bridges Diabetes Support Group Manual (BDSGM) facilitates a mentee's adjustment to and acceptance of diabetes, key issues such as spirituality, health care beliefs, values clarification, changing habits, developing goals, stages of adaptation, and social assertiveness were explored introspectively and later in support group discussions led by peer mentors. The manual was designed to be easily adapted and tested for other chronic diseases in the future by altering content to match a different chronic illness, culture, ethnic group, or age group. Pedometers and pedometer logs were distributed with instruction for participants.	**Peer mentoring groups** This group-based intervention approach for people with diabetes focused on discussion of emotional issues, relationship issues, communication skills, and behaviour changes that were reinforced by the inter-connections of people with a similar illness. To facilitate a mentee's adjustment to and acceptance of diabetes, key issues such as spirituality, health care beliefs, values clarification, changing habits, developing goals, stages of adaptation, and social assertiveness were explored introspectively and later in support group discussions led by	Emotional support was offered in form of discussion around emotional issues.	Peer mentors made weekly calls to remind mentees to read and answer the questions in the next chapter before the ensuing discussion.

		peer mentors. Each BDSGM chapter uses a story method to teach concepts; introspective questions at the end of each chapter challenge readers to question their motivations and self-preservation behaviours, trial-and-error problem- solving skills, and social skills that enable them to follow the daily diabetes regimen. Chapters were routinely distributed 1 wk before each corresponding session. * Support was provided at informational, appraisal, tangible, and emotional levels within the group setting.		
A Family-Based, Culturally-Tailored Diabetes Intervention for Hispanics and Their Family Members Hu et al. (2016)	A variety of teaching methods and pictorial food/activity logs, ethnic food models, pictorial food books, video, self-monitoring demonstrations, use of modified ethnic food recipes and culturally relevant activities were used.	*This intervention was designed to increase knowledge of diabetes and self-efficacy, promote family support, decrease barriers to self-management, enhance self-management, improve glycemic control, and improve health-related quality of life. The intervention consisted of	Family members. However, the author states that the intervention was designed to promote family support. It is not clear if this aspect was focused/included emotional support.	The intervention did not state to induce any extra activities that will help to reinforce behavioural change.

		eight weekly group sessions in clinics and churches for participants with diabetes and family members. The eight weekly interactive modules, total of 12 hours (1.5 hours each week). The intervention components included information on diabetes risk factors, symptoms and complications, facilitation of family values and beliefs and family support on diabetes, identification of barriers to diabetes self-management, discussion of the relationships among physical activity, food choices, medications, diabetes control, problem-solving skills, and goal setting for health behaviours .		
A Culturally Sensitive Diabetes Peer Support for Older Mexican Americans. Haltiwanger and Brutus (2011)	Each chapter had educational tutorials with illustrative stories depicting people with diabetes whose behaviour was considered maladaptive or adaptive when dealing with the content that was covered.	Educational tutorial from the BDSGM. The BDSGM is a workbook that guided group discussions with questions to be answered that triggered self-appraisal on topics important to developing adherence such as support, spirituality, health care beliefs, values, personal goals,	N/A - Nothing stated in the description of the intervention	Self-appraisal was promoted though the BDSGM by answering question in the relation to the topics it had to guide the group discussions. After the group sessions, the PI discussed group

		stages of adjustment to the condition, assertiveness issues and mentoring others. There were three intervention groups: 1) the Sus- taining Group was composed of bilingual speakers who were led by two experienced peer mentors with no contact from the PI for 10 weeks to determine if the programme was self-sustainable, and 2) there were two Spanish-speakers groups led by one experienced mentor and one novice mentor.		management issues and furthered leadership skills.
Effect of social networks intervention in type 2 diabetes a partial randomised study. Shaya et al. (2013)	N/A - Nothing stated in the description of the intervention	Group educational session delivered by a nurse and was later turned into a supportive group. The education curriculum included medical, nutrition, pharmacy and nursing, as well as non-smoking and exercise components. Information related to medications, the effects and the recognition and management of symptoms was also delivered.	The group education was later turned into a supportive group. The intent was to consolidate social networking and reinforce group cohesion, with a central theme of improving health outcomes, as mediated by improved dynamics.	Follow-up visits – However, the aim behind the visits was not shared – was classed as appraisal as it was an addition to the group sessions.

A demonstration of peer support for Ugandan adults with type 2 diabetes. Baumann et al., (2014)	All participants were given a packet of materials that contained the following: a consent form, the Diabetes Self-Care Questionnaire, Screening Data Form, Take Care of Your Feet poster, Peer Champion Contact Logbook, Peer Champion Training Booklet, and "The ABC's of Diabetes" brochure.	Two weeks before the intervention, all participants completed premeasures and received 5 hours of education on diabetes self-care. - The curriculum addressed areas of diabetes self-care that included healthy eating, being active, taking medications, monitoring blood sugar, problem solving, reducing risks, and problem solving.	Emotional support was provided by champions who were trained in supportive communication skills such as active listening and helping with daily management.	After the education phase, partners and champions were matched by age and gender and agreed to make telephone or personal contact weekly throughout the trial period. The structure of the calls was not described.
Group Visits Improve Metabolic Control in type 2 diabetes. Trento et al., (2001)	Simple support material was developed, including visual aids, food (real, models or packages, as applicable), graduated containers, and a flip chart. Concepts such as "glycated haemoglobin," "calories," and "sensorial nervous fiber" were described using images, metaphors, and examples so the patients could develop vivid mental representations.	Group sessions had the following objectives: -Reach desirable body weight -Learn to shop for food (reading labels for contents, energy value, etc.) -Choose appropriate quality and quantity of food at home or restaurant -Increase physical activity, when feasible -Take medication properly and regularly	No emotional support was explicitly stated but Group members or relatives were able to join the group sessions	During phase 4, a diary for weekly monitoring of body weight and food intake was distributed as homework to be collected during phase 1 of the following session. Relatives were instructed in the procedure to help patients with literacy problems. During the group sessions: The patients were encouraged to report their personal experiences, if they so desired. If patients related examples of unintentionally incorrect behaviour, this was not criticised but was used as

		-Know the meaning of the main laboratory tests of metabolic control -Recognize early symptoms of and be able to react to hypoglycemia -Take appropriate action in the case of intercurrent illnesses -Care for feet and buy appropriate footwear -Regularly attend the clinic and screening checks for complications * Each group session was structured into four phases: 1) welcome and introduction to the subject to be discussed; 2) interactive learning; 3) discussion of some of the patients' experiences; and 4) conclusions, with directions for follow-up "homework," information about the next appointment, and where necessary, individual visits with the physician. The four-session		a source of positive learning for the group. The emergence of group leaders was encouraged, while maintaining the full involvement of all other members. Less extroverted patients were helped, but never forced, to participate during all phases. To reinforce cohesion and interpersonal relationships, the same patients and facilitators took part in the same groups over time.

		cycle was repeated for a second year.		
Effects of a Family-based Diabetes Intervention on Behavioural and Biological Outcomes for Mexican American Adults. McEwen et al., (2017)	N/A - Nothing stated in the description of the intervention	Six 2-hour educational and "social support group" sessions conducted weekly for 6 weeks. The educational and support sessions included information about managing diabetes to improve glycemic control and prevent complications through food consumed, physical activity, and stress management.	Offering emotional support was not explicitly mentioned in the intervention description but group education session also served as a "Social support group".	Three 2-hour home visits scheduled weekly for 3 weeks. The home visits built on and tailor knowledge and skills acquired in the group sessions tailored to the family context. Three 20- minute telephone calls scheduled weekly for 3 weeks to follow-up on target achievement.
Effects of Face-to-Face and Telephone-Based Family-Oriented Education on Self-Care Behavior and Patient Outcomes in type 2 diabetes A Randomised Controlled Trial.	N/A - Nothing stated in the description of the intervention	**Education program:** The educational session included appropriate diet and exercise, blood glucose monitoring, foot ulcer prevention, and adherence to medication. Diet education included subjects such as healthy fats, fruits and vegetables, high-fibre cereals and breads, fish and shellfish, and high-quality protein. A ten-point education specific to	N/A - Nothing stated in the description of the intervention	**Face-to-face family-oriented education** N/A **Telephone-based family-oriented education** After the educational calls, patients had separate calls in case any nonadherence was detected, the instructor tried to analyse the patient's source of problem through

Hemmati Maslakpak et al., (2017)		diabetic foot care, given to prevent foot ulcers, consisted of footwear use for outdoors, footwear use for indoors, washing and drying of feet daily, healthy nail trimming, daily foot inspection, daily footwear inspection, toe space examination, oil/moisturizer use, change of footwear when damaged/ill fitting, and comfortable fit of footwear. With empowerment-based diabetes patient education, the first two authors listened to patients' concerns and engaged them in collaborative problem solving providing them with extra information to address their concerns. The same program was delivered to the two intervention group conditions, except that the delivery was different for each. **Face-to-face family-oriented education** Sessions were run twice a week in the first month, and once a week during the second and third months.		interviewing the patient and the family member and suggest solutions for his/her problem in another call.

		Telephone-based family-oriented education Educational sessions were delivered through phone calls.		
Peer-Led, Empowerment-Based Approach to Self-Management Efforts in Diabetes (PLEASED): A Randomised Controlled Trial in an African American Community. Tang et al., (2015)	**Ongoing Diabetes Self-Management Support (DSMS)** The use of the 5-step behavioural goal-setting model during the Ongoing Diabetes Self-Management Support sessions.	**3-Month Diabetes Self-Management Education Program** The program was offered to both the control and intervention group delivered by a certified diabetes educator and 2 peer leaders (PLs) 12 Weekly 90-minutes group sessions. The diabetes educator was responsible for delivering diabetes education while the 2 PLs directed behaviour change activities. During the 3-month program, PL-participant teams were expected to schedule 2 face-to-face meetings to explore motivation for making changes, identify a self-management goal, and develop an action plan. **Ongoing Diabetes Self-Management Support (DSMS)** The program was not curriculum-	**Ongoing Diabetes Self-Management Support (DSMS)** The 12-month ongoing DSMS component (the "PLEASED intervention") was designed to provide ongoing emotional and behavioral support delivered by PLs through weekly group sessions and follow-up telephone contacts.	**3-Month Diabetes Self-Management Education Program** PLs were expected to make 3 follow-up telephone support calls per participant to assess participants' progress. **Ongoing Diabetes Self-Management Support (DSMS)** Peer Leaders made a telephone support call to any participant who had not attended a DSMS session in 3 consecutive weeks.

		driven, each session addressed 5 core components: • Reflecting on recent self-management challenges or evaluating action plans from the previous week • Sharing feelings about these challenges and other aspects of living with diabetes • Engaging in group-based problem-solving • Raising questions about diabetes and its care • Setting self-management goals and developing action		
Peer support for patients with type 2 diabetes: cluster randomised controlled trial. Smith et al., (2011)	N/A - Nothing stated in the description of the intervention	9 Peer support sessions that covered the following topics: Introduction (meeting peer supporters + discussion on course content), heart disease and vascular disease, Blood and sugar levels, Healthy eating, Medication, exercise, Foot care, Eye and kidney complications, living diabetes.	Peer support - Although the peer support sessions emphasised on social support, emotional support being offered to participants was not explicitly mentioned in the description intervention.	Frequently asked question (FAQ) system that enabled patients to ask questions at the were raised at the end of each peer support session. Questions were answered in the following peer support session.

