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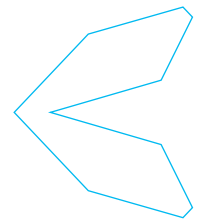
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**RESEARCH
ARTICLE**

Facing Death Anxiety: Effects of Professional Exposure to Death and Dying

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HIGHLIGHTS

Exposure to death and dying in professional settings coincides with lower reports of death anxiety, regardless of high-exposure vs. non-exposure professions.

ABSTRACT

Previous research has examined the relationship between exposure to death and dying and death anxiety. However, the extent to which research in this area provides a coherent body of work is unclear. To investigate varied exposures of death and dying and to reproduce findings, a measure that encompasses the range of ways in which people can be exposed is necessary. Accordingly, this study developed a new measure, the Exposure to Death and Dying Scale (ED&DS), and investigated specifically how professional exposure to death and dying was related to death anxiety in high-exposure and non-exposure professions. Professional exposure is defined as exposure to death and dying in a professional setting, as opposed to in one's personal relationships or with one's self. The Death Anxiety Scale Extended (DAS-E) was used to provide a score for unease surrounding death. Participants ($N = 468$) were separated into different groups based on their profession: non-exposure professions and high-exposure professions, which consisted of 6 sub-categories: mental health professionals, the general medical field, nursing, mortuary professionals, end-of-life care, and forensic professionals. Professional exposure rates to both death and dying were calculated, as well as death anxiety scores and time spent in each profession. Non-exposure professions were shown to have lower levels of exposure than all categories of high-exposure professions. One-way ANOVA revealed that exposure (vs. non) professionals had a lower level of death anxiety. High-exposure occupations varied in levels of death anxiety. The mental health group had the highest mean death anxiety (111.52), followed by the forensic professionals (107.36), general medical field (106.66), nurses (104.79), mortuary professionals (104.60), and end-of-life carers (93.89). Although there was a trend toward a decline in death anxiety with increasing time spent in high-exposure occupations, there was also an increase in death anxiety among individuals with the longest tenure in their field, indicating that this is not a clear linear relationship. Overall, this study showed that the higher professional exposure to death and dying, the lower that individual's reported death anxiety was, regardless of the type of exposure experienced.

KEYWORDS

Exposure to death, exposure to dying, death anxiety, measurement, scale development.

INTRODUCTION

In life, many of us, from one time or another, contemplate our own demise. Thus, the dilemma of life and our subsequent death affects us all as we strive to negotiate life's journey, and this may provide the drive needed to

achieve goals and survive or avoid death altogether. These competing factors (life and death) allied to a variety of beneficial and destructive behaviors/beliefs mediate our perception of what it is to exist whilst giving meaning to the life we inhabit. In order to appraise the emotional impact of this, several psychological theories have



emerged to explain how it materializes. Terror Management Theory (TMT) explains this disparity can be eased in various ways: cultural attachment, leaving a legacy through having children, confidence-building behaviors, and attaining social status and achievements, all with the aim of gaining a figurative immortality through avoiding a focus on death (Greenburg, 2012). Alternatively, Meaning Management Theory (MMT) contends that people do not alleviate the inevitability of death through avoidance, as with TMT, but rather acceptance is a means to assuage the anxiety that comes with inevitable death, resulting in a more ample and meaningful life (Wong, 2008; Wong & Tomer, 2011). What TMT and MMT have in common is both posit that awareness of death will result in connection to one's culture and the seeking out of self-esteem, reducing the impression that one is vulnerable to life threatening variables, but these outcomes will be due to contradictory reasons: minimizing terror versus maximizing meaning (Wong & Tomer, 2011). While there is the concept of a "death drive" proposed by Freud and other psychoanalysts, which is an initiative towards destruction and aggression, including with one's own life, this theory has remained largely rebuked and countered with the opinion that it is in our nature to uphold survival and any self-serving destructiveness exists only in pathology, whether inborn or due to trauma (Kernberg, 2009).

Being exposed to death and the process of dying, whether through cultural influence, the media, or personal experience, contributes to an awareness that there is an end to the experience of life. Research exploring how this exposure influences perceptions of life, death, and the afterlife is ripe for a variety of lenses to examine, including personal, relational, and societal views across the life span of life. The varying nature of one's relationship with death and dying before, during, and after an exposure can influence their approach to and outlook on life and death in considerable ways, depending on how and when an exposure occurred, under what circumstances, and what resources are available at the time (Bolaséll, Oliveira, & Kristensen, 2021; Keyes et al., 2014; Smith-Greenway, Weitzman, Lin, & Huss, 2023). Also, the frequency of exposure to death and dying has been shown to have an effect on individuals, including the potential for desensitization if at high volumes (Peal, Handal, & Gilner, 1981). This desensitization arguably exists as a function to deal with persistent exposure, reducing anxieties surrounding death, and furthering the complexity of how exposure to death and dying affects beliefs and perceptions.

Death Anxiety

Both TMT and MMT acknowledge that awareness

of death relates to anxiety surrounding death. Templer (1970) described death anxiety as the apprehension of one's permanent elimination along with the uneasiness of the dying process. He thoroughly examined the idea of death anxiety in his 1970 research, which led him to develop a measure for death anxiety called the Death Anxiety Scale (DAS), and the extended version later in 2006 (DAS-E). These scales have allowed the concept of death anxiety to be used widely in death-related research with how it appears in different cultures (Jamadar & Kumari, 2019; Sharif-Nia, 2019), religions (Davoudi, 2022; Jong, 2020), age groups (Slaughter & Griffiths, 2007; Jong, 2020), and how it pertains to healthcare professionals (Clare, Elander, & Baraniak, 2022; Langs, 2018).

In contemporary Western society, Kastenbaum and Moreman (2018) postulate that there is a simultaneous acceptance and denial towards death, which creates cognitive dissonance surrounding death's impossibility and inevitability. This could be a contributing factor to death anxiety, which includes a variety of speculated variables: thoughts surrounding what it's like to experience the process of dying, what happens after death, the fear generated from the loss of everything one has known, the destruction of self, the cost of one's accomplishments and creations, losing control over the people in one's care, and the potential isolation during and after death (Gire, 2013). Death anxiety is a widely used term in death-related research which has resulted in a complex, multidimensional understanding of the phenomena (Pollak, 1980), and it is often used to describe a simultaneous phobia, or externally generated fear, and obsession, or internally generated fear (Lester & Templer, 1993).

