

Influence of health workers' fear of death on attitudes to end-of-life care: A multicentre survey-based hospital study with Bayesian analysis

Mainak Majumdar¹, Benjamin Paul², Julie Dubowitz³

1. Director, Intensive Care Services, Mercy Health, Werribee, VIC, Australia
2. Registrar, Werribee Mercy Hospital, Mercy Health, Werribee, VIC, Australia
3. Consultant Anaesthetist and Pain Specialist, Peter MacCallum Cancer Centre, Parkville, VIC, Australia

<p>To Cite: Majumdar M, Paul B, Dubowitz J. Influence of health workers' fear of death on attitudes to end-of-life care: A multicentre survey-based hospital study with Bayesian analysis. <i>JHD</i>. 2023;8(2):586–597. https://doi.org/10.21853/JHD.2023.209</p> <p>Corresponding Author: Mainak Majumdar Intensive Care Services Mercy Health Werribee, VIC Australia mainakmajumdar@gmail.com</p> <p>Copyright: ©2023 The Authors. Published by Archetype Health Pty Ltd. This is an open access article under the CC BY-NC-ND 4.0 license.</p>	<p>SUMMARY</p> <p>We conducted a study to assess whether personal fear of death may influence health professionals' attitudes to the care of dying patients. We found that higher levels of anxiety about the death and dying of others were associated with discomfort starting discussions about end-of-life care, and that the belief that provision of all treatment options should be prioritised over patient discomfort. Whether self-reported attitudes to death and dying of patients affect clinical outcomes needs study. Trials are needed to determine what specific training could reduce fear of death in healthcare professionals and change attitudes to the death and dying of patients.</p> <p>Key Words</p> <p>Fear of death; End of life; Collett-Lester Fear of Death Scale; Attitude to death; Attitude of health personnel</p>
--	--

ABSTRACT

Background

Personal fear of death may influence healthcare workers' attitudes to end-of-life care. However, evidence of the effects of health professionals' fear of death on their clinical practice is very limited.

Aims

We measured fear of death and dying among doctors and nurses at three hospitals in Victoria, Australia, and examined its effects on self-reported degree of comfort initiating discussions about end-of-life care and balancing priorities of active treatment versus palliative care.

Method

We conducted an online survey among medical and nursing staff, including a 6-item questionnaire and the 28-item revised Collett-Lester Fear of Death Scale version 3.0. We correlated responses to both instruments. We performed Bayesian analysis to explore whether anxiety associated with the death and dying of other people correlated with discomfort initiating end-of-life care discussions, and

with the belief that all available treatment options should be offered despite associated discomfort or pain.

Conclusion

High scores on the revised Collett-Lester Fear of Death Scale version 3.0 subscales for death and dying of others were associated with both discomfort starting discussions of end-of-life care, and prioritisation of active treatment over comfort care. Health professionals' personal fear of death influences their attitudes to clinical care of the dying. More research is needed to quantify how fear of death affects clinical practice, and whether specific training to address such fears and anxieties is effective in changing health professionals' behaviour.

BACKGROUND

More people go to hospital to die than in previous generations in Australia.¹ A 2013 international study found that, in half of the countries for which place-of-death data were available, more than 50 per cent of deaths occurred in hospital.^{2,3} In Australia, where chronic diseases are the leading causes of death, approximately 50 per cent of deaths occur in a hospital or medical service (not including residential aged care facilities).⁴ The type and quality of care of dying patients in hospital, including information provided to patients and families, and treatments offered, may be influenced by health professionals' attitudes towards death.

Attitudes towards death in healthcare settings has been a focus of psychological research since Hermann Feifel's pioneering work during the 1950s and 1960s exploring patients and physicians' attitudes to death and dying.^{5,6} Feifel reported that physicians, as a group, expressed greater fear of death and the dying process and greater rejection of personal death, and manifested significantly more negative death imagery, than patients and physically well populations.⁶ The relationship between health professionals' personal fear of death and their clinical practice is still poorly understood. The extent of fear of death among Australian healthcare workers and its impact on communication with patients about end-of-life issues has rarely been studied.