Comparison of family partnership intervention care vs. conventional care in adult patients with poorly controlled type 2 diabetes in a community hospital: a randomised controlled trial Kang et al., (2010)	All patients and family members also received diabetes handouts about diet, medication, physical activity and exercise, and eye and foot self-care at the first Individual Educational Sessions. Handouts, videos, DVD's, and other teaching aids were also used, such as food models, exchange tables, and oral medication illustrations.	**Individual educational sessions** (*Themes:* Diabetes and family mechanisms, Eating habits, Physical activity and exercise, Awareness for my blood sugar levels, Take care of my feet). **Group educational sessions** (*Themes*: What is diabetes and medication control, The nutritionist and diabetic diet control, Diabetes cooking strategies and cooking demonstrations, Diabetes and exercise Diabetes and foot care, Diabetes control and complications, Diabetes and antidiabetes agents, Physical therapists and exercise, The foot therapist and foot care, Holistic diabetes care and resources, Diabetes sharing groups).	N/A - Nothing stated in the description of the intervention	Monthly calls with patients and their carers where they opportunity ask any questions.
Health and Psychosocial Outcomes of a Telephonic Couples Behaviour Change Intervention in Patients With Poorly Controlled type 2 diabetes: A	Both groups received workbooks that included precall readings, content for discussion, goal-setting forms, and diet/blood glucose/activity self-monitoring logs.	All groups participated in two telephone sessions (mean length of calls: 75 min) - content of the education sessions was not disclosed. **Couples Calls:** 10 additional calls (70 min)	Emotional support provided though the educational sessions.	Physical exercise peer support group (physical outdoor activity facilitated by a physical education trainer during the first few sessions)

Randomized Clinical Trial. Trief et al., (2016)		The CC intervention was also based on Interdependence Theory; partners were actively involved in calls and homework. Couples were encouraged to provide mutual support for change, using collaborative problem-solving techniques and recognizing their interdependence (i.e., reciprocal effects on one another). Two sessions were relationship focused, as follows: couples practiced the "speaker-listener technique" (partner shares concern, the other restates it until partner feels understood, then they switch roles) and communication/conflict management around a diabetes-related issue. Both techniques are based on a research supported behavioral approach to relationship enhancement. **Individual calls:** 10 additional calls (50 min) In the IC arm, the intervention was identical, except partners were not involved, and the two CC relationship-focused calls addressed individual problem		

		solving. *Calls occurred weekly and were led by a dietitians These behavioral interventions, based on social learning theory (which included knowledge development, goal setting, self-monitoring, and behavioral contracting), promoted changes in diet, activity, medication adherence, and blood glucose testing.		
Mobile-Enhanced Peer Support for African Americans with type 2 diabetes: a Randomised Controlled Trial. Presley et al., (2020)	N/A - Nothing stated in the description of the intervention	Community-based Diabetes Self-Management Education course provided by community health workers (CHW) CHW were trained to provide the key functions of peer support to intervention participants which included: assistance in applying diabetes self-management in daily life, emotional and social support, linkage to clinical care, and ongoing, as-needed support.	CHWs were trained to provide this aspect throughout the intervention.	Weekly phone calls made by CHW to patients Monthly support groups for participants Web-based application to connect to members of the healthcare team. The application had three core features: (1) contact tracking and call reminder system; (2) secure communication system which allowed CHWs to message members of the healthcare team; and (3) a progress report system. This enabled CHWs to generate

				reports with information on medication adherence, barriers identified by participants, and progress towards behavioural goals.
Contribution of family social support to the metabolic control of people with diabetes mellitus A randomised controlled clinical trial. Gomes et al., (2017)	Tools and materials such that can support the maps the themes of the educational program	Group education that covered the following themes: - Map 1: “How the Body and Diabetes Work” - Map 2: “Healthy Eating and Physical Activity” - Map 3: "Medication Treatment and Blood Glucose Monitoring" - Map 4: “Reaching the Goals with Insulin” (Map 4).	The intervention included family caregivers through phone calls where they advised to show emotional support when the participant achieved their goals.	Phone calls to resume the goals set by the patient. Moreover, the interventions for family caregivers were implemented through telephone contact and included the topics covered in the patient's educational program following an established protocol in accordance with Motivational Interviewing, SCT and communication theory principles.
type 2 diabetes Self-Management Social Support Intervention at the U.S.-Mexico Border. McEwen et al., (2010)	During the group sessions, pedometers and pedometer logs were distributed with instruction for participants.	**Group sessions:** - Certified Diebetes Educators (CDE) and promotoras delivered the six monthly 2-hour group sessions in Spanish. The first session included introductions, overview of the intervention and T2DM, refreshments, and a physical activity session.	Promotoras incorporated social support in each individually tailored session. Moreover, there was a dedicated session for Promotora-facilitated social support session between months 2 and 5. The Promotoras provided emotional and appraisal support to	**Individually tailored sessions:** - Promotoras delivered three 60–90 minute individually tailored sessions in the participants’ homes. The promotoras scheduled the individual sessions within three weeks after the corresponding group session.

		- The format of the group sessions in months 2–5 included summary of self-management skills from previous sessions, a CDE presentation. As an example, the CDE provided informational support when reviewing the diabetes food pyramid and appraisal support when affirming participants' use of the food pyramid for meal planning	participants who reported challenges and successes related to managing DM-related distress.	- The CDE developed three modules for the individual sessions based on previous studies in which participants identified nutrition, physical activity, and distress management as the most challenging self- management behaviours.
Effectiveness of a Peer Support Programme versus Usual Care in Disease Management of Diabetes Mellitus Type 2 regarding Improvement of Metabolic Control A Cluster-Randomised Controlled Trial. Johansson et al., (2016)	Participants were offered instruction sheets explaining and showing exercises for mobilisation, coordination, and strength training. Participants received a newsletter addressing the corresponding topic including the latest scientific findings prior to every group session.	Once a month groups held conversational and educational meetings focusing on personal, social, and emotional topics in the context of diabetes. The meetings were moderated alternately by peer supporters and health professionals and offered the opportunity to ask particular questions and expand and consolidate knowledge about diabetes. The group sessions were guided by curriculum: -Healthy diet: Dietary change step by step -Self-motivation and group	Emotional support provided though the educational sessions.	Physical exercise peer support group (physical outdoor activity facilitated by a physical education trainer during the first few sessions)

		motivation -Lifestyle changes -Daily self-management, medical checks -Diabetes: therapy, blood glucose measurement -Sweeteners -Weight loss, weight control -Physical activity in daily routine -Physical activity and motivational problems -Cardiovascular risk management -Prevention of diabetic complications -Glycaemic index and glycaemic load -Prevention of weight gain at Christmas -Diabetes and depression -Diabetes and alcohol; smoking cessation		
Peer Coaches to Improve Diabetes Outcomes in Rural Alabama: A Cluster Randomized Trial. Safford et al., (2015)	Participants received a diabetes report card showing their own baseline glycated haemoglobin (HbA1c), BP, low-density lipoprotein cholesterol (LDL-C)	1-hour group diabetes education class at enrolment covering diabetes basics, healthy eating, stress reduction, physical activity, social support, and how to get the most out of doctor visits.	Peer coaches were trained on providing social and emotional support - there was no activity assigned to this, the assumption is that it was delivered during the intervention.	5-minute counselling session. Peer coaches telephoned participants weekly for the first 2 months, then at least monthly for an additional 8 months; coaches were allowed to contact their clients more frequently.

				Contacts were made before each primary care visit to plan for the encounter, including asking questions and encouraging the participant to reach back out to the office if needed. Contacts were largely unstructured and highly individualized to focus on the goals selected by the participants.
Community-Based Peer-Led Diabetes Self-management. Lorig et al., (2009)	All participants received a copy of the book Living a Healthy Life with Chronic Conditions to use as a reference.	Group education sessions that covered 19 topics across a period of 16 weeks. Topics included the following: Overview of self-management and diabetes, Making an action plan, Nutrtition/Healty Eating, Feedback/problem-solving, Preventing low blood glucose, Preventing complications, Fitness/exercise, Stress management, Relaxation techniques, Difficult emotions, Monitoring blood glucose, Depression, Positive thinking, Communication, Medications, Working with your health care	Emotional support was offered by peer supporters	N/A - no appraisal aspect was mentioned to be included in this intervention. No behavioural reinforcement activities were added as an addition to the group sessions.

		professional, Working with the health care system, Sick days, Skin and foot care, and Future plans.		
A Family-Based Diabetes Intervention for Hispanic Adults and Their Family Members. Hu et al., (2013)	Picture illustrations, seminar discussions, educational flipcharts and games, video tapes, visual aids, demonstrations, and self-monitoring demonstrations.	1 family sessions to explain the purpose of the intervention 8 group educational sessions where participants were asked to bring one family member to join the sessions. Group discussions were facilitated in the first and last group sessions **Content of the sessions:** - Introduction to diabetes, - Exercise and food - Eating Healthy - Blood sugar levels and glucometers - Diabetes medication - Taking care of your body - Coping strategies, problem	Family member or care provided. However, the extent of their involvement was not clearly stated.	N/A - no appraisal aspect was mentioned to be included in this intervention. No behavioural reinforcement activities were added as an addition to the group sessions.

		solving and action plans. - Summary and action plans for you and your family		
The Effectiveness of an eHealth Family-Based Intervention Program in Patients With Uncontrolled type 2 diabetes Mellitus (T2DM) in the Community Via WeChat: Randomised Controlled Trial. Feng et al., (2023)	Assisting with **foot care** (which showed a significant improvement).	Family members received structured health education, which improved their knowledge and risk perception of T2D. Articles were developed based on the Knowledge-Attitude-Practice (KAP) model and the Health Belief Model (HBM), covering: • Diabetes knowledge • Complications and risk factors • Self-care activities (diet, exercise, medication, glucose testing)	The intervention emphasised the role of family members in providing encouragement and emotional reassurance.	The WeChat platform acted as a tangible tool for families to monitor and provide reminders for self-management tasks.

Chapter 3 appendices

Appendix 3.1: Ethical Approval

Description: This appendix presents documentation confirming ethical approval for the studies included in this thesis, obtained from the relevant institutional review bodies in the United Kingdom and Morocco.

a. UK studies ethical Approval - LJMU

Dear Reda

UREC opinion: Favourable ethical opinion with provisos
UREC reference: 23/PSY/065
Identifying the effective components of social support in type 2 diabetes interventions.

Research Governance Assessment: Approved – the study may commence.

The University Research Ethics Committee (UREC) has considered the above application by proportionate review. On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above study on the basis described in the application form, protocol, supporting documentation and any clarifications received, subject to the provisos and conditions specified below. You are required to email the final version of the ethics application with the provisos addressed to PR-UREC@ljmu.ac.uk. Please note, UREC will not check that the provisos have been applied in the final version of the ethics application and will not email any further notifications to the applicant once the final version of the ethics application has been forwarded to UREC. If the applicant does not want to apply the provisos as stated below, the applicant must notify UREC and resubmit the ethics application for further review.