Research exploring death anxiety in individuals has resulted in various trends and correlations. As highlighted by Templer's 2006 paper utilizing the DAS, death anxiety is often positively correlated with good adjustment, negatively correlated with psychopathology, and religious individuals tend to have lower death anxiety totals than the secular community. DAS scores tend to remain stable through most of life but lower during the elderly phase, families tend to have similar levels of death anxiety, and men tend to have lower DAS scores than women (Templer et al., 2006). Furthermore, periods of heightened stress can affect an individual's ability to adapt to the presence of death anxiety, creating an ebb and flow of its impact in one's life (Iverach, Menzies, & Menzies, 2014).

The impact death anxiety has on individuals can vary greatly as a function of factors such as culture, environment, social norms, and mental health. Studies show a relationship between death anxiety and an increased aggression toward those who threaten one's worldview (McGreggor et al., 1998), increased phobic and compul-

sive behaviors (Strachan et al., 2007), a variety of anxiety disorders (Arndt, Routledge, Cox, & Goldenberg, 2005), obsessive-compulsive disorder (Menzes, Sharpe, & Dar-Nimrod, 2020), and psychopathology (Maxfield, John, & Pyszczynski, 2014). So not only are there various points of influence on what is associated with death anxiety, but how death anxiety manifests in individual perceptions, beliefs, behaviors, and well-being can also differ.

Measuring Exposure to Death and Dying

Awareness of death occurs through exposure to death or dying, whether first-hand experiences or vicariously via the media, storytelling, or other cultural outlets. Understanding how different types of exposure relate to death anxiety can shed light on how these various exposures to death and dying are associated with beliefs surrounding death, including death anxiety. With the idea that it's human nature to diminish anxieties about death, how exposure to death affects those efforts became a question of interest for this study.

To better understand how frequent exposure to death and dying affects various populations, there are limitations in previous research that need to be addressed. Most importantly, there is currently no universally used or accepted way to measure exposure to death and dying. The research that focuses on exposure to death and dying uses a wide variety of methods to determine subjects' level and types of exposure across studies. Because researchers are using such an array of measures, it results in an insufficient exploration of how exposure to death and dying impacts people, as well as the ability to replicate findings.

Previous research addressing exposure to death and dying tends to fall into one of the following, limited groupings: only measuring exposure to death, or exposure to dying, but not both (Linly & Joseph, 2005; Pirelli & Jeglic, 2009); measuring exposure to death and dying in the personal sphere, the professional sphere, or with the individual themselves, but not across all three areas (Dutta & Kaur, 2014; Hashemi, Oroojan, Rassouli, & Ashrafzadeh, 2023; Hoelter & Hoelter, 1981); using generalized participant reports of exposure to death and dying, such as asking participants to share approximate and ill-defined estimates of how much exposure they've experienced (Kane & Hogan, 1986); and relying on assumptions that all members of a certain population have the same levels or types of exposure, such as presuming that all nurses in a hospital have the same amount or types of exposure (Dutta & Karr, 2014; Peters, et al., 2013), or that all types of exposure are created equal (Hotchkiss, 2018).

These variants and deficits in looking at exposure to

death and dying from a broader perspective have led to the need for an exhaustive way to measure the diversity in which individuals can experience exposure that covers both death and dying, as well as exposure in personal relationships, the professional sphere, and with oneself. This will allow researchers to thoroughly investigate how different types of exposure relate to subjects' views on death in a standardized way and allow for replication studies to be more easily conducted and evaluated. Without a universal measure to determine exposure to death and dying, researchers are limiting themselves by not being able to look at the bigger, systematic picture.

The Present Study

This research explored how professional exposure to death and dying relates to death anxiety. Professional exposure is defined as exposure to death and dying in a professional setting, as opposed to in one's personal relationships or with one's self. Explicitly, we investigated how levels of death anxiety differed between professions with high and low levels of exposure. Examined rates of death anxiety among various high-exposure professions. Explored if any variation in death anxiety existed between those exposed to death and those exposed to dying. Measured how death anxiety changes depending on the amount of time high-exposure professionals spend in their careers. How death anxiety manifests between different types of high-exposure professions, as well as differences in death anxiety between professional exposure to death and professional exposure to dying, have yet to be explored. However, previous research indicates that high exposure to both death and dying relates to positive attitudes about death (Anderson et al., 2008; Baykan et al., 2021; Braun et al., 2010) and increased well-being on the job (Guidetti et al., 2022). While time in one's career does not necessarily equate to higher exposure rates, it is speculated that those who have spent a significant amount of time in a high-exposure profession will have had an elevated amount of exposure when compared to someone new in their profession (Baykan et al., 2021). A highly exploratory approach was used in this study to examine these research questions, and a new method was utilized in order to determine the soundness of an original measure of exposure to death and dying.

Due to inadequacies of previous measures, this study developed a new measure to examine exposures to both death and dying in the professional sphere, in personal relationships, and with one's own life in order to produce a standard that focuses on the varied ways individuals experience exposure to death and dying. The new measure called the Exposure to Death and Dying Scale (ED&DS),

used a 5-point Likert scale (scale of 1 Never to 5 Very Often) in response to 24 total prompts asking “how often in your lifetime have you...” followed by various types of exposure to death and dying, such as “been exposed to immediate family members after death,” “participated in body preparation or memorialization in a professional capacity,” and “had a diagnosis of a life-threatening illness.” In order to cover the various types of exposure to death and dying, the ED&DS contained six subscales with four items each: exposure to death in personal relationships, exposure to dying in personal relationships, exposure to death in the professional sphere, exposure to dying in the professional sphere, exposure to one’s own death, and exposure to one’s own dying. Items for this scale were derived from exploring the existing measures that assess exposure to death and dying in these various areas, as well as reading the literature on ways in which people experience exposure to death and dying. The ED&DS produced a total score for the level of exposure in subjects, and also a sub-score for each of the six subscales, which were used to explore specific types of exposure.

Though the ED&DS can be used to examine different types of exposure to death and dying, this study honed in on two subscales in order to answer the exploratory questions of the study: professional exposure to death and professional exposure to dying. By focusing on exposure to death and dying in the professional sphere as it relates to death anxiety, it allowed the new ED&DS to be reviewed in an intentional way, as there are other studies that examine the relationship between professional exposure and death anxiety which were used as a baseline for comparison. Even though these other studies have a variety of methods in determining exposure to death and dying, trends and correlations were considered in relation to the current research.

Those with high levels of exposure to death and dying were of particular interest in this research, such as nurses, end-of-life carers, forensic professionals, mortuary professionals, and funeral professionals, amongst other occupations. Those who are exposed to death and dying over and over again on the job, with less personal or emotional attachment to those who are dead or dying than when in one’s personal life, were posited to have their own unique views on death, dying, and the afterlife as compared to those who aren’t professionally exposed or exposed in alternative ways. The differences unveiled between those with high, and those with low levels of professional exposure to death and dying help reveal how death-related beliefs are constructed, sustained, and change over time.

