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Social isolation and integration in relation to healthcare utilisation: a cross-sectional survey of emergency department and primary care use

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ABSTRACT

Background: Social isolation and loneliness are critical public health concerns associated with poorer health outcomes and greater demand for healthcare services. With the NHS already under significant pressure, understanding how these social factors influence healthcare demand is crucial.

Aims: This study aimed to compare the distinct contributions of social isolation and social integration to primary care and emergency department use.

Methods: A cross-sectional survey of 460 UK adults were assessed on: loneliness using the UCLA Loneliness Scale, social integration using the LSNS-6 and healthcare utilisation via an adapted questionnaire. Ordinal logistic regression examined associations between social variables and service use.

Results: Social isolation was consistently linked to greater use of healthcare services, increasing the odds of both primary care (OR = 1.07) and emergency department attendance (OR = 1.10, both $p < .001$). Conversely, higher social integration modestly increased primary care use (OR = 1.04, $p = .02$) but was not significantly related to emergency department visits (OR = 1.02, $p = .34$).

Conclusions: These findings underscore the importance of addressing social isolation within healthcare policies to reduce service strain and improve patient outcomes. Embedding social support mechanisms in healthcare strategies could optimise resource use while enhancing care quality.

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Social isolation; social integration; healthcare utilisation; emergency department; primary care; health services use; health-seeking behaviour

Introduction

Social integration refers to the extent of social relations or ties that promote a sense of belonging, whereas social isolation reflects the objective lack or limited extent of such contacts (Donovan & Blazer, 2020; Wray et al., 2011). The World Health Organization (WHO) has identified social isolation and loneliness as significant public health concerns with negative effects on physical and mental health (University of Cambridge, 2020; World Health Organization, 2025). In the United Kingdom, approximately 7.1% of the population reported feeling lonely, a 5% increase since 2018 (Office for National Statistics, 2021).

Digital communication has transformed social interactions, enabling global connectivity but often lacking the depth of face-to-face support (Shensa et al., 2020). Urbanisation and the growing number of single-parent households (up 6.7% since 2012) (Office for National Statistics, 2024), also contribute to the fragmentation of social structures, intensifying social isolation.

In the Netherlands, this isolation is linked to higher healthcare use and costs among individuals experiencing social isolation (Meisters et al., 2021). Further, in the National Health Service (NHS) only a small proportion of ED visits meet the four-hour treatment target, highlighting system pressure (British Medical Association, 2024). Consequently, it is evident that the NHS is currently under a great deal of pressure, with potential for this burden on health systems to worsen (British Medical Association, 2024). Understanding factors that influence healthcare-seeking behaviour is therefore critical to easing NHS pressures.

Current interventions tackling social isolation

Globally, interventions targeting older adults, disabled individuals and marginalised groups aim to improve

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social connectedness and reduce healthcare use by addressing loneliness (Bøen et al., 2012; Coll-Planas et al., 2024; Lai et al., 2020; National Academies of Sciences et al., 2020; Shekelle et al., 2024; Warner et al., 2024). In the NHS, one such approach is social prescribing, where providers refer individuals to non-clinical services such as hobby groups (NHS England, 2023). Evidence suggests social prescribing may improve outcomes, with some studies showing reduced healthcare use (Reinhardt et al., 2021). This suggests that improving social integration may lower demand, but evidence remains limited.

Digital literacy programmes appear promising, especially for older adults, particularly for enhancing social connectedness and reducing loneliness (Gunnes et al., 2024; Sen et al., 2022; Soundararajan et al., 2023). However, the evidence is largely indirect, with much of the literature focussing on technology use rather than clearly defined programmes. Consequently, there is limited detail on how such interventions may be operationalised. Nevertheless, interventions that support technology use have been linked to improved social engagement and health (Richards et al., 2025), yet robust evidence of effectiveness remains limited.

Other factors affecting healthcare utilisation

Healthcare use is influenced by cultural context and access. For example, USA patients may avoid care due to cost or negative experience, whilst Dutch patients report more positive experiences due to strong primary care systems (Matus, 2021; OECD, 2025). However, research output remains concentrated in high-income countries, thus limiting the external validity of these findings to low-income nations.

Mental health also drives healthcare use. Individuals with mental illness are more prone to accessing both ED and primary care services (Saini et al., 2020). Perceived social isolation is associated with outcomes such as depression and cognitive decline (Santini et al., 2020; Zhang et al., 2025), further increasing use. These findings demonstrate the importance of interventions that address both social and psychological determinants of healthcare use.