The purpose of this multicentre study was to explore the relationship between doctors' and nurses' own anxiety about death and their attitudes to care of the dying patient, including initiating discussion about end-of-life care, discussing prolongation of life, and withdrawal of life-prolonging treatment. We hypothesised that a higher degree of fear of death would be associated with greater discomfort talking to patients about their death, and with a preference for continuing active treatment.

METHOD

Study design and participants

We conducted a survey of medical and nursing staff at three teaching hospitals in Victoria: Peter MacCallum Cancer Centre (specialist quaternary cancer hospital), Peninsula Health (metropolitan teaching hospital), and Ballarat Health Services (regional teaching hospital). After obtaining ethical approval from the Human Research Ethics Committee at each centre, we emailed a link to an online survey to all staff with a known email address employed as a doctor or nurse, as identified by Human Resources departments (n=931). Participation was voluntary and all responses were anonymous.

The survey included four components: demographics (age, sex, profession, speciality, department, years of clinical experience), a 6-item questionnaire on attitudes and beliefs on the care of dying

patients designed for this study (Table 1), and the 28-item revised Collett-Lester Fear of Death Scale version 3.0 (rCLFODS V3.0; Table 2).⁷

Table 1: Questionnaire on attitudes to the care of care of dying patients

Question	Response options
1. I can identify patients in my care in whom further aggressive treatment is unlikely to be of benefit.	Agree /Disagree
2. I am comfortable starting discussions on end-of-life issues with my dying patients and their families.	Agree /Disagree
3. Every patient in my care must receive every treatment option available even if it involves some discomfort or pain.	Agree/ Disagree
4. I understand comfort and dignity may need to be prioritized over active treatment in my sickest patients.	Agree /Disagree
5. I consider the death of a patient professional failure on my part.	Agree/ Disagree
6. I understand death may be an acceptable outcome for a patient under my care.	Agree /Disagree

Bold option indicates “expected” response.

Table 2: Revised Collett-Lester Fear of Death Scale (version 3.0) questions

<i>How disturbed or made anxious are you by the following aspects of death and dying?</i>
<p>Subscale 1. Your own death</p> <p>The total isolation of death The shortness of life Missing out on so much after you die Dying young How it will feel to be dead Never thinking or experiencing anything again The disintegration of your body after you die</p>
<p>Subscale 2. Your own dying</p> <p>The physical degeneration involved The pain involved in dying The intellectual degeneration of old age That your abilities will be limited as you lay dying The uncertainty as to how bravely you will face the process of dying Your lack of control over the process of dying The possibility of dying in a hospital away from friends and family</p>
<p>Subscale 3. Death of others</p> <p>Losing someone close to you Having to see the person’s dead body Never being able to communicate with the person again Regret over not being nicer to the person when he or she was alive Growing old alone without the person Feeling guilty that you are relieved that the person is dead Feeling lonely without the person</p>

Subscale 4. Dying of others

Having to be with someone who is dying
 Having the person want to talk about death with you
 Watching the person suffer from pain
 Seeing the physical degeneration of the person's body
 Not knowing what to do about your grief at losing the person when you are with him or her
 Watch the deterioration of the person's mental abilities
 Being reminded that you are going to go through the experience also one day

Response options for all questions are numbered from 5 to 1, where 5 means "very", 2-4 means "somewhat" and 1 means "not". Adapted from: Lester D and Abdel-Khalek A (2003)⁷

The 6-item questionnaire was designed as a series of statements with dichotomous response options (agree or disagree), for which one response represented the current prevailing orthodoxy ("expected" responses).