METHOD

Participants

This study collected data from 468 participants. There were 115 male participants (24.57%), 327 female participants (69.87%), 25 non-binary or 3rd gender participants (5.34%), and 1 participant who preferred not to indicate their gender (0.21%). The ages of participants ranged from 18-81, with a mean age of 43.84 and an SD of 14.73. Country of residence varied, with 123 residing in the UK (26.28%), 321 residing in the US (68.59%), and 24 residing in Canada (5.12%),

To ensure some participants would have high levels of exposure to death and dying in the professional sphere and others would not, recruitment took place on social media, as well as by targeting workplaces and organizations that contain individuals who have a high level of exposure to death and dying, such as nursing groups, care homes, funeral homes, hospice organizations, paramedic communities, etc. In those instances, permission was obtained from the company/organization prior to recruitment, and the approach to recruitment adhered to those locations’ policies, typically via email or being included in a newsletter. Participants were also obtained in person, mainly on a university campus in Manchester, England. Demographic information was obtained from participants, including their age, gender, country of residence, profession, and how much time has been spent in their profession. Participation consisted of self-report measures.

Initially, as an exploratory approach, participants were separated into two groups: low-exposure professions and high-exposure professions. Participants placed in these initial categories were done so by the reasonable assumption of the amount of exposure to either death or dying they have had during said profession. These high versus low categories were then confirmed by looking at both the grand total score of the ED&DS along with the professional exposure to death and professional exposure to dying subscale items. It was determined that participants were, in fact, in the high exposure group when they had an exposure score above the total participant mean for any of the eight professional exposure to death or professional exposure to dying items, as various professions will have different exposures based on their job criteria. Once confirmed to be in the high or low professional exposure groups, the high-exposure professions were categorized into like-categories based on similar self-reported job titles, which resulted in 6 different categories of exposure professions. These categories varied in types of exposure, with some having exposure to death, some having exposure to the process of dying, and some having exposure to both. These six groups included: men-

tal health professionals, the general medical field, nursing, mortuary professionals, end-of-life care, and forensic professionals. Non-exposure professions remained in their own grouping.

Mental health professionals included therapists, counselors, and social workers. This group was speculated to have more of a vicarious exposure to death and dying, as in patients discussing the topic more so than these professionals experiencing exposure to death and dying directly. The general medical field category contained participants in a variety of medical-related positions, such as doctors, surgeons, paramedics, physical therapists, general carers, medical assistants, and those who work in medical offices, amongst others. This group was speculated to have more exposure to the process of dying than death. The nursing category was composed of those who specifically stated "nurse" or "nursing" as their profession. This group was speculated to have exposure to both death and dying. End-of-life care professionals included hospice carers and death doulas and were speculated to have higher exposure to both death and dying, as they not only care for those who are dying, but they also are often with others after death. Mortuary professionals were funeral directors, corners, morticians, embalmers, cremators, cemetery workers, and those in body transportation. This group was speculated to have a higher exposure to death than to dying. The forensic professional category was composed of crime scene investigators and cleaners. This group was speculated to have more exposure to death than to dying.

Participants could withdraw by emailing the principal investigator (email provided on the participant information form), and participants were automatically removed from the study if they indicated they were under 18 years of age or if they failed to complete the questionnaires. Participants outside of the UK, US, and Canada were also excluded, as mental health resources were provided for those three countries because of the potentially distressing nature of inquiring about exposure to death and dying, as well as death anxiety. Per ethical guidelines, 7 participants were excluded for indicating "other" as their country of residence (1.49%).

Measures

As this study explored professional exposure as it relates to death anxiety, the two subscales of the ED&DS that were utilized were professional exposure to death and professional exposure to dying. While participants completed the 24-item ED&DS, for the purposes of this paper, only the eight items in the professional subscales were analyzed, which included prompts to determine the

frequency of professional exposure, such as: dead bodies, body identification, body preparation or memorialization, caring for dying individuals, and threat of an individual's death, among others. These subscales provide a total possible score of professional exposure to death and dying that ranges from 8 to 40, and, when looking at professional exposure to death and professional exposure to dying subscales separately, there is an alternative subscore ranging from 4 to 20 for each. Reliability for this scale is presented in the Analysis section.

The Death Anxiety Scale - Extended (DAS-E) was used to determine participants' level of death anxiety, providing a total score for each participant. While Templer's (2006) original development of the DAS-E utilized an orthogonal factor analysis with varimax rotation that identified ten different factors in the scale, this study used the DAS-E as a unidimensional scale with a single, total death anxiety score ranging from a possible 51 to 255 (Lester, 2007) in order to alleviate the varying factors found between studies (Durlak, 1982). The unidimensional approach is aimed to reduce the criticisms the DAS and DAS-E have faced, mainly the factor validity of these scales. The true/false forced choice scales used in the original DAS-E were also switched to a 5-point scale (scale of 1 Strongly Disagree to 5 Strongly Agree), as other research has shown a Likert scale provides the DAS with more internal consistency (Abdel-Khalek, 1997; Durlak, 1982; McMordie, 1979). Five items in the DAS-E are scored inversely (Items 2, 3, 5, 6, 7, and 15), and all other items are scored in a true direction. Reliability for this total scale was good, $\alpha = .90$.

ETHICS

This research has been approved by the ethical committee of Manchester Metropolitan University, EthOS Reference Number: 40352.

ANALYSIS

Initially, the ED&DS was examined using exploratory factor analysis (EFA). Factor extraction used the unweighted least squares method along with direct oblimin oblique rotation. This approach is recommended when interdependence is assumed to exist among potential underlying factors (Escolá-Gascón, 2020). Initial eigenvalues for each factor were considered in addition to the total quantity of explained variance. Parallel analysis was also conducted to advise the number of factors to extract (Horn, 1965). Items loading $\geq .4$ on a factor were judged to effectively represent said factor, and items loading $\geq .4$ on more than one factor reflected an intolerable degree of cross-loading (Thompson, 2004). Subsequently, data

were looked at in terms of the breakdown of high-exposure versus non-exposure career categories, rates of exposure to death and dying in those career categories, rates of death anxiety amongst the various careers, and how the amount of time in a career relates to death anxiety. Univariate, one-tailed ANOVAs were used with a confidence level of .05.