Social isolation and healthcare utilisation

Prior research has examined either social isolation or social integration in relation to healthcare use, failing to address their distinct impacts on healthcare utilisation (Mosen et al., 2021; X. Wang et al., 2023). Social isolation is associated with greater healthcare use, yet may also delay treatment seeking, potentially exacerbating health crises. Observational studies link loneliness to increased primary care and ED visits, though effect sizes are small and causality cannot be established (Christiansen et al., 2023; Gao et al., 2023; Kouzis & Eaton, 1998).

There is limited research examining how the severity of social isolation affects healthcare utilisation, with prior studies often overlooking this distinction. Notably, emerging evidence indicates that isolation from family members may correlate with reduced primary care use (Xie et al., 2024), suggesting that different forms of social isolation may influence healthcare behaviours in distinct ways. Further research indicates that socially isolated individuals, particularly those experiencing mild cognitive impairment or dementia, are at greater risk of ED visits compared to their socially integrated counterparts (Bartley et al., 2024). While these findings pertain to clinical populations, they support the broader trend linking social isolation with increased healthcare use. However, it remains unclear whether these associations are seen in healthy populations as much of the existing research is on clinical populations, increasing the potential influence of confounding variables. This relationship may reflect reduced informal support and increased vulnerability to adverse mental health outcomes, such as depression and SI (Beutel et al., 2017; Cacioppo et al., 2006).

Social integration and healthcare utilisation

Research suggests that social integration reduces healthcare use, consistent with the stress-buffering hypothesis (Cohen & Wills, 1985). According to the stress-buffering hypothesis, social ties provide emotional and practical support, which may reduce healthcare reliance. Notably, a meta-analysis revealed that individuals with stronger social connections had a 50% higher likelihood of survival compared to those who were socially isolated (Holt-Lunstad et al., 2010). This finding has been reinforced by recent large-scale longitudinal data suggesting that social isolation remains a primary predictor of all-cause mortality, comparable to well-established risk factors such as smoking and obesity (Office of the Surgeon General, 2023; F. Wang et al., 2023). Thus, social integration may improve health outcomes and reduce the need for frequent health interventions by offsetting the risks linked to isolation. Further research is required, however, to confirm whether its protective effects extend specifically to healthcare use.

Research consistently highlights the role of social integration in promoting early and preventative healthcare use. Participation in social and community activities is linked to pro-active health-seeking (Gao et al., 2023) whilst psychosocial interventions addressing social needs have reduced healthcare use (HaGani et al., 2023). Regular contact with care managers is also associated with fewer hospital admissions (Cohen et al., 2007), suggesting that supportive relationships (clinical or personal) may mitigate healthcare reliance. Yet, most studies focus on professional support or non-Western populations. Addressing social isolation in healthcare may provide a cost-effective way to reduce demand and improve outcomes. Incorporating social support into preventative care could enable earlier intervention and lessen reliance on services, aligning with NHS priorities for patient-centred care. Understanding these dynamics is particularly relevant given the ongoing strain on healthcare services. Using validated questionnaires, the study assesses the frequency and type of healthcare visits, contributing to the literature by evaluating how both isolation and integration influence service use.

Despite growing evidence linking social isolation and integration to healthcare utilisation, several gaps remain. Much of the existing research focuses on clinical populations, limiting understanding of these relationships in healthy individuals. Additionally, the severity and type of social isolation are overlooked, and social isolation and integration are rarely examined together. Addressing these gaps is important for informing interventions and policies aimed at reducing excessive healthcare use through improved social support.

Aims

The present study aims to examine how social determinants including loneliness, social isolation and social integration independently influence healthcare utilisation in a UK population, addressing a gap in research that has largely prioritised economic and structural factors. Specifically, it compares the effects of social isolation and social integration on primary care and ED use. It is hypothesised that higher social isolation will be associated with greater healthcare utilisation, whereas greater social integration will be associated with lower service use.

Materials and methods

Design

The study used a cross-sectional design. This design allows for the examination of the strength and direction of these relationships while controlling for potential confounding variables. By using multiple regression, the study aims to provide a more comprehensive understanding of how social factors influence healthcare behaviours. As independent variables, the study will measure social isolation and social integration.