The Collett-Lester Fear of Death Scale¹⁴⁻¹⁶ has four subscales: (1) Death of self, (2) Dying of self, (3) Death of others, and (4) Dying of others. Version 3.0⁷ was validated in a population of American undergraduates, and has since been translated into various languages and validated for use in diverse populations outside North America.⁸⁻¹⁵

The rCLFODS V3.0 asks subjects the question, "How disturbed or made anxious are you by the following aspects of death and dying?", followed by seven questions in each of the four subscales. Subjects are instructed to read each item and quickly choose the response that best represents their immediate impression of how they feel. Response options for each question are on a Likert scale of 1 to 5, where 1 indicates "not", 2-4 indicate "somewhat", and 5 indicates "very". The score for each question corresponds to the response number (1-5). Scores are added to obtain a score for each subscale and a total score. Total score ranges from 28 (least) to 140 (greatest) fear of death.⁷

We hypothesised that those with a high score on the rCLFODS V3.0 subscales for death of others and dying of others would be more likely to give "unexpected" responses to the two key items: "disagree" for item 2 (*"I am comfortable starting discussions on end-of-life issues with my dying patients and their families."*) and "agree" for item 3 (*"Every patient in my care must receive every treatment option available even if it involves some discomfort or pain."*).

Scoring and analysis

We calculated the mean and median scores for each individual rCLFODS V3.0 subscale. We defined "high" scores for each subscale as those greater than the median for that subscale. We plotted "high" subscale scores against "expected" and "unexpected" responses for questionnaire items 2 and 3 using box and whisker plots and receiver operating characteristic (ROC) curves.

We performed Bayesian analysis to explore the relationship of unexpected responses to self-reported fear of death. We tested whether high scores for fear of death of others (rCLFODS V3.0 subscale 3) and dying of others (rCLFODS V3.0 subscale 4) correlated with discomfort initiating end-of-life care discussions ("disagree" response to questionnaire item 2) and whether these correlated with belief that patients should receive every treatment option despite some discomfort or pain ("agree" response to questionnaire item 3). We applied Bayes' theorem as follows:

$$\Pr(A|B) = \Pr(A \cap B) / \Pr(B)$$

$$\Pr(A|B') = \Pr(A \cap B') / \Pr(B')$$

where Pr is probability and A, B and B' are events defined as follows:

Analysis 1:

A = response “disagree” to questionnaire item 2 (“I am comfortable starting discussions on end-of-life issues with my dying patients and their families.”)

B = high score (> median) for subscale 3 (Death of others), high score (>median) for subscale 4 (Dying of others), or high scores on both

B' = low score (≤ median) for subscale 3 (Death of others), low score (≤ median) for subscale 4 (Dying of others), or low scores on both

Analysis 2:

A = response “agree” to questionnaire item 3 (“Every patient in my care must receive every treatment option available even if it involves some discomfort or pain.”)

B = high score (>median) for subscale 3 (Death of others), high score (>median) for subscale 4 (Dying of others), or high scores on both

B' = low score (≤ median) for subscale 3 (Death of others), low score (≤ median) for subscale 4 (Dying of others), or low scores on both

RESULTS

We received survey responses from 402 of the 931 staff across the three health services invited to participate (43 per cent). After eliminating those who declined consent (n=8) and incomplete data sets, we included responses from 367 participants in the initial analysis.

Participant characteristics

Participant characteristics are as follows: 74.9 per cent of respondents were female and 62.7 per cent were nurses (Table 3). Females comprised 88.6 per cent of the nursing subgroup and 40.5 per cent of the medical subgroup. These proportions are representative of the Australian medical workforce.^{16,17} The age distribution of respondents also reflects the Australian medical workforce.^{16,17}

Table 3: Participant characteristics

Age	All respondents (n=367)	Doctors (n=119)	Nurses (n=230)
18-24	14 (3.98%)	1 (0.84%)	13 (5.65%)
25-34	95 (26.99%)	36 (30.25%)	59 (25.65%)
35-44	101 (28.69%)	37 (31.09%)	64 (27.83%)
45-54	91 (25.85%)	29 (21.85%)	63 (27.39%)
55-64	43 (12.22%)	14 (11.76%)	28 (12.17%)
65 and above	8 (2.27%)	5 (4.20%)	3 (1.30%)
No Response	15	-	-
Sex			
Female	262 (74.86%)	53 (44.92%)	206 (89.96%)
Male	88 (25.14%)	65 (55.08%)	23 (10.04%)
No Response	17	-	-