b. Morocco studies ethical Approval - LJMU

Dear Reda

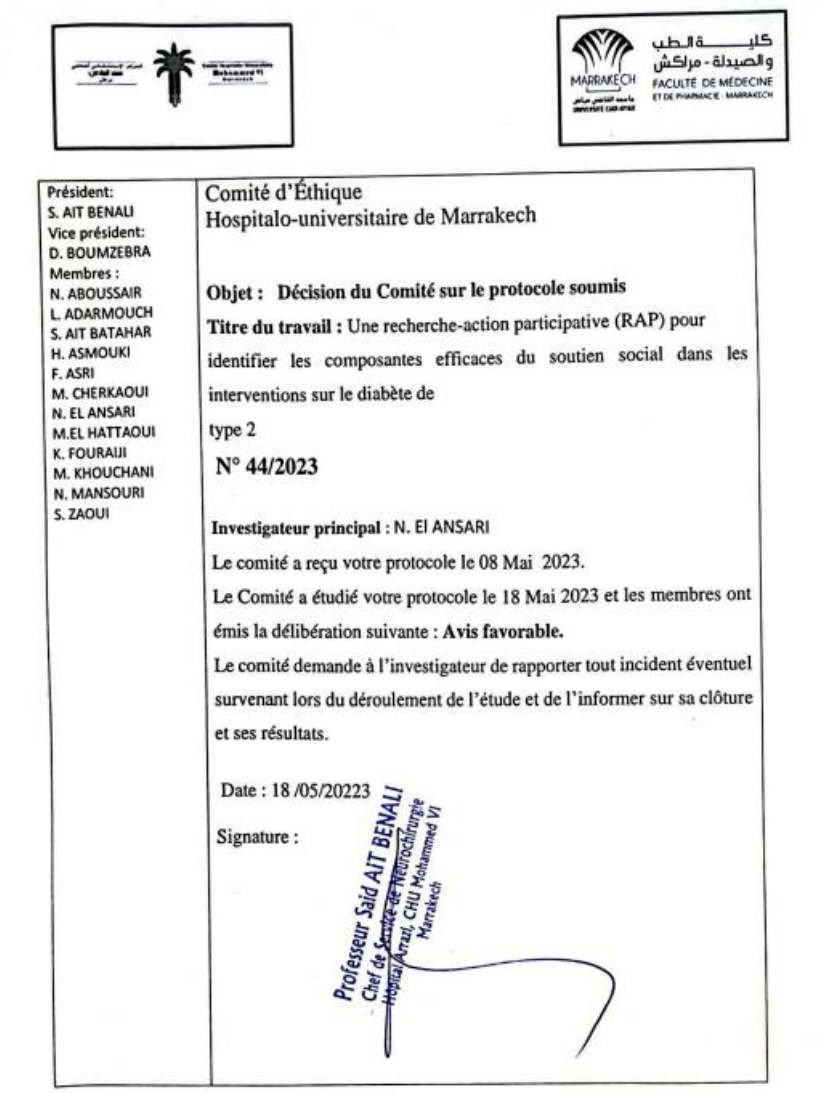
Reda Madroumi, PGR - A participatory action research (PAR) to identify the effective components of social support
in type 2 diabetes interventions.

UREC opinion: Favourable ethical opinion with provisos
UREC reference: 23/PSY/047

Research Governance Assessment: Approved – the study may commence.

The University Research Ethics Committee (UREC) has considered the above application by proportionate review. On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above study on the basis described in the application form, protocol, supporting documentation and any clarifications received, subject to the provisos and conditions specified below. You are required to email the final version of the ethics application with the provisos addressed to PR-UREC@ljmu.ac.uk. Please note, UREC will not check that the provisos have been applied in the final version of the ethics application and will not email any further notifications to the applicant once the final version of the ethics application has been forwarded to UREC. If the applicant does not want to apply the provisos as stated below, the applicant must notify UREC and resubmit the ethics application for further review.

c. Mohamed 6 University Hospital Ethical Approval



Président:
S. AIT BENALI
Vice président:
D. BOUMZEBRA
Membres :
N. ABOUSSAIR
L. ADARMOUCH
S. AIT BATAHAR
H. ASMOUKI
F. ASRI
M. CHERKAOUI
N. EL ANSARI
M.EL HATTAOUI
K. FOURAIJI
M. KHOUCHANI
N. MANSOURI
S. ZAOUI

Comité d'Éthique
Hospitalo-universitaire de Marrakech

Objet : Décision du Comité sur le protocole soumis

Titre du travail : Une recherche-action participative (RAP) pour identifier les composantes efficaces du soutien social dans les interventions sur le diabète de type 2

N° 44/2023

Investigateur principal : N. El ANSARI

Le comité a reçu votre protocole le 08 Mai 2023.

Le Comité a étudié votre protocole le 18 Mai 2023 et les membres ont émis la délibération suivante : **Avis favorable.**

Le comité demande à l'investigateur de rapporter tout incident éventuel survenant lors du déroulement de l'étude et de l'informer sur sa clôture et ses résultats.

Date : 18 /05/20223

Signature :

Professeur Said AIT BENALI
Chef de Service de Neurochirurgie
Hopital Arrazi, CHU Mohammed VI
Marrakech

Appendix 3.2: Participant Information Sheets

Description: This appendix contains the information sheets provided to participants prior to taking part, outlining the study aims, procedures, confidentiality, and voluntary nature of participation.

a. People Living with T2D (Morocco)

PARTICIPANT INFORMATION SHEET

Research Ethics Committee Reference Number: 23/PSY/047

Title of Study: Identify the effective components of social support in type 2 diabetes interventions.

You are being invited to take part in a research study. You do not have to take part if you do not want to. Please read this information, which will help you decide.

1. **What is the purpose of the study?**

   Providing social support to type 2 diabetes (T2D) has been proven to have a positive impact on the patient's glycaemic control, medication adherence and self-management. However, little is known about which of its aspects are more effective. The aim of this study is to understand how to best define and implement social support in type 2 diabetes self-management.

2. **Why have I been invited to participate?**

   You have been invited because you have been identified as a person living with type 2 diabetes. This means that you can provide us with insights on what social support in type 2 diabetes means to you and which of its aspects you find most helpful to the management of your condition. You must not participate if you have been diagnosed with any mental health disorders or living with an acute comorbidity that affects your lifestyle or type 2 diabetes management.

3. **Do I have to take part?**

   No. You can ask questions about the research before deciding whether to take part. If you do not want to take part that is OK. We will ask you to sign a consent form and will give you a copy for you to keep. Your consent will also be audio recorded at the beginning of the interview.
   You can stop being part of the study at any time, without giving a reason up to the analysis stage.

You may withdraw from the study by contacting the principal investigator for this study Mr Reda Madroumi at R.madroumi@2020.ljmu.ac.uk or the study supervisor Dr Lisa Newson at L.M.newson@ljmu.ac.uk

4. What will happen to me if I take part?

The interview will take place within a private space in the Mohamed VI Marrakech University Hospital or online via MS team and should take approximately 30 to 60 minutes. You will be asked about the support you receive from your family or caregivers and how it impacts your type 2 diabetes management. You will be offered regular breaks as necessary. You can also ask to pause or stop the interview at any time. Please remember, you have the right to decline to answer any questions you do not want to.

5. Will I be photographed or video/audio recorded and how will the recorded media be used?

Audio recording is essential to your participation, but you should be comfortable with the audio recording process. You are free to stop the recording at any time. The audio recordings will be downloaded and stored into a university password protected folder and only the research team involved in this research has access. The audio recordings are listened to and then transcribed vertabim (typed up word for word), once these transcripts have been produced the audio recording is destroyed. The transcripts are saved in the university password protected folder ready for analysis by the research team.

6. Are there any potential risks in taking part?

Participating in the research is not anticipated to cause you any disadvantages or discomfort. If participation in this study has negative effects on you; please seek help and advice from support services such as:
Arrazi Hospital support service - Number: 0524 300 631

7. Are there any benefits in taking part?

There will be no personal benefit to you from taking part in this study, other than reflecting on the way you utilise social support. The potential or hoped-for benefits of the study for the wider society are to understand and identify the effective components of type 2 diabetes. The research team is aiming to use the results to inform future T2D social support interventions or any policy changes.

8. Payments, reimbursements of expenses or any other benefit or incentive for taking part

You will receive a 100 MAD (Moroccan Dirhams) Sodexo voucher for participation.

9. What will happen to information/data provided?

The information you provide as part of the study is the **study data**. Any study data from which you can be identified (e.g. from identifiers such as your name, date of birth, audio recording etc.), is known as **personal data.** Your participation in this study will involve the collection/use of personal data.

We will keep personal data safe and secure. People who do not need to know who you are will not be able to see your name. The personal data collected will include:

- Contact details. With your agreement, we would like to store your contact details so that you may be contacted about this research data, and we may ask you to comment on the findings, or future opportunities to participate in research studies. If this the case, contact details will be kept for three years after the study has finished only by the principal investigator on the university password protected online folder.
- A record of consent (which will include your name/ or signed pseudonym)
- Study data will include an audio recording (which include your voice). Interview recordings will be deleted once the interview transcript has been verified as accurate and an evaluation has determined that it has no further research value.

10. Data Protection

Liverpool John Moores University is the data controller with respect to your personal data. Information about your rights with respect to your personal data is available from:

- https://www.ljmu.ac.uk/legal/privacy-and-cookies/external-stakeholders-privacy-policy/research-participants-privacy-notice
- by asking one of the study team or contacting us using the information below

Online Interviews:
The online provider may collect personal data (e.g. via the IP address, backups of study data). This makes them a data controller with respect to personal data and, as such, will determine how personal data is used.

Please see their privacy notice here https://learn.microsoft.com/en-us/microsoftteams/teams-privacy

11. Contact details

Principal Investigator: Reda Madroumi, Liverpool John Moores University (LJMU), Postgraduate Research Student
LJMU Email address: R.madroumi@2020.ljmu.ac.uk

LJMU School/faculty: School of Psychology
LJMU Central telephone number: 0151 231 2121

Supervisor Name: Dr Lisa Newson, Reader in Applied Health Psychology, Health Psychologist
LJMU Email address: L.M.Newson@ljmu.ac.uk

b. People Living with T2D (UK)



Research Ethics Committee Reference

Number: 23/PSY/065

Title of Study: Identify the effective components of social support in type 2 diabetes interventions.

You are being invited to take part in a research study. You do not have to take part if you do not want to. Please read this information, which will help you decide.

1. What is the purpose of the study?

Providing social support to type 2 diabetes (T2D) has been proven to have a positive impact on the patient's glycaemic control, medication adherence and self-management. However, little is known about which of its aspects are more effective. The aim of this study is to understand how to best define and implement social support in type 2 diabetes self-management.

2. Why have I been invited to participate?

You have been invited because you have been identified as a person living with type 2 diabetes. This means that you can provide us with insights on what social support in type 2 diabetes means to you and which of its aspects you find most helpful to the management of your condition. You must not participate if you have been diagnosed with any mental health disorders or living with an acute comorbidity that affects your lifestyle or type 2 diabetes management.

3. Do I have to take part?

No. You can ask questions about the research before deciding whether to take part. If you do not want to take part that is OK. We will ask you to sign a consent form and will give you a copy for you to keep. Your consent will also be audio recorded at the beginning of the interview.

You can stop being part of the study at any time, without giving a reason. You may withdraw from before, during, or after the study. However, you will not be able to withdraw your participation once the research team start the analysis stage. This is because your data will be anonymised, and we will not be able to identify it at that stage. You may withdraw from the study by contacting the principal investigator for this study Mr Reda Madroumi at R.madroumi@2020.ljmu.ac.uk or the study supervisor Dr Lisa Newson at L.M.Newson@ljmu.ac.uk

If doing the interview in person, you must not take part if you have COVID-19 or symptoms of COVID-19
- https://www.nhs.uk/conditions/coronavirus-covid-19/symptoms/. If you are able to, you can do the interview through MS teams even if you have COVID-19 or showing its symptoms.

4. What will happen to me if I take part?

The interview will take place in a public agreed location or via MS team and should take approximately 30 to 60 minutes. You will be asked about the ways you provide support to a person living with type 2 diabetes and how do you think that impacts their type 2 diabetes management. You will be offered regular breaks as necessary. You can also ask to pause or stop the interview at any time. Please remember, you have the right to decline to answer any questions you do not want to.

5. Will I be photographed or video/audio recorded and how will the recorded media be used?

With your consent, audio recording will be essential to your participation, but you should be comfortable with the audio recording process. You are free to stop the recording at any time and therefore withdraw your participation during the interview. The audio recordings of your activities made during this study will be used only for analysis. The audio recordings are listened to and then transcribed verbatim (typed up word for word), once these transcripts have been produced the audio recording is destroyed. The transcripts are saved in the university password protected folder ready for analysis by the research team.

6. Are there any possible disadvantages or risks in taking part?

Participating in the research is not anticipated to cause you any disadvantages or discomfort. If participation in this study has negative effects on you; please seek help and advice from the researcher who can guide you to the appropriate services.