Sample

A total of 473 participants were recruited for the study; however, 21 participants were excluded from the analysis due to incomplete questionnaire responses. Thus, the final sample size for analysis was 452 participants. All participants were at least 18 years old and were recruited through either social media (E.g., Facebook, Instagram or Reddit), word-to-mouth or from the Sona System (an online participant recruitment platform for undergraduate students). The diversity of the recruitment strategy was designed to ensure a wide-ranging sample representative of different ages and social backgrounds. The sample size was determined to provide adequate statistical power for the regression analysis, ensuring robust and reliable results.

Materials

Social isolation

Perceived social isolation was measured using the UCLA Loneliness scale questionnaire (short version) (D. Russell, 1996). This widely validated scale assesses the emotional and social dimensions of loneliness, with 10 items addressing feelings of isolation and lack of companionship. The study used the short version to reduce participant burden whilst also maintaining a psychometrically sound measure of loneliness (Neto, 2014). The scale was adjusted for British English to ensure cultural relevance and comprehensibility for UK participants.

Social integration

Social integration was measured using the LSNS-6 (Lubben & Gironda, 2003). Stronger social integration has been shown to positively impact health outcomes, making it a critical variable in this study. The scale was also adapted for British English to ensure its relevance in the context of the majority UK population. Additionally, any questions deemed unnecessary for the study's aims have been omitted. The LSNS-6 is a 6-item scale designed to measure the strength of social ties with family and friends. The LSNS-6 was selected for this study due to its well-established reliability and

validity. Compared to the original 12-item scale, the abbreviated version provides a reliable assessment of social integration whilst minimising participant burden. Previous research has shown that the LSNS-6 retains its effectiveness in measuring social networks, making it an efficient and validated tool for use in diverse demographic settings (Lubben et al., 2006).

Healthcare utilisation

Healthcare utilisation will be measured using the healthcare utilisation questionnaire (National Institute on Aging, n.d.). This questionnaire is only being utilised for question 1 and 3. These questions pertain to the frequency of healthcare visits, and the decision to omit other questions was based on the irrelevance of those aspects to the primary focus of the study. The questions have also been amended to use British English rather than American English due to the study taking place in the United Kingdom.

Procedure

Participants were directed to an anonymous online survey hosted on QuestionPro. Participants were recruited through multiple channels including social media platforms (Facebook, Instagram and Reddit), the university's SONA system and word-of-mouth. Using multiple platforms for recruitment helps reach a wider and more varied talent pool, ensuring greater diversity by engaging candidates from different backgrounds, experiences, and communities.

Upon accessing the survey, individuals first reviewed the participant information sheet, outlining the study's aims, the voluntary nature of participation, and consent procedures. Participants provided implied consent by proceeding to the survey and were required to confirm their age before proceeding. Data collection was conducted from 05/01/25 until 24/01/25, with periodic reminders to maintain engagement and maximise response rates. Upon completion, participants were debriefed and thanked for their participation. Responses were screened during data cleaning to ensure completeness and eligibility. No benefits were offered for completing the study (outside of SONA credits), reducing the likelihood of invalid or automated responses.

Data analysis

Data were analysed using SPSS (Version 20). We employed ordinal logistic regression to assess associations between perceived social isolation (UCLA), social integration (LSNS-6), and healthcare utilisation (primary care and ED use), both modelled as ordinal outcomes. Statistical significance was set at $p < .05$.

Ethical considerations

The study received ethical approval from the PSYREP Ethics Committee at Liverpool John Moores University (Approval reference: PsyREC-141-2425-RR). The participant information sheet provided clear details about the voluntary nature of the study and the participants' rights, including their right to withdraw up until the point of submission. Given the anonymous nature of the study, once participants submitted their responses, it was not possible to withdraw their data. All data were stored securely and anonymised to protect participant confidentiality. Furthermore, participants were informed about the potential risks of participation, including the potential for emotional discomfort when answering questions related to loneliness and perceived social isolation.

Patient and public involvement

Patients, service-users, caregivers, people with lived-experience and members of the public were not involved in the design, conduct, analysis or interpretation of this research. The study examined social isolation, social integration and healthcare utilisation among a general adult population and was carried out as an online survey which limited opportunities for direct involvement in the development of the research question, outcome measures, or study procedures. Participants were also not involved in the management of the study or offered authorship. Future research would benefit from incorporating lived-experience perspectives into the design and interpretation stages to strengthen the relevance and impact of findings.