Responses to 6-item questionnaire

Responses indicated that 325 respondents (88.8 per cent) agreed with item 1 (“*I can identify patients in my care in whom further aggressive treatment is unlikely to be of benefit.*”); 328 respondents (89.4 per cent) agreed with Item 4 (“*I understand comfort and dignity may need to be prioritised over active treatment in my sickest patients.*”); 340 (97.8 per cent) disagreed with Item 5 (“*I consider the death of a patient professional failure on my part.*”); and 325 (88.6 per cent) agreed with Item 6 (“*I understand death may be an acceptable outcome for a patient under my care.*”). However, 74 respondents (25.1 per cent) disagreed with Item 2 (“*I am comfortable starting discussions on end-of-life issues with my dying patients and their families.*”). Furthermore, 42 respondents (11.4 per cent) agreed with Item 3 (“*Every patient in my care must receive every treatment option available even if it involves some discomfort or pain.*”).

Collett-Lester Fear of Death Scale scores

We calculated the mean and median scores for each of the four subscales (Table 4). Not all respondents completed all questions in each axis for rCLFODS V3.0 scores.

Table 4: Collett-Lester Fear of Death Scale version 3 scores

Subscale	Mean score (SD)	Median score (IQR)
Death of self (n= 306)	15.98 (6.99)	14 (9)
Dying of self (n= 356)	21.94 (6.85)	22 (10)
Death of others (n= 354)	21.34 (5.97)	22 (8)
Dying of others (n= 359)	19.08 (5.98)	19 (8)

Correlation between high scores and unexpected questionnaire responses

Respondents with high scores (scores above the median value) for subscale 3 (Death of others, median score 22) and subscale 4 (Dying of others, median score 19) had disproportionately high representation among those with “unexpected” responses to questionnaire Items 3 and 4, as previously reported.¹⁸

Missing data

We explored further the relationship between high scores in subscales 3 and 4 of rCLFODS V3.0 and questionnaire Items 2 and 3 using Bayesian conditional probability according to the formula above. We performed listwise deletion of subjects with partially missing responses for subscale 3 (Death of others), subscale 4 (Dying of others), and questionnaire Items 3 and 4. There was no significant difference between sample means obtained using other methods of accounting for missing data: substitution of missing values with mean, median, mode, and random numbers. We completed the following analysis using the data set obtained after listwise deletion. We provide population characteristics of respondents after listwise deletion (Table 5).

Table 5: Population characteristics after performing listwise deletion for missing data

Age	All Respondents (n=322)	Doctors (n=112)	Nurses (n=210)
18–24	13 (4.04%)	1 (0.89%)	12 (5.71%)
25–34	84 (26.09%)	33 (29.46%)	51 (24.28%)
35–44	92 (28.57%)	34 (30.36%)	58 (27.62%)
45–54	84 (26.09%)	25 (22.32%)	59 (28.09%)
55–64	42 (13.04%)	14 (12.50%)	28 (13.33%)
65 and above	7 (2.17%)	5 (4.46%)	2 (0.95%)
Sex			
Female	233 (72.36%)	47 (41.96%)	186 (88.57%)
Male	87 (27.02%)	64 (57.14%)	23 (10.95%)
Not specified	2 (0.62%)	1 (0.89%)	1 (0.48%)

Bayesian analysis

Conditional probabilities were calculated using the 322 responses remaining after listwise deletion was performed for missing data. In this sample, the probability of a participant reporting discomfort initiating end-of-life conversations (disagreement with Item 2: “*I am comfortable starting discussions on end-of-life issues with my dying patients and their families.*”) was 21.74 per cent and prioritisation of treatment over patient comfort (agreement with Item 3” “*Every patient in my care must receive every treatment option available even if it involves some discomfort or pain.*”) was 12.42 per cent. The probability of a high score on rCLFODS V3.0 subscale 3 (Death of others)—ie, score>22—was 45.34 per cent. The probability of a high score on rCLFODS V3.0 subscale 4 (Dying of others)—ie, score>19—was 46.58 per cent.

Analysis 1

For respondents with a high score on subscale 3 (Death of others), the probability of disagreement with Item 2 of the questionnaire increased from 21.74 per cent to 34.25 per cent. For respondents with a high score on subscale 4, this probability changed to 33.33 per cent. For respondents who had high scores on both subscales, the probability changed further to 39.62 per cent.