RESULTS

Exploratory Factor Analysis

The Kaiser-Meyer-Olkin test was initially utilized to indicate if items were satisfactorily correlated, which reported a suitable value of .86. A five-factor extraction accounted for 63.85% of the variance. Parallel analy-

sis suggested the extraction of four factors. However, a four-factor solution was not deemed to be as interpretable as a five-factor solution (i.e., one factor contained cross-loadings on all loading items). Therefore, a five-factor solution was selected as the most interpretable. Factor loadings are presented in Table 1. For the purposes of the current study, specific items loaded on distinct factors representing Professional Exposure to Death and Professional Exposure to Dying. Reliability was good for each subscale (Professional Exposure to Death $\alpha = .89$, $\omega = .90$; Professional Exposure to Dying $\alpha = .92$, $\omega = .92$). Remaining factors represented Death and Dying in Personal Relationships ($\alpha = .88$, $\omega = .88$), Own Death with an emphasis on threat and serious illness ($\alpha = .76$, $\omega = .75$), and Own Dying with an emphasis on near-death ex-

Table 1. Summary of EFA Results for the ED&DS Items. *Note:* Items ranked according to loading.

| Item* | Factor Loadings (E = Eigenvalue, VE = Variance Explained) | | | | |
|-------|---|----------------------------------|----------------------------------|---------------------------------|---------------------------------|
| | Factor 1 (E = 6.71, VE = 27.95%) | Factor 1 (E = 3.89, VE = 16.21%) | Factor 1 (E = 2.41, VE = 10.05%) | Factor 1 (E = 1.27, VE = 5.30%) | Factor 1 (E = 1.27, VE = 4.39%) |
| 9 | .97 | | | | |
| 10 | .85 | | | | |
| 11 | .71 | | | | |
| 12 | .58 | | | | |
| 8 | | .77 | | | |
| 7 | | .77 | | | |
| 3 | | .74 | | | |
| 4 | | .71 | | | |
| 5 | | .68 | | | |
| 6 | | .66 | | | |
| 1 | | .62 | | | |
| 2 | | .57 | | | |
| 17 | | | .77 | | |
| 21 | | | .73 | | |
| 18 | | | .63 | | |
| 24 | | | .51 | | |
| 15 | | | | .78 | |
| 14 | | | | .68 | |
| 13 | | | | .68 | |
| 16 | | | | .57 | |
| 22 | | | | | .52 |
| 20 | | | | | .49 |
| 19 | | | | | .46 |
| 23 | | | | | .17 |



perience ($\alpha = .52$, $\omega = .54$). This last factor displayed low reliability and possessed an item with weak loading (.17). It is beyond the scope of this paper, but future iterations of the scale are required with particular attention to the items representing this final factor.

Breakdown of Professions

Participants had a range of careers, with a total of 283 (60.47%) reported professions not associated with exposure to death or dying. One-hundred eighty-five participants (39.53%) reported professions associated with higher exposure to death or dying. Of the professions associated with higher exposure to death and dying, they were divided into six subgroups: the mental health field, which consisted of 29 participants (15.67%) and a mean amount of time in this career of 12.17 years; the general medical field, which consisted of 47 participants (25.40%) and a mean amount of time in this career of 14.15 years; nursing, which consisted of 42 participants (22.70%) and a mean amount of time in this career of 22.67 years; the mortuary professionals, which consisted of 30 participants (16.22%) and a mean amount of time in this career of 10.63 years; end-of-life care, which consisted of 18 participants (9.73%) and a mean amount of time in this career of 8.0 years; and forensic professionals, which consisted of 19 participants (10.27%) and a mean amount of time in this career of 10.47 years. The mean amount of time participants who were in a non-exposure career was 10.93

years. Table 2 shows the breakdown of profession categories and time in said professions.

Rates of Exposure to Death and Dying

Rates of professional exposure to death and dying via the ED&DS were compared. Table 3 shows non-exposure professions compared to all high-exposure professions, while Table 4 shows the breakdown of the high-exposure profession categories. The mean and standard deviation were calculated based on the four professional exposure to dying items and the four professional exposure to death items in the ED&DS and were compared to each professional category, including non-exposure professionals. Overall, non-exposure professionals reported lower levels of exposure to both death and dying in all areas, except with participating in body identification, in which end-of-life carers reported lower levels of exposure ($M = 1.06$, $SD = 0.24$) than non-exposure professionals ($M = 1.12$, $SD = 0.58$).

Mental health professionals experienced more exposure to death than dying, with the highest exposure coming from exposure to the threat of an individual's death ($M = 3.24$, $SD = 1.41$). The general medical field were exposed to the process of dying more often than death, with the highest exposures coming from caring for dying individuals ($M = 3.28$, $SD = 1.78$) and the threat of an individual's death ($M = 3.13$, $SD = 1.58$). Nurses had high levels of both exposure to dying and exposure to death, with the highest dying exposure being caring for dying individuals ($M = 4.50$, $SD = 0.92$) being tied with the highest exposure to death stemming from being exposed to dead bodies ($M = 4.50$, $SD = 0.97$). Overall, nurses reported the highest numbers of both professional dying and death exposures with notable means over the total across the board. Mortuary professionals had higher levels of exposure to death than exposure to dying, with the most significant exposure coming from being exposed to dead bodies ($M = 4.83$, $SD = 0.53$). However, participating in body preparation or memorialization was a close second ($M = 4.60$, $SD = 0.81$). The category for end-of-life care had higher levels of exposure than the total in both dying and death. Caring for dying individuals was the highest report of exposure to dying for this group ($M = 3.67$, $SD = 1.24$), and being exposed to dead bodies was the highest report of exposure to death ($M = 3.00$, $SD = 1.46$). Forensic professionals reported a higher level of exposure to death than exposure to dying, with exposure to dead bodies and being exposed to dead individuals at the scene of death being tied for the highest type of exposure reported ($M = 4.95$, $SD = 0.23$).