Results

Descriptives

The final sample included 452 participants. LSNS-6 (social integration) scores ranged from 0 to 30 (M = 22.11, SD = 5.67), with higher scores indicating greater perceived social integration. UCLA Loneliness Scale (perceived social isolation) scores ranged from 0 to 40 (M = 21.29, SD = 6.43), with higher scores indicating greater perceived social isolation.

Social integration and healthcare use

Ordinal logistic regression was used to examine the association between social integration (LSNS-6) and healthcare use. Assumption checks indicated that the

proportional odds (parallel lines) assumption was met ($\chi^2(6) = 4.34$, $p = .63$), there was no multicollinearity between LSNS-6 and UCLA scores ($r = -0.44$, $p < .001$), and goodness-of-fit tests confirmed adequate model fit for both primary care use (Pearson $\chi^2(1146) = 1168.62$, $p = .31$) and ED use ($\chi^2(1146) = 1230.06$, $p = 1.07$).

Ordinal logistic regression indicated that social integration (LSNS-6 score) was a statistically significant predictor of primary care use, $\chi^2(1) = 5.61$, $p = .02$. The odds ratio (OR = 1.04, 95% CI [1.01, 1.08]) suggested that higher levels of social integration were associated with slightly increased use of primary care services. In contrast, social integration was not a significant predictor of ED use, $\chi^2(1) = 0.90$, $p = .34$. The odds ratio (OR = 1.02, 95% CI [0.98, 1.06]) indicated no meaningful association between social integration and ED attendance. Table 1 shows the detailed regression coefficients and confidence intervals for social integration and healthcare use (see Figure 1).

Social isolation and healthcare use

Perceived social isolation (UCLA score) was a statistically significant predictor of both primary care and ED use. For primary care use, higher perceived social isolation scores were associated with increased likelihood of service use, $\chi^2(1) = 22.92$, $p < .001$. The odds ratio (OR = 1.07, 95% CI [1.04, 1.10]) indicated a positive association between perceived social isolation and primary care utilisation. Similarly, for ED use, the relationship was statistically significant, $\chi^2(1) = 19.27$, $p < .001$. The odds ratio (OR = 1.10, 95% CI [1.05, 1.15]) demonstrated that individuals with higher levels of perceived social isolation were more likely to have increased ED attendance. See Table 1 for the detailed regression coefficients and confidence intervals for perceived social isolation and healthcare use (see Figure 2).

Table 1. Ordinal logistic regression results predicting primary care and ED use based on social isolation and social integration.

Predictor variable	*B*	SE	Wald χ^2 (df = 1)	*p*-value	95% CI for B
Social integration + Primary care use	0.04	0.02	5.61	.02	[1.01, 1.08]
Social isolation + Primary care use	0.07	0.02	22.92	<.001	[1.04, 1.11]
Social integration + ED use	0.02	0.02	0.90	.34	[0.98, 1.08]
Social isolation + ED use	0.10	0.02	19.27	<.001	[1.06, 1.16]

*CI, confidence interval; SE, standard error; ED, emergency department.

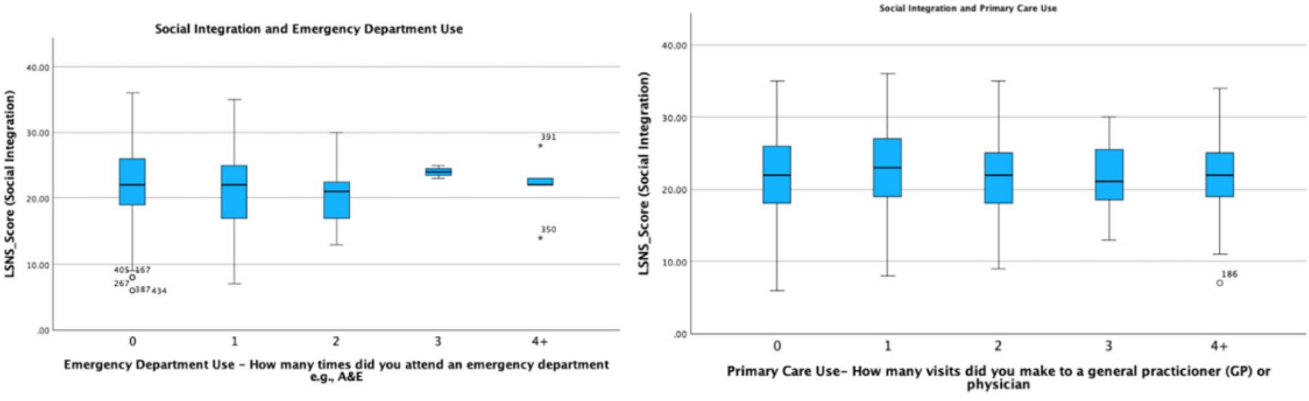


Figure 1. Box plots of social integration (LSNS-6) scores by frequency of primary care and emergency department use.