For respondents with a low score on subscale 3, the probability of disagreement with item 2 of the questionnaire decreased from 21.74 per cent to 11.36 per cent. For respondents with a low score on subscale 4, this probability changed to 11.63 per cent. For respondents who had low scores on both subscales, the probability changed further to 9.09 per cent.

Thus, the probability of respondents with high (above median) scores on subscales 3 and 4 of rCLFODS V3.0 reporting discomfort initiating end-of-life conversations (disagreement with Item 2) was 39.62 per cent, while that for those with low scores on both the subscales was 9.09 per cent.

Analysis 2

For respondents with a high score on subscale 3 (Death of others), probability of agreement with Item 3 of the questionnaire increased from 12.74 per cent to 15.75 per cent. For respondents with a high score on subscale 4 (Dying of others), this probability changed to 15.33 per cent. For respondents who had high scores on both subscales, the probability changed to 16.04 per cent.

For respondents with a low score on subscale 3, the probability of disagreement with item 2 of the questionnaire decreased from 12.74 per cent to 9.66 per cent. For respondents with a low score on subscale 4, this probability changed to 9.88 per cent. For respondents who had low scores on both subscales, the probability changed further to 8.33 per cent.

Thus, the probability of participants with high (above median) scores on subscales 3 and 4 of rCLFODS V3.0 also prioritising treatment options over discomfort and pain for the patient (agreement with Item 2) was 16.04 per cent while that for those with low scores on the same subscales was 8.33 per cent.

DISCUSSION

Our findings suggest that rCLFODS V3.0 subscales 3 (Death of others) and 4 (Dying of others) are useful for identifying healthcare workers who may be uncomfortable initiating end-of-life conversations or are more likely to prioritise continuation of treatments despite pain and discomfort for the patient. Those with high scores in either or both subscales have a substantially higher probability of displaying these attitudes in their practice than those with low scores in either or both subscales.

Comparison with other studies

There is a paucity of literature on fear of death amongst Australian healthcare workers. We report lower fear of death of self, measured by rCLFODS V3.0, than that reported for other health professional samples: Nigerian medical students¹⁰ and Spanish nursing students and nurses.⁹

The impact of thanatophobia on clinical attitudes and management has rarely been studied in Australian hospital staff. Our study is the largest: attempting to correlate an objective measurement of fear of death with attitudes to end-of-life care among Australian hospital medical and nursing staff. A smaller (n=78) study conducted among Australian and New Zealand neonatologists reported that personal fear of death was significantly related to attitude to hastening death when further treatment was considered futile.¹⁹

Few studies have attempted to objectively correlate measurement of death anxiety with clinical behaviour. A study conducted among suicide prevention workers reported that this group had a significantly lower death anxiety on Templer's Death Anxiety Scale and the Suicide Intervention Response Inventory,²⁰ compared with a matched population not routinely exposed to death, but found no relationship between death anxiety and suicide counselling skill.²¹ A study conducted among Polish medical students found that personal fear of death may affect their belief that patients should be informed about their imminent death.²²

Other studies have reported links between greater levels of death anxiety and negative attitudes towards the care of the elderly²³ or of dying patients.²⁴

Strengths and Limitations

This study represents the largest sample of Australian hospital health professionals in which fear of death has been measured and correlated with clinical attitudes.

The Collett-Lester Fear of Death Scale is a useful instrument because it distinguishes between death and the process of dying for both oneself and others, two distinct conditions with potential for important clinical implications. The construct validity of the 1990 revised 32-item version of this instrument has been demonstrated in an Australian population of healthcare worker trainees (nursing and health faculty students) and showed high test-retest reliability over 6 weeks.¹³ It was also shown to detect changes in attitudes toward death after an intervention in Australian nursing students.²⁵

The use of Bayesian analysis enhanced the accuracy of identifying those uncomfortable with initiating conversation about end of life or those prioritising therapy over palliation. We were able to identify and measure those aspects of fear of death that influenced comfort initiating conversations about end-of-life issues and attitudes to the balance between ongoing therapies and patient dignity and comfort.