7. Are there any benefits in taking part?

There will be no personal benefit to you from taking part in this study. The potential or hoped-for benefits of the study for the wider society are to understand and identify the effective components of type 2 diabetes. The research team is aiming to use the results to inform future T2D social support interventions or any policy changes.

8. Payments, reimbursements of expenses or any other benefit or incentive for taking part

You will receive a 10£ voucher as a compensation for your participation.

9. What information will be collected and what will happen to information/data provided?

The information you provide as part of the study is the **study data**. Any study data from which you can be identified (e.g. from identifiers such as your name, date of birth, audio recording etc.), is known as **personal data.** Your participation in this study will not involve the collection/use of personal data by the investigator.

Study data will include an audio recording (which include your voice). Interview recordings will be deleted once the interview transcript has been verified as accurate and an evaluation has determined that it has no further research value.

If the interview is conducted online, your participation in this research will be recorded in MS Teams and your personal data will be processed by Microsoft. This may mean that your personal data is transferred to a country outside of the European Economic Area, some of which have not yet been determined by the United Kingdom to have an adequate level of data protection. Appropriate legal mechanisms to ensure these transfers are compliant with the Data Protection Act 2018 and the UK General Data Protection Regulation are in place. The recordings will be removed from the above third-party platform and stored on LJMU managed file storage as soon as possible following the completion of data collection. The Investigator will keep confidential anything they learn or observe related to illegal activity unless related to the abuse of children or vulnerable adults, money laundering or acts of terrorism. In certain exceptional circumstances where you or others may be at significant risk of harm, the investigator may need to report this to an appropriate authority. This would usually be discussed with you first. Examples of those exceptional circumstances when confidential information may have to be disclosed are:

- The investigator believes you are at serious risk of harm, either from yourself or others
- The investigator suspects a child may be at risk of harm
- You pose a serious risk of harm to, or threaten or abuse others
- As a statutory requirement e.g. reporting certain infectious diseases
- Under a court order requiring the University to divulge information
- We are passed information relating to an act of terrorist

10. Will the research be published? Could I be identified from any publications or other research outputs?

The findings from the research will be written up in a thesis and may be included in academic publications or conference presentations. We will write our reports in a way that no-one can work out that you took part in the study and we would like your permission to use direct quotations but without identifying you in any research outputs.

A copy of my thesis/ dissertation will be deposited both in print and online in the LJMU archive where it will be publicly available to facilitate its use in future research/ its access will be restricted.

11. Whom do I contact if I have a concern about the study or I wish to complain?

If you have a concern about any aspect of this study, please contact Dr. Lisa Newson and we will do our best to answer your query. You should expect a reply within 10 working days. If you remain unhappy or wish to make a formal complaint, please contact the Chair of the Research Ethics Committee at LiverpoolJohn Moores University who will seek to resolve the matter as soon as possible:
Chair, Liverpool John Moores University Research Ethics Committee; Email: FullReviewUREC@ljmu.ac.uk; Tel: 0151 231 2121; Research Innovation Services, Liverpool John Moores University, Exchange Station, Liverpool L2 2QP

12. Data Protection

Liverpool John Moores University is the data controller with respect to your personal data. Informationabout your rights with respect to your personal data is available from:

- https://www.ljmu.ac.uk/legal/privacy-and-cookies/external-stakeholders-privacy-policy/research- participants-privacy-notice
- by asking one of the study team or contacting us using the information below

The online provider may collect personal data (e.g. via the IP address, backups of study data). This makesthem a data controller with respect to personal data and, as such, will determine how personal data is used.

Please see their privacy notice here: https://learn.microsoft.com/en-us/microsoftteams/teamsprivacy

13. Contact details

Principal Investigator: Reda Madroumi, Postgraduate ResearchStudent,
Liverpool John Moores University (LJMU).
LJMU Email address:
R.madroumi@2020.ljmu.ac.ukLJMU
School/faculty: School of Psychology
LJMU Central telephone number: 0151 231 2121

Supervisor Name: Dr Lisa Newson, Reader in Applied Health Psychology, Health Psychologist
LJMU Email address:
L.M.Newson@ljmu.ac.uk

c. Health Professionals (Morocco)

PARTICIPANT INFORMATION SHEET

Research Ethics Committee
Reference Number: 23/PSY/047

Title of Study: Identify the effective components of social support in type 2 diabetes interventions.

You are being invited to take part in a research study. You do not have to take part if you do not want to. Please read this information, which will help you decide.

1. **What is the purpose of the study?**

   Providing social support to type 2 diabetes (T2D) has been proven to have a positive impact on the patient's glycaemic control, medication adherence and self-management. However, little is known about which of its aspects are more effective. The aim of this study is to understand how to best define and implement social support in type 2 diabetes self-management.

2. **Why have I been invited to participate?**

   You have been invited because you have been identified as a professional who supports people living with type 2 diabetes. This means that you can provide us with insights on social support in type 2 diabetes and which of its aspects you find most helpful to the management of their condition. You must not participate if you have less than one year experience of working with a person living with type 2 diabetes.

3. **Do I have to take part?**

   No. You can ask questions about the research before deciding whether to take part. If you do not want to take part that is OK. We will ask you to sign a consent form and will give you a copy for you to keep. Your consent will be audio recorded at the beginning of the interview also.
   You can stop being part of the study at any time, without giving a reason up to the analysis stage.
   You may withdraw from the study by contacting the principal investigator for this study Mr Reda Madroumi at R.madroumi@2020.ljmu.ac.uk or the study supervisor Dr Lisa Newson at L.M.Newson@ljmu.ac.uk

4. **What will happen to me if I take part?**

The interview will take place within a private space in the Mohamed VI Marrakech University Hospital or via online MS team and should take approximately 30 to 60 minutes. You will be asked about the ways you provide support to a person living with type 2 diabetes and how do you think that impacts their type 2 diabetes management. You will be offered regular breaks as necessary. You can also ask to pause or stop the interview at any time. Please remember, you have the right to decline to answer any questions you do not want to.

5. **Will I be photographed or video/audio recorded and how will the recorded media be used?**

Audio recording is essential to your participation, but you should be comfortable with the audio recording process. You are free to stop the recording at any time and therefore withdraw your participation during the interview. The audio recordings of your activities made during this study will be used only for analysis. The audio recordings are listened to and then transcribed vertabim (typed up word for word), once these transcripts have been produced the audio recording is destroyed. The transcripts are saved in the university password protected folder ready for analysis by the research team.

6. **Are there any potential risks in taking part?**

Participating in the research is not anticipated to cause you any disadvantages or discomfort. If participation in this study has negative effects on you; please seek help and advice from support services such as:
Arrazi Hospital support service - Number: 0524 300 631

7. **Are there any benefits in taking part?**

There will be no personal benefit to you from taking part in this study. The potential or hoped-for benefits of the study for the wider society are to understand and identify the effective components of type 2 diabetes. The research team is aiming to use the results to inform future T2D social support interventions or any policy changes.

8. **Payments, reimbursements of expenses or any other benefit or incentive for taking part**
You will receive a 100 MAD (Moroccan Dirhams) Sodexo voucher for participation.

9. **What will happen to information/data provided?**

The information you provide as part of the study is the **study data**. Any study data from which you can be identified (e.g. from identifiers such as your name, date of birth, audio recording etc.), is known as **personal data.** Your participation in this study will involve the collection/use of personal data.

We will keep personal data safe and secure. People who do not need to know who you are will not be able to see your name. The personal data collected will include:

- A record of consent (which will include your name or pseudonym)
- Study data will include an audio recording (which include your voice). Interview recordings will be deleted once the interview transcript has been verified as accurate and an evaluation has determined that it has no further research value.

8. **Data Protection**

Liverpool John Moores University is the data controller with respect to your personal data. Information about your rights with respect to your personal data is available from:

- https://www.ljmu.ac.uk/legal/privacy-and-cookies/external-stakeholders-privacy-policy/research-participants-privacy-notice
- by asking one of the study team or contacting us using the information below

Online Interviews:
The online provider may collect personal data (e.g. via the IP address, backups of study data). This makes them a data controller with respect to personal data and, as such, will determine how personal data is used.

Please see their privacy notice here https://learn.microsoft.com/en-us/microsoftteams/teams-privacy

9. **Contact details**

Principal Investigator: Reda Madroumi Liverpool John Moores University (LJMU) Postgraduate Research Student
LJMU postgraduate research student
LJMU Email address: R.madroumi@2020.ljmu.ac.uk
LJMU School/faculty: School of Psychology
LJMU Central telephone number: 0151 231 2121

Supervisor Name: Dr Lisa Newson, Reader in Applied Health Psychology, Health Psychologist
LJMU Email address: L.M.Newson@ljmu.ac.uk

d. Health Professionals (UK)

PARTICIPANT INFORMATION SHEET

Research Ethics Committee Reference Number: **23/PSY/065**

Title of Study: Identify the effective components of social support in type 2 diabetes interventions.

You are being invited to take part in a research study. You do not have to take part if you do not want to. Please read this information, which will help you decide.

1-What is the purpose of the study?

Providing social support to type 2 diabetes (T2D) has been proven to have a positive impact on the patient's glycaemic control, medication adherence and self-management. However, little is known about which of its aspects are more effective. The aim of this study is to understand how to best define and implement social support in type 2 diabetes self-management.

2-Why have I been invited to participate?

You have been invited because you have been identified as a person living with type 2 diabetes. This means that you can provide us with insights on what social support in type 2 diabetes means to you and which of its aspects you find most helpful to the management of your condition. You must not participate if you have been diagnosed with any mental health disorders or living with an acute comorbidity that affects your lifestyle or type 2 diabetes management.

3-Do I have to take part?

No. You can ask questions about the research before deciding whether to take part. If you do not want to take part that is OK. We will ask you to sign a consent form and will give you a copy for you to keep. Your consent will also be audio recorded at the beginning of the interview.
You can stop being part of the study at any time, without giving a reason up to the analysis stage. You may withdraw from the study by contacting the principal investigator for this study Mr Reda Madroumi at R.madroumi@2020.ljmu.ac.uk or the study supervisor Dr Lisa Newson at L.M.newson@ljmu.ac.uk

4-What will happen to me if I take part?

The interview will take place in an agreed public space or online via MS team and should take approximately 30 to 60 minutes. You will be asked about the support you receive from your family or caregivers and how it impacts your type 2 diabetes management. You will be offered regular breaks as necessary. You can also ask to pause or stop the interview at any time. Please remember, you have the right to decline to answer any questions you do not want to.

5-Will I be photographed or video/audio recorded and how will the recorded media be used?

Audio recording is essential to your participation, but you should be comfortable with the audio recording process. You are free to stop the recording at any time. The audio recordings will be downloaded and stored into a university password protected folder and only the research team involved in this research has access. The audio recordings are listened to and then transcribed verbatim (typed up word for word),

once these transcripts have been produced the audio recording is destroyed. The transcripts are saved in the university password protected folder ready for analysis by the research team.

6-Are there any potential risks in taking part?

Participating in the research is not anticipated to cause you any disadvantages or discomfort. If participation in this study has negative effects on you; please seek help and advice from the researcher who can guide you to the appropriate services.

7-Are there any benefits in taking part?

There will be no personal benefit to you from taking part in this study, other than reflecting on the way you utilise social support. The potential or hoped-for benefits of the study for the wider society are to understand and identify the effective components of type 2 diabetes. The research team is aiming to use the results to inform future T2D social support interventions or any policy changes.

8-Payments, reimbursements of expenses or any other benefit or incentive for taking part

You will receive a 10 £ voucher as a compensation for your participation.

9-What will happen to information/data provided?

The information you provide as part of the study is the **study data**. Any study data from which you can be identified (e.g. from identifiers such as your name, date of birth, audio recording etc.), is known as **personal data.** Your participation in this study will involve the collection/use of personal data.