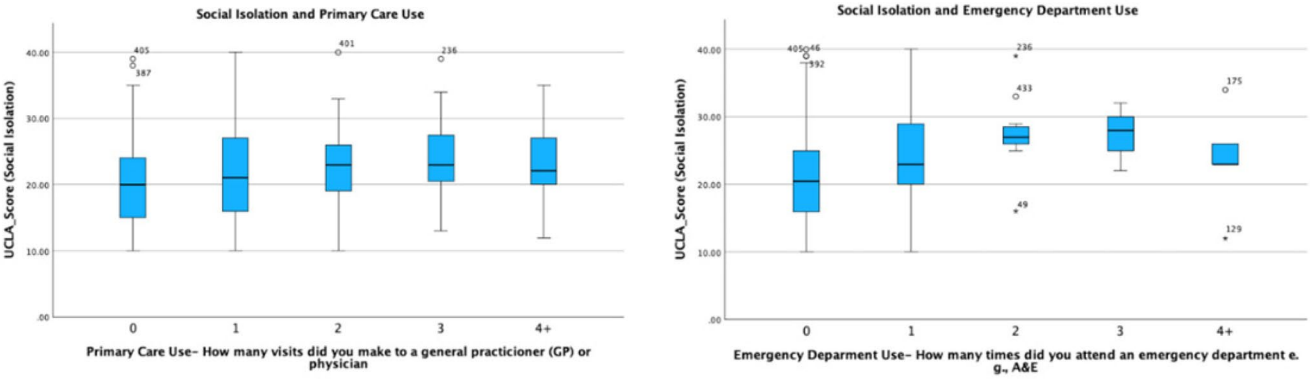


Figure 2. Box plots of perceived social isolation (UCLA Loneliness Scale) scores by frequency of primary care and emergency department use.

Discussion

Social isolation and healthcare use

This study examined how perceived social isolation and social integration influence primary care and ED use. Perceived social isolation was significantly associated with increased utilisation of both services, whereas social integration showed a modest positive association with primary care use only. These findings underscore the distinct roles of social isolation and integration in shaping healthcare-seeking behaviours. The strong association between perceived social isolation and healthcare use aligns with existing literature (Chao et al., 2025; Freak-Poli et al., 2023; Malani et al., 2025). This reinforces the importance of addressing isolation as a primary driver of healthcare demand, particularly in contrast to the more modest effects of social integration. This relationship may be explained by psychosocial and physiological mechanisms. Social isolation has been associated with depression, stress, and reduced immune function, which may increase vulnerability to illness and subsequent need for formal healthcare (Cacioppo et al., 2015; National Academies of Sciences et al., 2020; Richard et al., 2017). A lack of informal support may also prompt greater reliance on professional care (National Academies of Sciences et al., 2020).

These findings align with previous research demonstrating a similar pattern among older adults (Mosen et al., 2021), and extend this association across a wider age range. Furthermore, higher levels of social connectivity correlate with improved health outcomes (Lin et al., 2019) while deficits in social relationships are associated with increased risk of coronary heart disease and stroke (Valtorta et al., 2016). An alternative explanation is that healthcare services may also function as a source of social interaction for some individuals, particularly those experiencing isolation (Gao et al., 2024). This suggests that increased utilisation may not only reflect physical health needs, but also unmet social needs, which are fundamental for human wellbeing (Office of the Surgeon General, 2023), highlighting the importance of addressing social isolation in healthcare settings. While this study controlled for several confounders, other factors, such as socioeconomic status, mental health, and access barriers, may also influence healthcare use. Longitudinal or qualitative research could clarify these causal mechanisms.