The reliability of our study findings are limited by self-reported data. Attitudes expressed in survey questionnaires may not reflect clinical actions. It is not known whether discomfort initiating a conversation on end-of-life care prevents health professionals from doing so when required, or prevents them from conducting such discussions effectively. Similarly, it is unclear whether a health professional's preference to continue treating a patient despite pain and discomfort translates into inappropriate clinical practice. Identification of thresholds above which fear of death influences end-of-life care might inform the training of doctors and nurses. There is considerable risk of selection bias within these findings: based on responses from study recipients who declined to participate, we hypothesise that perhaps staff who did not complete the survey may have a higher fear of death compared to the observed population, thereby discouraging them from participating in the study.

Further research

Further research is needed to establish whether health professionals' fear of death impacts clinical practice. To explore this further, appropriately designed qualitative research or audits of practice correlated with attitudes in survey responses are needed. The methods described in our study could be applied to the evaluation of an intervention designed to change clinicians' behaviour, such as specific training in end-of-life counselling and offering appropriate care according to patients' preferences and values. The effect of such interventions could be assessed in subgroups with high or low fear of death, to determine if the training were effective regardless of clinicians' own attitudes and degree of discomfort.

CONCLUSION

Health professionals' personal fear of death appears to influence their attitudes to clinical care of the dying patient. Likelihood of discomfort with initiation of end-of-life conversations and focus on

persistence with therapies despite patient discomfort can be predicted from measured fear of death. More research is needed to determine whether death anxiety affects clinical practice, and whether specific training to address such fears and anxieties is effective in changing health professionals' behaviour.

REFERENCES

1. Australian Institute of Health and Welfare. Australia's health 2016. Australia's health series no. 15. Cat. no. AUS 199. [Internet] Canberra: Australian Institute of Health and Welfare, 2016 [cited 2022 March 24]. Available from: <https://www.aihw.gov.au/getmedia/9844cefb-7745-4dd8-9ee2-f4d1c3d6a727/19787-AH16.pdf.aspx>
2. Broad JB, Gott M, Kim H, et al. Where do people die? An international comparison of the percentage of deaths occurring in hospital and residential aged care settings in 45 populations, using published and available statistics. *Int J Public Health*. 2013;58:257–67.
3. Cohen J, Bilsen J, Addington-Hall J, et al. Population-based study of dying in hospital in six European countries. *Palliat Med*. 2008;22:702–10. doi: 10.1177/0269216308092285
4. Australian Bureau of Statistics. Classifying place of death in Australian mortality statistics. A pilot study applying a framework for the classification of place of death to the Australian mortality dataset [Internet]. Australian Government; 2021 [updated 14 April 2021; cited 2022 April 12]. Available from: <https://www.abs.gov.au/statistics/research/classifying-place-death-australian-mortality-statistics>.
5. Feifel H. Attitudes toward death: a psychological perspective. *J Consult Clin Psychol*. 1969;33:292–5. doi: 10.1037/h0027565
6. Feifel H, Branscomb AB. Who's afraid of death? *J Abnorm Psychol*. 1973;81:282–8. doi: 10.1037/h0034519
7. Lester D, Abdel-Khalek A. The Collett-Lester Fear of Death Scale: a correction. *Death Stud*. 2003;27:81–5. doi: 10.1080/07481180302873
8. Abdel-Khalek A, Lester D. The factorial structure of the Arabic version of the revised Collett-Lester Fear of Death Scale. *Death Stud*. 2004;28:787–93. doi: 10.1080/07481180490483445
9. Tomás-Sábado J, Limonero JT, Abdel-Khalek AM. Spanish adaptation of the Collett-Lester Fear of Death Scale. *Death Stud*. 2007;31:249–60. doi: 10.1080/07481180601152625
10. Kolawole MS, Olusegun AK. The reliability and validity of revised Collett-Lester Fear of Death Scale (version 3) in a Nigerian population. *Omega (Westport)*. 2008;57:195–205. doi: 10.2190/OM.57.2.e
11. Bužgová R, Janíková E. Czech adaption of the Collett-Lester Fear of Death Scale in a