We will keep personal data safe and secure. People who do not need to know who you are will not be able to see your name. The personal data collected will include:

- Contact details. With your agreement, we would like to store your contact details so that you may be contacted about this research data, and we may ask you to comment on the findings, or future opportunities to participate in research studies. If this the case, contact details will be kept for three years after the study has finished only by the principal investigator on the university password protected online folder.
- A record of consent (which will include your name/ or signed pseudonym)
- Study data will include an audio recording (which include your voice). Interview recordings will be deleted once the interview transcript has been verified as accurate and an evaluation has determined that it has no further research value.

10-Data Protection

Liverpool John Moores University is the data controller with respect to your personal data. Information about your rights with respect to your personal data is available from:

- https://www.ljmu.ac.uk/legal/privacy-and-cookies/external-stakeholders-privacy-policy/research- participants-privacy-notice
- by asking one of the study team or contacting us using the information below

Online Interviews:

The online provider may collect personal data (e.g. via the IP address, backups of study data). This makes them a data controller with respect to personal data and, as such, will determine how personal data is used.

Please see their privacy notice here https://learn.microsoft.com/en-us/microsoftteams/teams-privacy

12-Contact details

Principal Investigator: Reda Madroumi, Liverpool John Moores University (LJMU), Postgraduate Research Student
LJMU Email address:
R.madroumi@2020.ljmu.ac.uk LJMU
School/faculty: School of Psychology
LJMU Central telephone number: 0151 231 2121

Supervisor Name: Dr Lisa Newson, Reader in Applied Health Psychology, Health Psychologist
LJMU Email address: L.M.Newson@ljmu.ac.uk

Appendix 3.3: Consent Forms

Description: This appendix includes the consent forms used across the studies to document participants' informed agreement to take part.

a. People Living with T2D and Health Professional (Morocco)

LIVERPOOL JOHN MOORES UNIVERSITY

PARTICIPANT CONSENT FORM

Study title: Identify the effective components of social support in type 2 diabetes interventions.
Research Ethics Committee Reference Number: 23/PSY/047

Principal Investigator:
Principal Investigator: Reda Madroumi Liverpool John Moores University (LJMU) Postgraduate Research Student
LJMU postgraduate research student
LJMU Email address: R.madroumi@2020.ljmu.ac.uk
LJMU School/faculty: School of Psychology
LJMU Central telephone number: 0151 231 2121

Supervisor Name: Dr Lisa Newson, Reader in Applied Health Psychology, Health Psychologist
LJMU Email address: L.M.Newson@ljmu.ac.uk

If you are happy to participate, please complete and sign the consent form below

		Please initial
1.	I confirm that I have read the information sheet dated 26/06/2023 (version 2) for the above study, or it has been read to me. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	
2.	I understand what taking part in the study involves	

3.	I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions I can withdraw from the study at any time, without giving a reason and without penalty or my legal rights being affected.		
4.	I have been advised about potential risks associated with taking part in this study and have taken these into consideration before consenting to participate		
5.	To the best of my knowledge, I do not meet any of the exclusion criteria outlined in the information sheet for this research. If this changes at a later date during study participation, I agree to notify the researchers immediately.		
6.	I understand that the study involves taking audio recordings and I am happy to proceed. I understand that I will not be able to participate in the study if I later decide not to be audio recorded		
7.	I understand who will have access to personal data provided, how the data will be stored and what will happen to the data at the end of the project.		
8.	I understand that my information may be subject to review by responsible individuals from Liverpool John Moores University for monitoring and audit purposes		
9.	I agree for my contact details to be stored for the purpose of contacting me about future studies and I understand that agreeing to be contacted does not oblige me to participate in any further studies	YES	NO
10	I agree to take part in this study		

Data Protection. Any personal information we collect and use to conduct this study will be processed in accordance with data protection law as explained in the Participant Information Sheet and the Privacy Notice for Research Participants.

Name of Participant Date Signature

For participants unable to sign their name, mark the box instead of signing

I have witnessed the accurate reading of the consent form with the potential participant and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely

Name of Investigator Date Signature

Name of Person taking consent *(if different from investigator)* Date Signature

b. People Living with T2D and Health Professional (UK)

PARTICIPANT CONSENT FORM

Study title: Identify the effective components of social support in type 2 diabetes interventions.
Research Ethics Committee Reference Number: 23/PSY/065

Principal Investigator:
Principal Investigator: Reda Madroumi, LJMU postgraduate research student
LJMU Email address: R.madroumi@2020.ljmu.ac.uk LJMU School/faculty: School of Psychology
LJMU Central telephone number: 0151 231 2121
Supervisor Name: Dr Lisa Newson, Reader in Applied Health Psychology, Health Psychologist
LJMU Email address: L.M.Newson@ljmu.ac.uk

If you are happy to participate, please complete and sign the consent form below

		Please initial
1	I confirm that I have read the information sheet dated 25/09/2023 (version 2) forthe above study, or it has been read to me. I have had the opportunity to considerthe information, ask questions and have had these answered satisfactorily.	
2	I understand what taking part in the study involves	
3	I consent voluntarily to be a participant in this study and understand that I canrefuse to answer questions I can withdraw from the study at any time, without giving a reason and without penalty or my legal rights being affected.	
3	I have been advised about potential risks associated with taking part in this study and have taken these into consideration before consenting to participate	
5	To the best of my knowledge, I do not meet any of the exclusion criteria outlinedin the information sheet for this research. If this changes at a later date during study participation, I agree to notify the researchers immediately.	

6	I understand that the study involves taking audio recordings and I am happy toproceed. I understand that I will not be able to participate in the study if I later decide not to be audio recorder	
7	I understand who will have access to personal data provided, how the data will be stored and what will happen to the data at the end of the project.	
8	I understand that my information may be subject to review by responsibleindividuals from Liverpool John Moores University for monitoring and audit purposes	
9	I understand that personal data will be retained beyond the duration of the study	
10	I agree to take part in this study	

Data Protection. Any personal information we collect and use to conduct this study will be processedin accordance with data protection law as explained in the Participant Information Sheet and the Privacy Notice for Research Participants.

Name of Participant: Signature

For participants unable to sign their name, mark the box instead of signing

I have witnessed the accurate reading of the consent form with the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely

Name of Investigator: Signature

Appendix 3.4: Interview Schedules

Description: This appendix presents the semi-structured interview schedules used in the studies, showing the questions and prompts designed to explore participants' experiences and perspectives.

a. healthcare professionals' interview questions

Interview Questions	Theme
-Have you read the information sheet? -Do you understand that you can change your mind about being involved with the project at any time? -Are you OK to sign this form to say that you've understood what is going	CONSENT

to happen?	
-Is it ok if I record the interview? -Have you got any questions about the project? -If you want to stop the interview, please let me know and we will stop straight away -The reason for talking to you today is to explore your views on social support in type 2 diabetes	BEFORE WE START
-What is your name? -How old are you? -What is your job role? -How long have you been working with type 2 diabetes patients?	DEMOGRAPHICS
-What is your understanding of social support in type 2 diabetes? **Prompts** *-How important is it for patients?* - What do you consider as a key part in type 2 diabetes self-management? **Follow-up:** -If so, with what aspects do you help the patient with? -Do patients mention any need of social/family support to improve their type 2 diabetes outcomes?	UNDERSTANDING AND GENERAL PERCEPTION
Informational: - Do you provide formal or informal type 2 diabetes education to participants? -Is there any form of education offered to their family members or caregivers? Follow-up: Are participants or their family members interested in learning more about type 2 diabetes? -Do you provide guidance to your patients about the best habits that can help them improve their type 2 diabetes outcomes?	THE 4 TYPES OF SOCIAL SUPPORT

Follow-up: -If so, how does this impact their behaviours/self-management? **Tangible:** -Do you offer any tangible support to help patients manage their condition (e.g., medication, insulin shots or diabetes monitoring devices)? Follow-up: -How do you help with such aspects? -Do family members or close ones understand how to help with such aspects? (e.g., remind or help them to take their medication or monitor their blood sugar levels)? Follow-up: -If so, does this help them manage their condition better than patients who do not have such support? **Emotional:** -Can you identify any emotional challenges caused by type 2 diabetes lifestyle changes? -Is emotional support part of the service you provide to patients? Follow-up: -How do you provide emotional support to "the patient"? -If so, does this positively impact their self-management? -And do you face any challenges when you do so? **Appraisal:** -Do you remind patients to keep up with any aspect their condition's self- management (e.g., by SMS, email or phone calls)? -Do you praise or recognise them for achieving their treatment targets? If so, what methods do you use to show this kind of behaviour/gestures?	

-Can you recall what works best in guiding a patient with their type 2 diabetes? -How does that impact their condition's key indicators (e.g., blood sugar levels, weight, and diet)?	WHAT WORKED WELL
- Can you describe what you could have done better/ offer to type 2 diabetes patients?	WHAT DIDN'T WORK/COULD HAVE BEEN DONE BETTER
Is there anything you want to add or clarify about your previous responses? That will be all, thank you for attending this interview	ENDINGS

b. People Living with T2D interview questions

Interview Questions	Theme
-Have you read the information sheet? -Do you understand that you can change your mind about being involved with the project at any time? -Are you OK to sign this form to say that you've understood what is going to happen?	CONSENT

-Is it ok if I record the interview? -Have you got any questions about the project? -If you want to stop the interview, please let me know and we will stop straight away -The reason for talking to you today is to explore your views on social support in type 2 diabetes	BEFORE WE START
-What is your name? -How old are you? -How long have you had type 2 diabetes for?	DEMOGRAPHICS
-What is your understanding of social support in type 2 diabetes? **Prompts** -*What does it mean to you?* -Do you expect your family/caregiver to be a key part of your type 2 diabetes self-management? **Follow-up:** -If so, with what aspects do you expect them to help?	UNDERSTANDING AND GENERAL PERCEPTION

-Do you have any experience of receiving support in relation to your diabetes self-management from you family or caregivers **Prompts** -Which member of your family provides you with support? - Who do you trust the most to assist you with your treatment? -Do they understand what your treatment involves? **Prompts** -Do they help you with medication? -Do they help you with your meal preparation? -Do they encourage you to exercise?	PREVIOUS EXPERIENCE WTIH SOCIAL SUPPORT
Informational: -Do you learn more about your condition by discussing it with your family or close ones? -Does someone in your family teach you about the best habits that can help you improve your type 2 diabetes outcomes? *Follow-up:* -If so, how does help your treatment/self-management? **Tangible:** -Do you have any access to tangible support to help you manage your condition (e.g., medication, insulin shots or monitoring devices)? -Do your family members or close ones understand to help with such aspects? (e.g., remind you/help you to take your medication or to monitor your blood sugar levels)? *Follow-up:* -If so, do you feel like that helps you to manage your condition better?	THE 4 TYPES OF SOCIAL SUPPORT

Emotional: -Do your family understand that it can be challenging to make lifestyle changes to manage your condition? -Do you they show any appreciation or empathy towards the changes you make? *Follow-up:* -If so, how does that make you feel? -How does it impact your condition's self-management? **Appraisal:** -Do your family members remind you to keep up with any aspect your condition's self-management (e.g., medication, diet, etc) -Do your they show you any praise or recognition for achieving your treatment targets?	
-Can you describe what your family member/caregiver do well in supporting you with your type 2 diabetes self-management?	WHAT WORKED WELL
-Can you describe what you family member/caregiver could have done better in supporting you with type 2 diabetes self-management?	WHAT DIDN'T WORK/COULD HAVE BEEN DONE BETTER
Is there anything you want to add or clarify about your previous responses? That will be all, thank you for attending this interview	ENDINGS

Appendix 3.5: Recruitment Posters

Description: This appendix provides examples of recruitment materials used to invite participation.

a. UK Version



b. Moroccan Version - French

Centre Hospitalo-Universitaire Mohammed VI Marrakech

LIVERPOOL JOHN MOORES UNIVERSITY

Étude sur l'efficacité du soutien social dans le diabète de type 2

Nous avons besoin de participants :

Nous cherchons à recruter des patients atteints de diabète de type 2 des personnes vivant avec le diabète de type 2 qui peuvent nous donner des informations sur l'impact du soutien social (par exemple de la famille ou des amis) sur la gestion du diabète.