When looking at the different types of exposure to death and dying, nurses reported the highest levels of

Table 2. Profession Categories and Time in Professions

| Profession Category | N | % of participants | Mean Time in Profession (years) | SD | Median |
|---------------------------|-----|-------------------|---------------------------------|-------|--------|
| Non-exposure Professions | 283 | 60 | 10.93 | 11.04 | 7.00 |
| High-Exposure Professions | 185 | 40 | 14.17 | 12.17 | 10.00 |
| Mental Health | 29 | 16 | 12.17 | 10.74 | 10.00 |
| General Medical Field | 47 | 25 | 14.15 | 10.95 | 11.00 |
| Nursing | 42 | 23 | 22.67 | 14.86 | 21.50 |
| Mortuary Professionals | 30 | 16 | 10.63 | 8.97 | 8.00 |
| End-of-Life Care | 18 | 10 | 8.00 | 8.96 | 5.50 |
| Forensic Professionals | 19 | 10 | 10.47 | 8.37 | 9.00 |

Table 3. Levels of Professional Exposure to Dying and Death Amongst High and Non-Exposure professions

| Profession Category | | Exposure to Dying | | | | Exposure to Death | | | |
|--------------------------|------|-------------------|--------------------------|------------------|-----------------|-------------------|----------------------------|---------------------|-------------------------------------|
| | | Cared for dying | Dying at moment of death | Process of death | Threat of death | Dead bodies | Dead at the scene of death | Body identification | Body preparation or memorialization |
| Non-exposure Profession | Mean | 1.41 | 1.27 | 1.29 | 1.48 | 1.49 | 1.32 | 1.12 | 1.26 |
| | SD | 1.02 | 0.83 | 0.88 | 1.06 | 1.10 | 0.93 | 0.58 | 0.86 |
| High-exposure Profession | Mean | 3.14 | 2.78 | 2.95 | 3.36 | 3.78 | 3.29 | 2.16 | 2.76 |
| | SD | 1.71 | 1.62 | 1.74 | 3.78 | 1.60 | 1.76 | 1.64 | 1.70 |
| Total | Mean | 2.09 | 1.87 | 1.94 | 2.23 | 2.40 | 2.10 | 1.53 | 1.85 |
| | SD | 1.58 | 1.41 | 1.52 | 1.57 | 1.73 | 1.64 | 1.23 | 1.46 |

professional exposure to dying across the board with caring for dying individuals ($M = 4.50, SD = 0.92$), being exposed to dying individuals at the moment of death ($M = 4.10, SD = 1.21$), participating in the process of an individual's death ($M = 4.07, SD = 1.52$), and being exposed to the threat of an individual's death ($M = 4.38, SD = 1.06$). Amongst professional exposure to death, forensic professionals reported the highest levels of exposure to dead

bodies ($M = 4.95, SD = 0.23$), exposure to dead individuals at the scene of death ($M = 4.95, SD = 0.23$), and participating in body identification ($M = 3.79, SD = 1.48$). Participation in body preparation or memorialization was the only professional death exposure category, whereas another group, mortuary professionals, reported the highest exposure ($M = 4.60, SD = 0.81$).

Rates of Death Anxiety

Table 4. Levels of Professional Exposure to Dying and Death Amongst High-Exposure Profession Categories

| Profession Category | | Exposure to Dying | | | | Exposure to Death | | | |
|-----------------------|------|-------------------|--------------------------|------------------|-----------------|-------------------|----------------------------|---------------------|-------------------------------------|
| | | Cared for dying | Dying at moment of death | Process of death | Threat of death | Dead bodies | Dead at the scene of death | Body identification | Body preparation or memorialization |
| Mental Health | Mean | 2.48 | 2.00 | 2.21 | 3.24 | 2.24 | 2.03 | 1.17 | 1.66 |
| | SD | 1.62 | 1.63 | 1.50 | 1.41 | 1.73 | 1.61 | 0.60 | 1.08 |
| General Medical Field | Mean | 3.28 | 2.81 | 2.77 | 3.13 | 3.32 | 2.89 | 1.72 | 2.19 |
| | SD | 1.78 | 1.58 | 1.68 | 1.58 | 1.71 | 1.75 | 1.36 | 1.48 |
| Nursing | Mean | 4.50 | 4.10 | 4.07 | 4.38 | 4.50 | 3.83 | 2.00 | 3.69 |
| | SD | 0.92 | 1.21 | 1.52 | 1.06 | 0.97 | 1.51 | 1.45 | 1.68 |
| Mortuary Profession | Mean | 2.30 | 2.27 | 2.57 | 3.30 | 4.83 | 3.90 | 3.63 | 4.60 |
| | SD | 1.58 | 1.48 | 1.74 | 1.64 | 0.53 | 1.63 | 1.83 | 0.81 |
| End-of-life Care | Mean | 3.67 | 2.83 | 3.17 | 2.61 | 3.00 | 2.50 | 1.06 | 2.06 |
| | SD | 1.24 | 1.43 | 1.47 | 1.79 | 1.46 | 1.51 | 0.24 | 1.26 |
| Forensics | Mean | 1.79 | 2.00 | 2.63 | 2.68 | 4.95 | 4.95 | 3.79 | 1.68 |
| | SD | 1.38 | 1.20 | 1.98 | 1.06 | 0.23 | 0.23 | 1.48 | 0.89 |



Table 5. Descriptive Differences Between Profession Categories and Death Anxiety

| Profession Category | Mean | |
|---------------------------|--------|-------|
| | DAS-E | SD |
| Non-exposure Professions | 116.04 | 25.88 |
| High-Exposure Professions | 105.49 | 22.52 |
| Mental Health | 111.52 | 26.48 |
| General Medical Field | 106.66 | 22.26 |
| Nursing | 104.79 | 20.09 |
| Mortuary Professionals | 104.60 | 24.94 |
| End-of-Life Care | 93.89 | 14.99 |
| Forensic Professionals | 107.36 | 22.16 |

When incorporating the DAS-E, varying levels of death anxiety emerged among the different profession categories when a one-way ANOVA was calculated ($F(10, 467) = 3.10, p < .001$). Tables 5 and Figure 1 show these results. The exposure professionals had a lower level of death anxiety overall ($M = 105.49, SD = 22.52$) when compared to the non-exposure professionals ($M = 116.04, SD = 25.88$). When looking at the breakdown of the different categories of exposure professionals, the mental health group had the highest mean death anxiety ($M = 111.52, SD = 26.48$), and end-of-life carers had the lowest mean death anxiety ($M = 93.89, SD = 14.99$). The remaining categories (mental health, general medical field, nursing, mortuary professions, and forensic professionals) all had

a similar mean death anxiety level reported.