- sample of nursing students. *Omega (Westport)*. 2019;80:20-34. doi: 10.1177/0030222817725183
12. Zeyrek EY, Lester D. Cronbach alpha reliability and concurrent validity of the Collett-Lester Fear of Death Scale in a Turkish sample. *Psychol Rep*. 2008;102:706-8. doi: 10.2466/pr0.102.3.706-708
 13. Mooney D, O'Gorman J. Construct validity of the revised Collett-Lester Fear of Death and Dying Scale. *Omega (Westport)*. 2001;43:157-73. doi: 10.3389/fpsyg.2021.736171
 14. Cuniah M, Bréchon G, Bailly N. Validation of the Revised Collett-Lester Fear of Death Scale in a French population. *Front Psychol*. 2021;12:736171. doi: 10.3389/fpsyg.2021.736171
 15. Venegas ME, Alvarado OS, Barriga O. Validation of Collett-Lester's Fear of Death Scale in a sample of nursing students. *Rev Lat Am Enfermagem*. 2011;19:1171-80. doi: 10.1590/s0104-11692011000500015
 16. Medical Board of Australia. Medical practitioner registrant data June 2015 [Internet]. Melbourne: Medical Board of Australia; 2015 [cited 2022 October 11]. Available from: <https://www.medicalboard.gov.au/registration.aspx>
 17. Nursing and Midwifery Board of Australia. Nurse and Midwife registrant data: June 2015 [Internet]. Nursing and Midwifery Board of Australia; 2015. [cited 2022 October 11]. Available from: <https://www.nursingmidwiferyboard.gov.au/registration-and-endorsement.aspx>
 18. Majumdar M, Dubowitz J, Green C. Personal fear of death affects healthcare workers' ability to discuss end of life issues with patients. *Am J Respir Crit Care Med*. 2018;197:A4881.
 19. Barr P. Relationship of neonatologists' end-of-life decisions to their personal fear of death. *Arch Dis Child Fetal Neonatal Ed*. 2007;92:F104-7. doi: 10.1136/adc.2006.094151
 20. Neimeyer RA, Maclnnes WD. Assessing paraprofessional competence with the Suicide Intervention Response Inventory. *J Couns Psychol*. 1981;28:176-9. doi: 10.1037/h0077970
 21. Neimeyer RA, Neimeyer GJ. Death anxiety and counseling skill in the suicide interventionist. *Suicide Life Threat Behav*. 1984;14:126-31. doi: 10.1111/j.1943-278x.1984.tb00343.x
 22. Ciałkowska-Rysz A, Dzierżanowski T. Personal fear of death affects the proper process of breaking bad news. *Arch Med Sci*. 2013;9:127-31. doi: 10.5114/aoms.2013.33353
 23. DePaola SJ, Neimeyer RA, Lupfer MB, et al. Death concern and attitudes toward the elderly in nursing home personnel. *Death Stud*. 1992;16:537-55. doi: 10.1080/07481189208252597
 24. Peters L, Cant R, Payne S, et al. How death anxiety impacts nurses' caring for patients at

the end of life: a review of literature. *Open Nurs J.* 2013;7:14-21. doi: 10.2174/1874434601307010014

25. Mooney DC. Tactical reframing to reduce death anxiety in undergraduate nursing students. *Am J Hosp Palliat Care.* 2005;22:427-32. doi: 10.1177/104990910502200607

ACKNOWLEDGEMENTS

Mr Cameron Green and associate professor Jeffrey Presniell contributed to the initial data analysis presented as a poster at the American Thoracic Society International Conference 2018. Ms Jennifer Harman assisted with manuscript preparation.

PEER REVIEW

Not commissioned. Externally peer reviewed.

CONFLICTS OF INTEREST

The authors declare that they have no competing interests.

FUNDING

None

ETHICS COMMITTEE APPROVAL

HREC, Peter MacCallum Cancer Centre: Project 13/108L, approval granted 2/10/2013

HREC, Peninsula Health: LRR/13/PH/34, approval granted 25/11/2014

HREC, Ballarat Health Services and SJOG Ballarat: LNR/15/BHHSJOG/16