Social integration and healthcare use

Contrary to what was hypothesised, higher social integration was modestly associated with increased primary care use. This may reflect stronger engagement with preventative services among socially connected individuals (Berkman et al., 2000). Related research in socially deprived settings also suggests that integration initiatives can influence utilisation patterns, although generalisability remains limited (Ress & Wild, 2024). Social integration was unrelated to ED use. Despite assumptions that strong social ties reduce emergency visits, acute symptoms or convenience may drive ED use regardless of support networks. Additionally, social support may prompt help-seeking when appropriate, potentially maintaining ED usage levels (Thoits, 2011).

Implications

These findings highlight the need for interventions targeting feelings of social isolation to reduce avoidable healthcare use. Social prescribing and community-based programmes may offer effective ways to promote engagement and reduce loneliness (Foster et al., 2021; Reinhardt et al., 2021). These findings highlight the need for interventions targeting social isolation to reduce avoidable healthcare use. Social prescribing and community-based programmes may offer effective ways to promote engagement and reduce loneliness.

Strengths and limitations

One strength of this study is that most previous research explores only one of social isolation or integration, and their effects on healthcare use. However, this study collected data on the effect both social isolation and social integration on healthcare use, allowing for a more comprehensive understanding of how different aspects of social relationships influence healthcare utilisation. This study also benefits from the use of validated measures such as the LSNS-6 (for social integration) which is widely supported for good consistency and validity and the UCLA loneliness scale (for perceived social isolation) which has been widely tested in different populations and proven to have good reliability and validity (Alsubheen et al., 2023; Buckley et al., 2022; Chan et al., 2023; Chang et al., 2018; Hartshorne, 1993; D. W. Russell, 1996). This strengthens the reliability of the findings and assures consistency with prior research in this area. Furthermore, the study had a large number of participants. This increases statistical power and enhances the generalisability of the findings (Charter, 1999).

However, there were some limitations reported within the study. First, the responses given by self-reported measures could have been affected by response bias (Quilty et al., 2018). Participants' perceptions of their social relationships may not fully capture their true social engagement levels. Future studies could incorporate objective measures of social connections such as a social network analysis, to provide a more comprehensive understanding of these constructs (Lam et al., 2018). Sampling bias was mitigated by recruiting participants through multiple channels, including social media platforms (Facebook, Instagram and Reddit) and the university's SONA system, where undergraduate students receive credits for participation. While this approach was intended to increase sample diversity, it may have introduced bias towards younger, student populations and individuals who are more digitally engaged, thus limiting the generalisability of findings. Also, while the study accounted for key confounders, other well-known confounders such as socioeconomic status, mental health conditions and healthcare access barriers were not controlled for. These variables may influence both social connection and healthcare utilisation patterns (Loef et al., 2021; Saeri et al., 2018; Wickramaratne et al., 2022). Another criticism of the study is that it did not control for order effects. Since participants answered questions about social integration (LSNS-6) before the loneliness scale (UCLA), their responses to the loneliness questions may have been influenced by their initial reflections on social connections. This could have led to either an overestimation or underestimation of their perceived loneliness. Future research should consider counterbalancing the order of survey measures to minimise potential biases. Lastly, the cross-sectional design of the study cannot infer the causal relationship between variables. Further research is needed to confirm the causal relationship between social isolation/integration and healthcare use.

Conclusions

The study's findings suggest that social isolation is significantly associated with greater primary care and ED use, highlighting the potential importance of social relationships in health-seeking behaviour. While social integration was linked to higher primary care use, it did not reduce ED use, implying that strong social relationships may promote routine medical treatment but do not necessarily prevent acute health crises. These findings highlight the need of addressing social isolation as a public health priority and incorporating social support interventions into healthcare systems to improve patient outcomes while reducing unnecessary healthcare usage. One example of such interventions is the NHS's social prescribing scheme which links patients with non-medical support services such as community activities or peer-support groups. However, there is mixed evidence to support the efficacy of this programme. One review concluded that it's unclear whether it is successful, or good value for money for the NHS (Bickerdike et al., 2017). However, another review found that some studies showed improvements in health and wellbeing, feelings and social contacts (Pescheny et al., 2020). However, both of these studies review limited evidence that varies in quality, thus more research is needed to truly conclude whether social prescribing is effective. Future research should further explore the causal relationships between social relationships and healthcare use, as well as develop focused interventions to help socially isolated people maintain their social well-being and general health.

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Data availability statement

The data supporting the findings of this study are available upon reasonable request

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