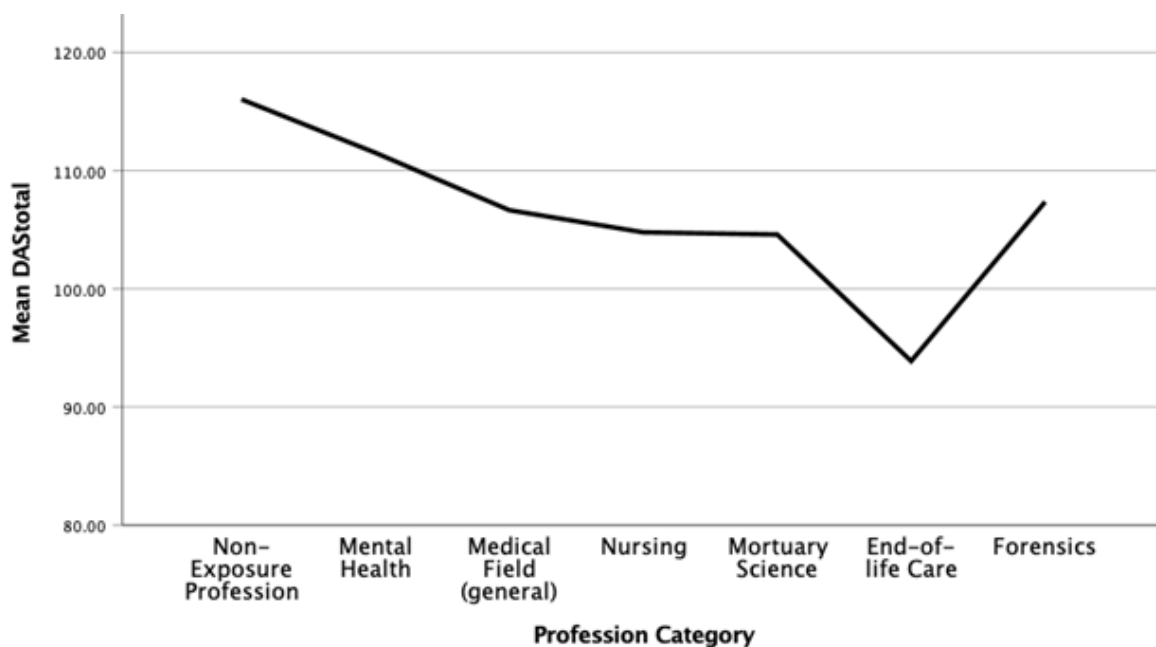
Exposure to Death and Dying with Death Anxiety

A bi-variate correlation was calculated with both the high-exposure and the non-exposure groups in order to compare professional exposure to death and professional exposure to dying with death anxiety, as well as differentiate the two groups. The non-exposure professions group showed a significant correlation in regards to death anxiety and professional exposure to dying ($r = -1.36, n = 283, p = .011$) and a non-significant result when correlating death anxiety and professional exposure to death ($r = -.041, n = 283, p = .247$).

With the exposure profession categories isolated, a bi-variate correlation was calculated between the professional exposure subscales of the ED&DS (professional exposure to dying and professional exposure to death) along with the DAS-E, which showed a negative correlation with exposure to death ($r = -.088, n = 185, p = .117$) and exposure to dying ($r = -.068, n = 185, p = .181$) and death anxiety. This exhibited that those in professions with high exposure correlate with lower levels of death anxiety. However, both of these negative correlations were not statistically significant.

Although the high-exposure profession group did not have any statistically significant correlations with professional exposures and death anxiety, it is worth noting that when compared to the significant correlation of non-exposure professionals (professional exposure to dying and death anxiety), it indicated that, while the non-exposure group had less professional exposure to

Figure 1. Means Plots for Death Anxiety and Profession Category



dying, there was a bigger impact to death anxiety in the non-exposure group than the high-exposure group on the occasions that it did happen.

Death Anxiety and Time in Profession

The final research question asked how death anxiety may change over time spent on the job in a high-exposure profession. To explore this, the high-exposure professions ($N = 185$) were separated into five groups of 37 participants each, ranging from least to most time in their professions regardless of their profession category. These five groups were compared with rates of death anxiety. Table 6 shows the mean death anxiety and standard deviation for each of the five groups of time in profession. Group 1, or the group with the least time in their high-exposure profession, had the highest death anxiety reported ($M = 111.78, SD = 25.88$), and then the subsequent groups reduced in death anxiety as time on the job increased [Group 2 ($M = 106.27, SD = 23.44$); Group 3 ($M = 104.14, SD = 20.67$); Group 4 ($M = 102.14, SD = 23.15$)] up until the final group 5, which had a slight increase in death anxiety as compared to group 4 ($M = 103.14, SD = 22.25$).

While there was a trend of decreased death anxiety as the groups increased their time in their high-exposure professions, the slight increase of death anxiety in the group with the highest amount of time in their profession (group 5) indicated that this is not a clear relationship. It is unclear how time in a high-exposure profession correlates with death anxiety overall, as there may be other factors at play creating this somewhat linear, negative relationship.

DISCUSSION

The results of this study showed that the higher professional exposure to death and dying an individual has, the lower that individual's reported death anxiety was, regardless of the type of exposure experienced. This negative relationship between exposure and anxiety is often

seen with various psychological factors: more exposure equates to desensitization, diminished fear, and reduced mental health issues, particularly when treating anxiety and phobias (Abuso et al., 2023; Bilek, Meyer, Tomlinson, & Chen, 2023; Frank et al., 2023; Knowles & Tomlin, 2022; Menzes & Veale, 2022; Morgan-Mullane, 2023). A study by Peal, Handal, and Gilner (1981) specifically researched the effectiveness of group systematic desensitization to reduce death anxiety. While the results of that study were mixed, the concept of using exposure therapy to reduce fears is widely used, and there is room to explore the reasons why professional exposure to death and dying negatively correlated with death anxiety in this study.

The inverse can also be found. Research has shown that not working in a profession that requires exposure to death and dying positively correlates to several types of fear of death, particularly when the exposure has been limited and only with individuals emotionally close to the subject (Hoelter & Hoelter, 1981). This could be why mental health professionals showed the highest level of death anxiety amongst the high-exposure professionals, as their exposure tended to be more vicarious in nature as opposed to being first-hand. This further supports the idea that professional exposure, even at high levels, promotes an environment where individuals develop coping strategies for death anxiety and fears surrounding death, although the contributing influences are currently unclear. In a professional setting, the lack of personal emotion connected to the individual dying could be a factor impacting the relationship between exposure and reduced anxieties surrounding death, as well as the repeated exposure having a desensitizing effect. Additional research exploring the psychological differences between professional exposure and exposure to death and dying in one's personal relationships or in one's self could be an effective way to further shed light on the nuances with how different types of exposure affects individuals in various ways.