Vous pouvez participer si:

- Vous avez 18 ans ou plus
- Vous êtes une personne vivant (diagnostiquée) avec un diabète de type 2
- Vous soutenez une personne atteinte de diabète de type 2 (membre de la famille, ami, professionnel de la santé)

Que vais-je devoir faire ?

- Pour participer à cette étude, vous serez invité(e) à prendre part à un entretien et vous interroger sur votre expérience de la vie avec un diabète de type 2 et sur le type de soutien social dont vous bénéficiez.
- Nous organiserons l'entretien au moment qui vous conviendra le mieux, que ce soit en face à face ou en ligne, selon vos préférences.

Quels sont les avantages de la participation ?

- Aider la recherche à comprendre les les besoins des personnes qui donnent/reçoivent de l'aide sociale.
- Comprendre comment mettre en œuvre le soutien social pour aider patients à améliorer leur diabète de type 2 diabète de type 2.

Si vous souhaitez participer, veuillez envoyer un courriel : R.Madroumi@2020.ljmu.ac.uk

c. Moroccan Version - Arabic

Centre Hospitalo-Universitaire Mohammed VI Marrakech





LIVERPOOL JOHN MOORES UNIVERSITY

دراسة حول الدعم الاجتماعي الفعال في مرض السكري من النوع 2

هناك حاجة إلى المشاركين:



نحن نبحث عن أشخاص يعيشون مع السكري من النوع الثاني ويمكنهم تزويدنا برؤى حول كيفية تأثير الدعم الاجتماعي (مثل الدعم من العائلة أو الأصدقاء) على إدارة مرض السكري الخاص بهم.

يمكنك المشاركة إذا:



- عمرك 18 عامًا أو أكثر
- شخص يعيش مع السكري من النوع الثاني (تشخيصه)
- تدعم شخصًا يعاني من السكري من النوع الثاني (عضو في العائلة، أو صديق، أو محترف صحي)

ما هي فوائد المشاركة ؟

- مساعدة في البحث لفهم احتياجات أولئك الذين يقدمون أو يتلقون الدعم الاجتماعي.
- فهم كيفية تنفيذ الدعم الاجتماعي بأفضل طريقة لمساعدة المرضى على تحسين إدارة السكري من النوع الثاني.

ماذا علي أن أفعل ؟

- للمشاركة في هذه الدراسة، سنقوم بدعوتك للانضمام إلى مقابلة يتم فيها سؤالك عن تجاربك في العيش مع السكري من النوع الثاني ونوع الدعم الاجتماعي الذي تتلقاه.
- سنقوم بترتيب المقابلة في وقت مناسب لك بناءً على تفضيلاتك، وقد يتم ذلك وجهاً لوجه أو عبر الإنترنت وفقًا لرغبتك.

إذا كنت مهتمًا بالمشاركة، فيرجى إرسال بريد إلكتروني إلى R.Madroumi@2020.ljmu.ac.uk

Chapter 4 appendices

Appendix 4.1: Example NVivo Output or Coding Screenshot

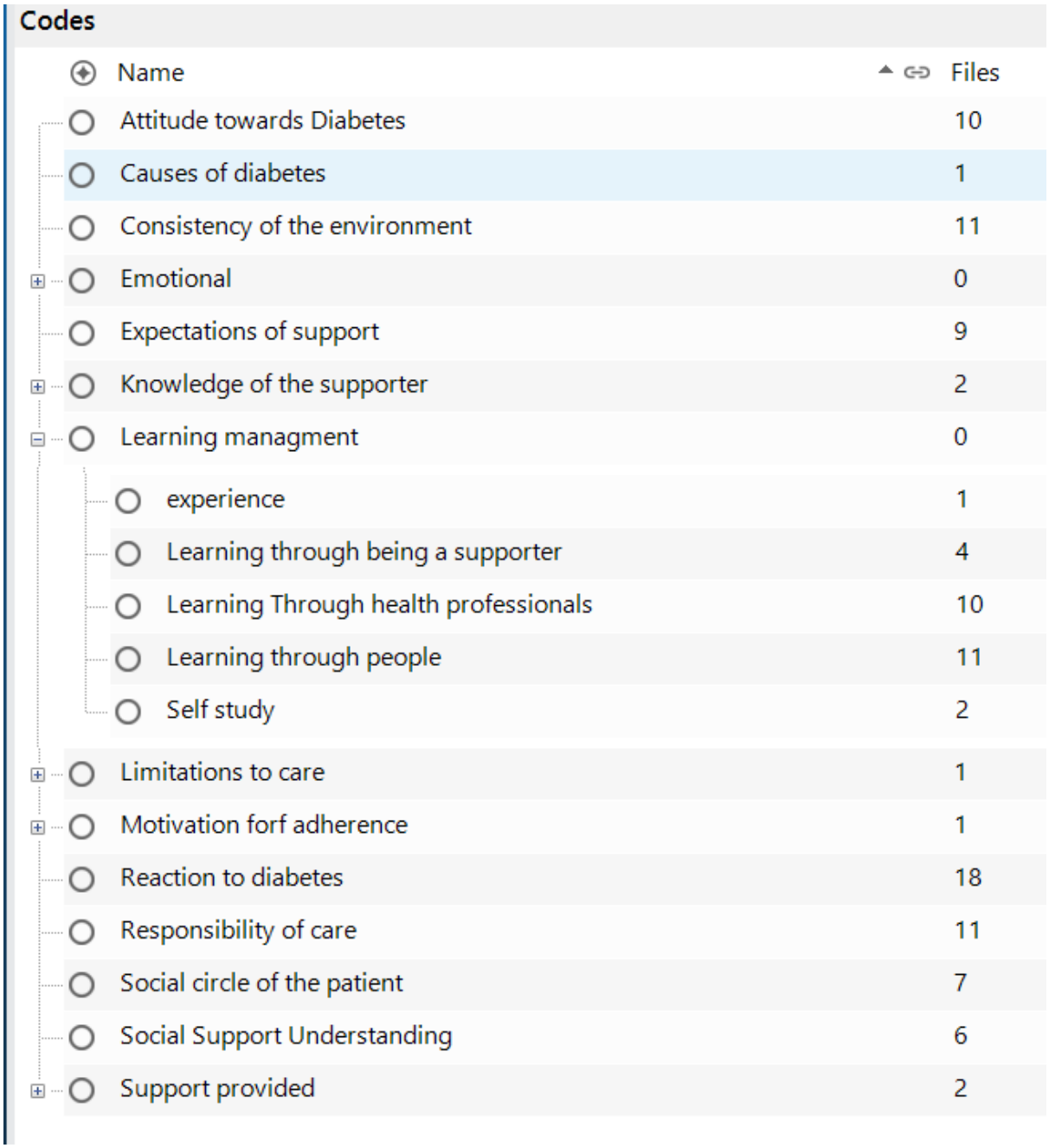
Description: This appendix lists the codes developed during qualitative analysis.

a. Study 1: Morocco: Health-Professional Perspectives Code Book Overview

Codes

Name	Files	References
Acceptance	7	10
attitudes towards patients	6	10
Awareness of health	6	8
Barriers to T2D management	7	8
challenges of providing social support	3	5
culture	8	19
effective management	5	9
emotional	1	1
Expectations of support	10	12
Follow-up	6	8
impact of social support	3	5
Individual differences	10	21
Informational support	0	0
Mentality of Moroccan patients	4	9
most important aspect of support	7	8
Relationship dynamics	0	0
Responsiblities of care	0	0
Social support understanding	13	19
Training needs	3	4
what could have been done better	9	12

b. Study 2: Morocco: People Living with T2D Code Book Overview



c. Study 3: UK: Health-Professional Perspectives Code Book Overview

Codes

Name	Files	References
Appraisail suuport	0	0
Awarness of needing support	2	4
Awarness of the environment	1	1
Barriers for support	2	2
Barriers to management	1	6
educational support	3	9
Effective support	2	2
effective support - doing what matters	1	2
emotional	1	2
importance of social support	2	5
Important aspects of self-management	0	0
Lack of standarsation of care	1	3
limited support	1	1
NHS system	2	5
Role of health professionals	4	13
social support offered	1	1
Social support understanding	3	6
Tangible support	2	2
what can be improved	1	1

d. Study 4: UK: People Living with T2D Code Book Overview

Codes

Name	Files	References
Acceptance	5	8
Appraisal support	0	0
Attitude towards diabetes	1	1
attitude towards HPs	2	2
Availability of support	2	4
barriers to self-management	3	8
creating a safe space	1	2
Diabetes diagnosis	1	1
educational support	4	10
Effective self-management	5	9
emotional support	2	4
excpectations of social support	5	10
lack of consistency in the environment	3	6
lack of education	5	25
lack of tangible support	6	6
lack of willingness to help	2	2
motivation for self-management	1	1
NHS System	5	10
preference to traditional remedies	1	1
Reaction to diabetes	6	8
relationship dynamics	0	0
social support understanding	4	4
Tangible support	6	15
what can be improved	3	6

Appendix 4.2: Supplementary Material: From Transcripts to Themes

1. Overview of the Analytical Approach

Analysis followed Braun and Clarke's (2022) reflexive thematic analysis framework, in which themes are understood as researcher constructions rather than fixed patterns residing within the data. The six-phase process, familiarisation: 1) initial coding, 2) searching for themes, 3) reviewing themes, 4) defining and 5) naming themes, and 6) writing up, was applied iteratively rather than sequentially, with the researcher moving back and forth between phases throughout the process.

Following full transcription, interview texts were read repeatedly prior to coding, with initial notes recorded in the margins of printed transcripts. Initial codes were generated inductively, attending closely to what participants said and how they said it, including hedges, qualifications, and silences, before moving toward more abstract, analytic codes. Codes were then sorted and clustered, and candidate themes were identified, reviewed across the dataset, and refined. All coding was conducted by the primary researcher and reviewed within supervisory meetings at key stages.

Interviews were conducted in Moroccan Arabic (Darija), with occasional switching to French. The researcher, who is fluent in all three languages (Darija, French, and English), transcribed recordings directly into English, attending to meaning and register rather than producing word-for-word translation. This dual role as linguist and analyst is acknowledged in the reflexive note at the end of this document.

2. How Interviews Were Opened: Extract from Participant 2 (P2)

All interviews began with a brief demographic exchange before moving to the substantive topic guide. This served not only to gather contextual information but to establish rapport, put the participant at ease, and allow the researcher to orient to the participant's communicative style. The extract below (from P2, Female, 70 years old, living with T2D for 10 years) illustrates a typical opening exchange. Personal details have been anonymised in line with data protection requirements.

Opening exchange — Participant 2 (P2), Female, 70, T2D for 10 years

Researcher: How long have you had type 2 diabetes for?

P2: *Ten years now.*

Researcher: And how was your reaction when you were first told you had diabetes?

P2: *I mean I kinda knew before I was diagnosed... I used to be [thirsty] a lot then I went to the doctors and they told me I had diabetes and they just prescribed me insulin after that.*

Researcher: And was it easy for you to accept it in the beginning?

P2: *I mean what can I do, this is God's will... I'm not the only one who's going to have these issues... there is God so thank God and we will live with it until God decides to take us. With age you can never be fully healthy — you never know, you can just die at any point. I would say I quite accepted it in the beginning. For as long as I'm alive I will try to live with it.*

Researcher: And would it be OK to ask who you live with right now?

P2: *Well for now I live with my husband and my son — he is 35 years old. He is the only one who didn't want to get married. But I also have one more son and two other daughters; they don't live with us in the house. There is only one daughter who lives near me; I actually spent last night with her.*

Several analytic observations arose immediately from this opening. P2's framing of diagnosis through religious acceptance ('this is God's will'), her normalisation of the condition through reference to universal mortality, and her matter-of-fact tone were noted as likely significant in relation to the research focus on orientations to support and self-management identity. These early impressions were held provisionally and tested against the rest of her transcript and the wider dataset.

3. Annotated Transcript Excerpts with Initial Codes

The following transcript extracts illustrate how initial codes were generated from two participants' transcripts. Codes are shown in the right-hand column and were assigned to specific utterances or exchanges. Some codes were descriptive (close to the data), while others were more interpretive, attending to what the data implied about processes, meanings, or identity. Both levels of coding are illustrated below.

3.1 Participant 2 (P2) - Substantive extract

Context: P2 is a 70-year-old woman living with T2D for 10 years. She lives with her husband and one adult son. The extract focuses on her experience of receiving support and her orientation to self-management. Identifying details have been removed.

Transcript extract	
Researcher: Do you have any experience of receiving support in relation to your diabetes self-management from your family or caregivers?	
P2: *My son who lives with me measures my blood sugar levels, but for the insulin I do it on my own... I used to do it in the local hospital in my neighbourhood but at some point they said we will stop supporting you with this, so at that point I just accepted it and started doing it on my own. While my husband's not really involved... I wouldn't say there's anyone out there to help me. So I do cook on my own and I do take care of my own house.*	*Son as monitoring agent (blood glucose)* *Autonomous self-injection of insulin* *Withdrawal of formal nursing support* *Spousal non-involvement in diabetes management* *Perceived absence of informal support* *Maintaining domestic independence*
Researcher: Do they understand what your treatment involves?	
P2: *I wouldn't say so... they only speak about things like 'you shouldn't eat this, you shouldn't eat that, be careful not to put sugar in your coffee.' And even if I was to visit people they would avoid giving me anything that has sugar. So they know that I have diabetes and they just try to avoid giving me things like that.*	*Limited understanding of clinical treatment* *Social network awareness through dietary avoidance* *Community enactment of protective behaviour* *Informal social norm around sugar restriction*
Researcher: And how about your son, does he understand what the treatment involves?	
P2: *Of course, he is 35 years old, he knows what diabetes is. And if I was to do anything difficult around the household he would be there to help me. Like he knows I have diabetes so he wouldn't let me carry something heavy. I'm very glad to have him around.*	*Adult son's diabetes literacy* *Physical protection by family member (heavy lifting)* *Diabetes as shared household concern* *Gratitude and emotional appreciation of support*

Researcher: Is there a specific reason you prefer to inject the insulin yourself?	
P2: *Well I just like to do it on my own. I've tried to get my son to learn but he just says 'I'm not really capable of stabbing you.' My husband doesn't know how to use it as well. I mean... I know how to use it, why would I let them do it for me? Plus I know when I have to inject my insulin, so I'd rather do it on my own.*	*Strong self-management identity* *Preference for autonomous insulin administration* *Family reluctance to administer injections* *Self-efficacy framed as competence ('I know how')* *Self-determination over body and treatment*
P2 (on how family support makes her feel): *Well I really enjoy the fact that they are helpful... it makes me feel good about myself. It helps me to accept my diabetes more. As you know, if people are being nice to you, you get motivated and you try to do your best to manage your condition.*	*Emotional benefit of relational support* *Support facilitating psychological acceptance of condition* *Relational warmth as motivational mechanism* *Link between social environment and self-management engagement*
P2 (on family expectations): *I don't expect anyone to do anything for me — I'm quite capable of looking after myself. So I wouldn't say I have this expectation that my family has to do something for me. As long as I am healthy and able to walk and do things myself, I would still do them myself — because it is my health and I need to look after it.*	*Independence-oriented self-concept* *Personal ownership of health responsibility* *Low expectations of instrumental support* *Health as individual moral duty ('it is my health')*

3.2 Participant 3 (P3) - Substantive extract

Context: P3 is a 52-year-old woman living with T2D for 12 years. She lives with her husband and youngest son; other adult sons live elsewhere, including one abroad. The extract focuses on the intersection of mental health, family dynamics, and diabetes self-management. Some identifying details have been removed or generalised.

Transcript extract	

Researcher: And how was your reaction when you were first diagnosed with diabetes?	
P3: *My reaction was normal... My personality as it is... I consider myself as a lively lady. I am very social and I'm very active. I love people and I love experience in life and I like to make the most of my life.*	*Positive self-identity ('lively lady')* *Social and active orientation prior to diagnosis* *Life-affirming stance framing response to illness*
Researcher: Do you have any experience of receiving support in relation to your diabetes self-management from your family or caregivers?	
P3: *Not really... I wouldn't say they help me, especially for food. You know, I fell into a very bad depression (she describes a period of financial hardship and marital stress)... I just had no motivation to cook, no motivation to look after myself... so I was just forced to eat whatever they were preparing. For example, they would prepare chicken tagine with potatoes and olives and I would just eat it... but I'm supposed to avoid such things because potatoes are sweet.*	*Absence of dietary support from family* *Mental health (depression) as barrier to self-management* *Loss of self-management agency during depressive episodes* *Diet constrained by shared family mealtimes* *Informal dietary knowledge (potatoes as glycaemic risk)*
P3 (on managing depression without family support): *To get out of depression you just have to do it all on yourself... I had to take all the steps to look after my mental health and go and see professionals, because even my kids do not have that mentality. For them they consider going to a psychiatrist as being insane. But I tried to explain to them... even if you are struggling with life or mental health, you have to go and seek some professional support. And their only reaction is: 'we don't really understand where you get these ideas from.'*	*Self-reliant mental health recovery* *Family stigma around psychiatric help-seeking* *Generational and cultural gap in mental health literacy* *Participant as 'educator' within family, not always heard* *Isolation from family understanding during mental health difficulties*
P3 (on religious coping and medication): *At some point I just decided to stop [the medication]... And after that the only solution*	*Discontinuation of pharmacological treatment*

was just to resort to God. I would read a lot of Quran and pray all night long. I would just ask God to make things better for me. And those things used to help.	*Religious practice as primary coping strategy* *Spiritual resources substituting for formal support* *Faith-based orientation to illness management*
P3 (on engaging her youngest son in monitoring): *I started teaching him to pray Fajr [the early morning prayer]... and that's how I got him to help me with my morning measurements. I tried to find ways to get him involved.*	*Creative strategy to embed monitoring in existing routine* *Linking religious practice to self-management task* *Agency in shaping family support despite structural absence* *Participant-initiated intergenerational knowledge transfer*
P3 (on support from a son living abroad): *My son [abroad] would remember me from time to time and ask if I bought my medicine or not. And in case I mentioned that I hadn't, he would say 'I'll send you the money straight away so you can do that.' And sometimes I have to spend quite a lot on medication, and if my retirement salary does not come on time, well, he does help me with that.*	*Distant tangible support (financial/medication)* *Transnational family caregiving* *Medication cost as barrier to adherence* *Financial support compensating for structural gaps in healthcare*
P3 (on withdrawing from health conversations): *They say 'half of Morocco has diabetes... what do you like to make things more complicated?' And these are some sort of messages they get from their father... I even stopped speaking about my health because I just feel like I'm being annoying at that point.*	*Family trivialisation of diabetes ('half of Morocco has it')* *Spousal undermining of health-seeking behaviour* *Self-silencing to avoid family conflict* *Withdrawal from health-related communication* *Internalised burden... feeling like a nuisance*

4. From Initial Codes to Themes: A Worked Illustration

The following table illustrates how selected initial codes (drawn from P2 and P3's transcripts above) were progressively abstracted into focused codes and ultimately into the four themes

reported in Chapter 4. This is not an exhaustive mapping but is intended to show the analytic movement from data to theme.

The process was not linear: some codes initially placed under one candidate theme were later relocated as the researcher's understanding of the data evolved. For example, codes relating to self-management identity appeared initially to describe individual psychology but were later understood as relational shaped by the presence, absence, or quality of support in participants' lives.

Initial code	Source	Focused / pattern code	Theme
Religious/fatalistic acceptance of diagnosis	P2	Emotional and spiritual orientations to T2D	Theme 1: Understanding and Orientations to Social Support
Normalising condition through comparison with others	P2	Emotional and spiritual orientations to T2D	Theme 1: Understanding and Orientations to Social Support
Life-affirming stance framing response to illness	P3	Emotional and spiritual orientations to T2D	Theme 1: Understanding and Orientations to Social Support
Independence-oriented self-concept	P2	Self-management identity and orientation to autonomy	Theme 1: Understanding and Orientations to Social Support
Personal ownership of health responsibility	P2	Self-management identity and orientation to autonomy	Theme 1: Understanding and Orientations to Social Support
Informal dietary knowledge (potatoes as glycaemic risk)	P3	Experiential and socially embedded learning	Theme 2: Learning and Adapting Knowledge in Everyday Life
Social network awareness through dietary avoidance	P2	Experiential and socially embedded learning	Theme 2: Learning and Adapting Knowledge in Everyday Life
Linking religious practice to self-management task	P3	Creative knowledge application in everyday routines	Theme 2: Learning and Adapting Knowledge in Everyday Life

Initial code	Source	Focused / pattern code	Theme
(Fajr - early morning prayer)			
Participant-initiated intergenerational knowledge transfer	P3	Creative knowledge application in everyday routines	Theme 2: Learning and Adapting Knowledge in Everyday Life
Spousal non-involvement in diabetes management	P2	Family practices of tangible support (and their absence)	Theme 3: Relational Support Practices in Daily Life
Diet constrained by shared family mealtimes	P3	Family practices of tangible support (and their absence)	Theme 3: Relational Support Practices in Daily Life
Community enactment of protective dietary behaviour	P2	Everyday relational enactment of diabetes-aware behaviour	Theme 3: Relational Support Practices in Daily Life
Physical protection by family member (heavy lifting)	P2	Everyday relational enactment of diabetes-aware behaviour	Theme 3: Relational Support Practices in Daily Life
Relational warmth as motivational mechanism	P2	Emotional dimensions of relational support	Theme 3: Relational Support Practices in Daily Life
Support facilitating psychological acceptance of condition	P2	Emotional dimensions of relational support	Theme 3: Relational Support Practices in Daily Life
Self-silencing to avoid family conflict	P3	Relational barriers to support-seeking	Theme 3: Relational Support Practices in Daily Life
Spousal undermining of health-seeking behaviour	P3	Relational barriers to support-seeking	Theme 3: Relational Support Practices in Daily Life
Distant tangible support and	P3	Distributed and sustained support across social network	Theme 4: Consistency and Coordination of Support

Initial code	Source	Focused / pattern code	Theme
financial/medication (son abroad)			
Son as consistent monitoring agent (blood glucose)	P2	Distributed and sustained support across social network	Theme 4: Consistency and Coordination of Support
Agency in shaping family support despite structural absence	P3	Participant-led coordination of available support	Theme 4: Consistency and Coordination of Support

As the table shows, individual codes rarely mapped neatly onto a single theme. Codes were provisional labels rather than fixed categories, and their thematic location was determined through ongoing comparative analysis across the full dataset. For instance, the code "support facilitating psychological acceptance of condition" (P2) was initially grouped under candidate Theme 1 (Orientations to Support) but was ultimately placed within Theme 3 (Relational Support Practices) once it became clear that acceptance was understood by participants as a relational achievement, contingent on the quality and tone of support received, rather than a cognitive state reached independently.