Conclusions

Of all the exposure professions in this study, end-of-life carers had the lowest reported mean of death anxiety, even lower than nurses, who reported the highest levels of exposure to both death and dying. One explanation for this could be that end-of-life carers spend time on an individual basis with others in the process of dying and after death, witnessing the entire journey and bonding with their patients, whereas nurses, for example, are likely to be caring for multiple people at a time, for shorter durations (Nacak & Erden, 2022). End-of-life care often focuses on a holistic approach, treating the patient as a human

Table 6. Descriptive Differences Between Time in Profession and Death Anxiety

| Time in Profession (Low to High) | Mean DAS-E | SD |
|----------------------------------|------------|-------|
| Group 1 | 111.78 | 25.88 |
| Group 2 | 106.27 | 23.44 |
| Group 3 | 104.14 | 20.67 |
| Group 4 | 102.14 | 23.15 |
| Group 5 | 103.14 | 22.25 |



independent of their illness or disease, which allows time for the carer to uphold the dignity of the individual and witness the ebb and flow of the other's experience of dying, along with the potential relief after death (Pereira de Araújo, 2023), which could be contributing to less anxiety surrounding death and dying. Nurses often function by preserving life rather than preparing patients for death, and while death advocacy does appear in the nursing profession, it is not the sole function of their role as it is with end-of-life carers (Oelke, Besner, & Carter, 2013). End-of-life carers are required to fully immerse themselves in the process of death and dying, diminishing pain, and offering treatment when necessary, but ultimately accepting that death is inevitable for the patient (Holdsworth, 2015). This variance between end-of-life carers and nurses could also contribute to the carers' lower death anxiety because they are mentally and emotionally engaged with death and dying with an undertone of acceptance.

In a study by Anderson, Williams, Bost, and Barnard (2008), it was found that nursing students who were intentionally trained in end-of-life care and exposed frequently to dying patients had more positive outlooks regarding death than their student counterparts who did not have this specific type of training and exposure. The nursing students who had end-of-life training reported a more positive attitude towards end-of-life care and more knowledge on how to properly care for the dying, which can manifest as more confidence and a better quality experience for their dying patients. In general, higher exposure to death and training in caring for dying patients correlates to an improved outlook on death, which could be a contributing factor in why end-of-life carers, while not reporting the highest levels of exposure to death and dying, do report the lowest levels of death anxiety, as their profession requires such training and exposure. Similarly, Braun, Gordon, and Uziely (2010) found that nurses who experienced exposure to death and dying had positive attitudes toward end-of-life care, and reported lower levels of death avoidance and fear of death. This is also mirrored in a study by Mallett, Jurs, Price, and Slenker (1991), where hospice nurses reported lower levels of death anxiety than critical care nurses, further demonstrating end-of-life training specifically being related to lower levels of anxiety surrounding death. This provides a lens as to why this study showed those professions who would require training on end-of-life care were associated with lower death anxiety levels.

The positive effects of increased occupational exposure to death in professions where exposure to death and dying is part of the job can also be seen in other studies. When looking at funeral and mortuary operators, those who had direct exposure to dead individuals through

body manipulation or even merely viewing dead bodies reported higher occupational well-being than their counterparts who were not exposed in this manner or had minimal direct exposure (Guidetti, Grandi, Converso, & Colombo, 2022). Similar results occur with professionals who are exposed to the process of dying. A 2020 study by Baykan, Arslanturk, and Durukan gathered information from healthcare employees, particularly those in emergency medicine and intensive care units, and discovered that more experience on the job correlated with lessened fear of death. While experience did not necessarily correspond to exposure to death and dying, it is likely that the more time spent working in emergency medicine and intensive care would bring about increased exposure to death and dying.

When taking Terror Management Theory (TMT) and Meaning Management Theory (MMT) into consideration alongside these conclusions, one does not stand out over the other as a motivating factor for those in high-exposure professions. While someone who enters one of these professions may be compelled to find meaning through their work, helping others, and having a positive impact in their communities, it is unclear as to whether this meaning is fueled by the desire to minimize the terror associated with impending death as an act of avoidance (TMT) or maximize the meaning of their life through acceptance (MMT). Neither the DAS nor the ED&DS address participants' views on whether or not their life has meaning, nor perspectives on avoidance or acceptance of death, so distinguishing if TMT or MMT is more applicable to this population is still unclear. Ways to further explore these theories are mentioned below in the future studies section.

The relationship between exposure to death and dying with psychological factors such as death anxiety, perceptions and beliefs about death, and overall well-being is a complex one. Samson and Shvartzman (2017) found that individuals in professions with high exposure to death and dying reported increased compassion satisfaction, low levels of burnout, and minimal secondary traumatic stress. However, conducting a univariate MANOVA showed that the interaction effect with exposure to death and dying and death anxiety resulted in an increased reporting of secondary traumatic stress. This study highlights how the interaction of various factors can influence the ways in which exposure to death and dying impact those who have high exposure rates in their profession, as quality of life seems to improve overall as exposure increases unless death anxiety is present, in which secondary trauma is then reported.

This complexity is highlighted when considering the cultural, historical, and religious contexts in which death

attitudes tend to occur. Views on death and dying do not exist merely on an individual basis. Research into how exposure to death and dying affects individuals could benefit from a social science perspective. For example, a study conducted in India found that female nurses who were exposed to death and dying reported higher levels of fear of death compared to their nursing counterparts who were not exposed on a frequent basis (Dutta & Kaur, 2014), the inverse of the present study. While the Dutta and Kaur study had a narrow population due to a niche nursing group, and it assumes a level of exposure to death and dying based on the type of nurse, it does open the door to question how cultural foundations impact the relationship between death anxiety and exposure, as well as how this relationship can vary globally and historically.

Future Research

One question that remains from this current study is whether it is professional exposure to death and dying that is impacting death anxiety or if individuals who naturally have a lower level of death anxiety are the ones seeking out professions with higher exposure rates. A longitudinal study on death anxiety over time, including death anxiety scores prior to entering an exposure profession, could help shed light on this lingering question. When looking at time in their profession in the present study, there was no clear linear relationship between time spent on the job and reduced death anxiety rates, indicating that more information is needed. A longitudinal study including professional exposure rates over time could help shed light on whether the connection between exposure and death anxiety is influenced by other variables, such as experience on the job, types of training, an innate acceptance of death, or if the relationship is purely more linear in nature, as in it simply being a negative correlation of professional exposure to death and dying with death anxiety.

It could be helpful to repeat this study to include the Death Anxiety Beliefs and Behaviors Scale (DABBS), which takes clinical relevance into consideration, whereas the DAS-E does not (Menzes et al., 2020). Because there is the potential for exposure to death and dying, along with death anxiety, to correlate with Post Traumatic Stress Disorder, secondary trauma, Prolonged Grief Disorder, depression, anxiety-related disorders, and addictions (Bolaséll et al. 2022; Martz, 2004; Menzies et al., 2019; Shvartzman, 2017), it could be helpful to examine how a more nuanced, clinically minded measure of death anxiety interacts with those who have repeated professional exposure, as they are not immune to these types of impacts on their mental health. There is a need for

mental healthcare for those who experience high levels of professional exposure to death and dying, regardless of whether this population tends to show an increased ability to deal with this type of repeated exposure. A more thorough understanding of how professional exposure to death and dying impacts the people working in those professions can expose the ways in which they require support both on and off the job, particularly due to death anxiety being shown to correspond with a variety of mental health conditions (Menzes & Veale, 2022). From a clinical perspective, the most effective way to treat death anxieties is through Cognitive Behavior Therapies (CBT) that include an element of exposure therapy, as these approaches normalize death in a way that reduces anxiety and increases healthy acceptance (Menzes & Veale, 2022). This line of research can open the door to what level of assistance can best support high-exposure professionals, including whether CBT and/or exposure therapy can be used as a preventative clinical treatment in order to reduce any negative impacts that do present themselves throughout their careers.

From a spiritual perspective, the concept of a *Dark Night of the Soul*, in which life's hardships and distressing situations create an environment for growth, gratitude, meaning, and awakening, appears in various practices and denominations (May, 2005). Those who are professionally exposed to high levels of death and dying could identify with having a *Dark Night*, as these exposures are shown to correlate with Post Traumatic Stress Disorder, secondary trauma, Prolonged Grief Disorder, depression, anxiety-related disorders, and addictions, as listed above (Bolaséll et al., 2022; Martz, 2004; Menzies et al., 2019; Shvartzman, 2017), which involve levels of emotional distress associated with the *Dark Night* (Durà-Vilà et al., 2010). Mary Elizabeth O'Brien (2021) describes nurses as wounded healers, as the gift of healing others has derived specifically from the healer's own pain and hardships. As opposed to hindering the care of others, the wounded healer utilizes their own distress in order to remain strong, empathetic, and understanding in the face of others' suffering. Additionally, Kim & Yong (2013) compared spirituality and death anxiety among nurses working in a cancer hospital and found that increased reporting of spirituality correlated with lower levels of death anxiety, as well as spiritual education also being negatively correlated with death anxiety. Future studies that explore how high-exposure professionals relate to spirituality and religiosity, not only for themselves but also when meeting the spiritual needs of those who are dying and loved ones of the deceased, can scrutinize whether or not these professionals are experiencing a *Dark Night* and if so, whether that experience fuels their ability to do their

job. In addition, paranormal belief has been correlated with reduced well-being (Dagnall, et al., 2022). The potential for high-exposure professions to experience paranormal experiences are noteworthy (Barbato et al., 1999; Fenwick, Lovelace, & Brayne, 2007; O'Connor, 2003; Osis & Haraldsson, 1997), and anomalous experiences being attributed to the paranormal in a systematic way (Lange, et al., 2019), this population's beliefs surrounding the paranormal and spirituality could also correlate with their overall well-being, indicating a capacity for a *Dark Night*.

Another measure that can be used alongside the ED&DS would be the Death Attitudes Profile - Revisited (DAP-R), which looks at five attitudes toward death: approach acceptance, fear of death, death avoidance, escape acceptance, and neutral acceptance (Wong, Reker, & Gesser, 1994). Approach acceptance is the belief that death leads to a happy afterlife. Fear of death is indicated by a specific, conscious fear towards death and dying. Death avoidance is displayed by a conscious bypassing of thoughts and conversations about death and dying. Escape acceptance is the belief that death is an escape from the pain of life, and neutral acceptance is the belief that death is a natural part of life and is neither positive nor negative. Being able to see differences between positive, negative, and neutral attitudes towards death, as opposed to just death anxiety, and how they correlate to exposure to death and dying could uncover more nuance about the relationship between views on and exposure to death and dying. A lack of death anxiety does not necessarily indicate the presence of acceptance of death (approach acceptance, escape acceptance, or neutral acceptance, for example), so exploring the presence and absence of these death attitudes could produce some refinement on how exposure to death and dying associates with individuals' outlooks on death, as well as speak to the validity of Terror Management Theory (an instinct to alleviate death anxiety through avoidance) versus Meaning Management Theory (an instinct to alleviate death anxiety through acceptance). In addition, utilizing the General Hopelessness Scale (GHS; Drinkwater et. al., 2023) alongside the DAP-R could illustrate additional intricacies between perceived meaning and hopelessness of those exposed to death and dying, and indicate whether TMT or MMT better exemplifies this population.

Limitations

When assessing the effectiveness of the ED&DS, there are potential adjustments that can be made in subsequent studies with the phrasing of the prompts. Emergent items could be developed further, for example, in the professional exposure to dying category, "How often in

your lifetime have you been exposed to caring for dying individuals in a professional capacity?" is very similar to being exposed to "participating in the process of an individual's death in a professional capacity?" The former could be changed to being exposed to "advocating for a dying individual in a professional capacity" in order to further differentiate the two items. Also, in the exposure to one's own dying subscale, "How often in your lifetime have you been in a serious accident" could be shifted to the phrasing "life-threatening accident" in order to accentuate the idea of the item highlighting a threat to life as opposed to the ambiguousness that could be interpreted from the descriptor "serious." These tweaks will further emphasize that the ED&DS is specifically measuring exposure to death and dying and create differentiation between each item. In addition, the Own Dying factor, which possessed an item with weak loading (.17), needs to be addressed in future versions of the ED&DS.

IMPLICATIONS AND APPLICATIONS

Future research can explore the relationship between exposure to death and dying, death anxiety, and other perspectives surrounding death. As noted above, the complexity of these relationships and their social influence can benefit from thorough and thoughtful analysis. Even if one is not in a profession that exposes them to death and dying, it is unavoidable that some type of exposure will happen in their lifetime. In recent years, the Covid-19 pandemic has highlighted the inevitability of being exposed to the finality of life in various and sometimes unpredictable ways, and research indicates that a better understanding of how different types of exposure to death and dying impacts people on cultural, relational, and personal levels can result in a better quality of life for the individual due to a better understanding of the varied needs of differing people (Anderson, et. al., 2008; Depaola, et. al., 2003; Dutta & Kaur, 2014; Neimeyer, 1998; Samson & Shvartzman, 2017).

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Author Contributions

Kelly A. Curtis: study conception and design, data collection, analysis, writing; Neil Dagnall: study conception and design, analysis, editing; Kenneth Drinkwater: editing; Andrew Denovan: analysis and editing.

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