5. Reflexive Note

As a researcher of Moroccan origin conducting interviews in my home country, I occupied an insider position that facilitated rapport and enabled linguistically fluid, naturally flowing conversations. Participants appeared comfortable elaborating on sensitive topics, including financial hardship, marital difficulty, and mental health, in ways that might not have emerged in more formal exchanges. At the same time, this proximity required ongoing reflexive attention: I was aware of the risk of assuming shared understanding, or of interpreting accounts through my own culturally situated assumptions rather than remaining analytically curious.

One concrete example arose in the interviews with P3, who disclosed experiences of significant psychological distress during our conversation. As a reflexive researcher, I noted my instinct to reassure and to move the conversation forward to protect her and myself from discomfort. I was conscious of the ethical imperative to allow space for her account while not therapeutising the interaction. These tensions were documented in my reflexive journal and discussed in

supervision, and they informed how I subsequently read and coded P3's transcript, attending carefully to moments of self-presentation and withdrawal.

My dual role as transcriber and translator also carried epistemological implications. Darija is a highly contextualised language, and some expressions resist direct translation without losing pragmatic meaning. Where this was the case, I retained the closest English equivalent and noted the original phrasing in a separate document. This process itself became a site of reflexive analysis, as translation decisions were also interpretive decisions, foregrounding the researcher's active role in constructing the data from the very first stage of analysis.

Throughout this process, reflexive considerations actively shaped how codes were interpreted and organised into themes. For example, initial readings of participants' accounts of independence were approached cautiously, as my familiarity with Moroccan cultural norms could have led to assumptions about collectivist expectations of support. Through reflexive engagement and supervision discussions, these accounts were instead analysed as context-dependent orientations to support, rather than fixed cultural traits. This illustrates how reflexivity informed not only data interpretation, but the final construction of themes.

Appendix 4.3: Reflective memos

Description: This appendix presents an example of reflexive notes recorded during the research process, illustrating the researcher's reflections on positionality, interactions with participants, and the development of interpretations.

Example of a reflective memo during data collection in Morocco

Date: 10/02/2024
Context: Post-interview reflection during data collection
Researcher: Reda

Summary of Interview Impressions

The interview was highly informative and included a detailed discussion of social support in diabetes care. At the outset, I clarified that the purpose was not to evaluate the participant's practice. Nevertheless, the discussion appeared to prompt professional reflection, as the participant later commented that the interview made them feel proud and recognise the extent of their contribution to patient care.

The participant appeared familiar with multiple aspects of social support, although these were not framed explicitly as a formal framework. They expressed a strong willingness to support

patients while maintaining that certain forms of support fall outside their formal responsibilities.

Observations on Types of Social Support

Examples of emotional support were discussed, including culturally appropriate physical reassurance (e.g., touching a patient's hand or other gestures of comfort). Appraisal support was also described, particularly through follow-up contact with patients by phone (WhatsApp).

Discussion of fasting during religious periods highlighted how clinicians may extend beyond their formal remit to negotiate health-related behaviours with patients, including engaging with religious considerations – mostly adapting to their culture.

Reflections on Tangible and Technical Support

Across interviews, tangible (technical) support was frequently described by participants in medically-oriented roles as the most critical component of diabetes management. This emphasis was attributed to patient characteristics such as limited education, health awareness, cultural factors, and financial constraints.

Some participants reported providing additional appraisal support through informal communication channels, while others emphasised that such involvement exceeds their professional responsibilities. Defensive positioning around role boundaries was evident among some participants.

Relationship Dynamics Between Professionals and Patients

Participants emphasised the importance of maintaining professional boundaries, noting that some patients may "exceed limits" and become less respectful. An experienced practitioner described several examples illustrating this concern.

Emerging Analytic Reflections

Following multiple interviews, emotional and educational support emerged as particularly salient themes, suggesting a shift in emphasis after extended discussion of social support.

Patients tended to express a strong need for social support during interviews, whereas participants in clinician roles more often emphasised education and treatment adherence in routine interactions. This difference may also reflect the researcher's positioning as doing research in health psychology, which may have encouraged discussion of psychosocial needs and highlighted expectations of multidisciplinary care.

Discrepancy Between Practice, Responsibility, and Effectiveness

A key emerging issue concerns the discrepancy between:

- what is currently delivered in practice,

- what professionals perceive as their responsibility (particularly within clinically defined roles), and what appears most effective for patients.

This tension may be shaped by role expectations, professional boundaries, and institutional norms governing the scope of practice.

Methodological and Theoretical Notes

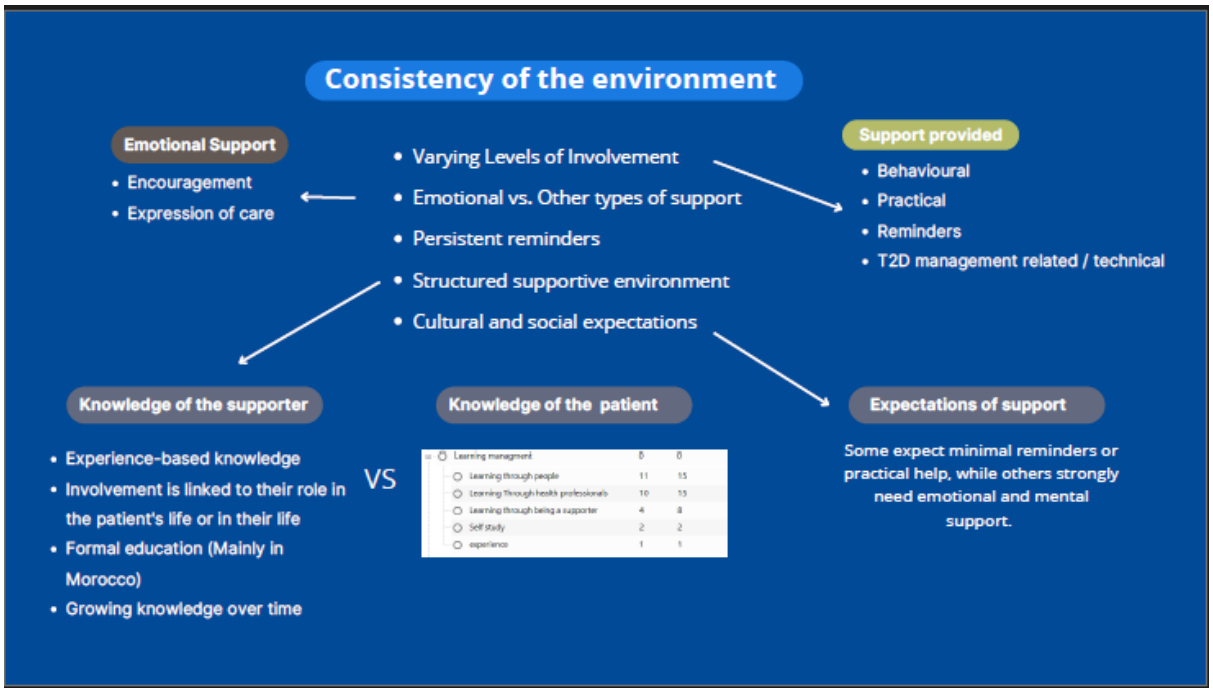
Factors potentially influencing this discrepancy include:

- Personality/role
- Coping mechanisms
- Perceptions of diabetes
- Use of fear-based messaging versus alternative motivators (e.g., social pressure, authority of the clinician)

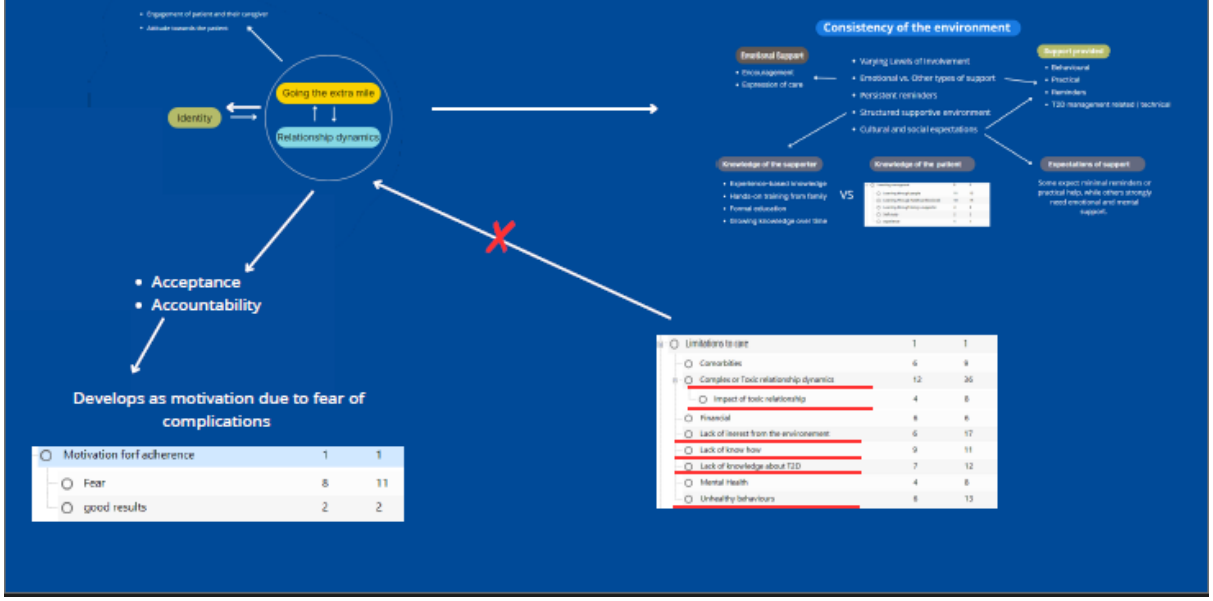
Chapter 6 appendices

Appendix 1 Analytic Development of the Social Support Consistency Model (SSCM)

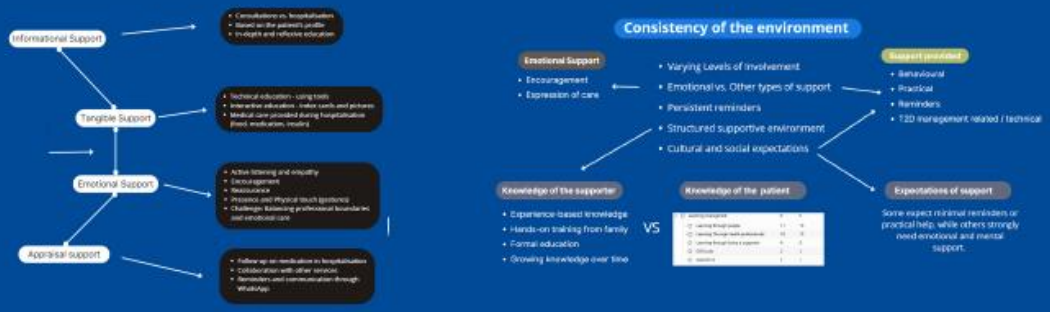
Description: This appendix presents materials related to the development of the Social Support Consistency Model, including conceptual diagrams and iterative refinements.



Making sense of eveything

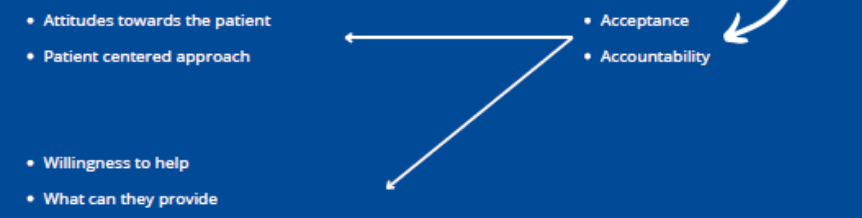


The key to social support is consistency



For this to be achieved we need

- A well-developed sense of Identity (HP, Person living with T2D, Caregiver) — Identity
- Good relationship dynamics (Between all three parties) — Relationship dynamics



- Willingness to help
- What can they provide