



Article

Australian Health Professionals' Attitudes toward Voluntary Assisted Dying: A Cross-Sectional Survey

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Abstract: Voluntary assisted dying (VAD) is when a terminally ill person with decision-making capacity consensually ends their life with assistance from an authorised professional. Many countries have legalised VAD, and health professionals' roles within VAD frameworks are varied. Health professionals must be well informed of their legal obligations to ensure they practice within the legal boundaries, and those professionals with objections toward VAD should ensure that their eligible patients have equitable access. Given the current landscape of VAD, it is important to understand different health professionals' attitudes toward VAD and what may underpin these attitudes. We explored (a) Australian health professionals' attitudes toward VAD; (b) the psychological components that underpin those attitudes; (c) health professionals' level of knowledge about VAD; (d) health professionals' most common beliefs, emotions, and experiences related to VAD. A cross-sectional correlational survey design was used. A total of 182 Australian health professionals participated in the online survey based on a tripartite model of attitudes. We conducted a binomial logistic regression through a Generalised Linear Mixed Model and found polarised attitudes toward VAD between health professionals. Attitudes were accounted for by beliefs, emotions, education, and strength of religious beliefs. Knowledge of VAD was low, but not associated with overall attitude in our model. We highlight the importance of reflexive practice to help health professionals identify their values and feelings related to VAD, and to understand how these may affect their clinical practice. Low knowledge of VAD suggests that legislative and procedural training should be mandatory.

Keywords: voluntary assisted dying; VAD; health professionals; nursing; attitudes; survey; Australia; tripartite model



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1. Introduction

Voluntary assisted dying (VAD) is when a terminally ill person with decision-making capacity consensually ends their life with assistance from an authorised professional who prescribes, supplies or administers medication (Beardsley et al. 2018). Many countries including the Netherlands, Belgium, Switzerland, Canada and states within the United States have legalised forms of assisted dying, with procedures and legal frameworks varying between jurisdictions (White and Willmott 2018). In Australia, VAD is legal in Victoria and Western Australia (WA) and VAD laws have also been passed in South Australia, Tasmania, and Queensland. In Victoria, the *Voluntary Assisted Dying Act 2017* (Vic) came into effect in June 2019, making it the first Australian state where VAD is a legal end-of-life option (White and Willmott 2018). The reform was preceded by lengthy, emotionally charged public and parliamentary debate (Duckett 2020), and the eventual

passing of legislation was the result of extensive consultation involving key stakeholders (O'Connor et al. 2018).

Health professionals' roles within VAD frameworks are varied and complex. It is essential that health professionals are well informed of their legal obligations to ensure they practice within the boundaries of the law (Beardsley et al. 2018). Some suggest that health professionals with conscientious objections toward VAD should ensure that their eligible patients have fair and equitable access (White et al. 2019). Generally, health professionals express low levels of support for VAD (Emanuel et al. 2016). Those not supportive voice concern about conflict with professional ethics (Blaschke et al. 2019); those who support VAD cite the patient's right to autonomy (Blaschke et al. 2019). Health professionals are most supportive when a patient is older with a terminal prognosis and unrelieved pain (Kouwenhoven et al. 2013; Ryyänen et al. 2002). Many health professionals expressed feelings of guilt and discomfort when discussing VAD with patients (Voorhees et al. 2014). Others found such discussions rewarding (Voorhees et al. 2014). Irrespective of their stance, health professionals found the topic elicited strong emotions (Brooks 2019).

In the general population, there appear to be no clear associations between attitudes toward VAD and demographic factors such as age, gender, cultural identity, and education level (Emanuel et al. 2016; Philippkowski et al. 2021). Health professionals who affiliate with a religion are more likely to report negative attitudes toward VAD compared to those with no religious affiliation (McCormack et al. 2012). Those who identify as Christian and who view their religion as highly important are most likely to reject VAD (Curlin et al. 2008).

There are several studies of health professionals' attitudes to VAD using surveys (e.g., Young et al. 2019). However, the studies are mainly descriptive with little examination of what explains or underpins attitudes (White et al. 2019). Qualitative findings suggest that attitudes and views about VAD are complex and multilayered (Hussain and White 2009; Khoshnood et al. 2018; Young et al. 2019); for example, Blaschke et al.'s (2019) qualitative work found that health professionals share a commitment to facilitating positive end-of-life experiences and the reduction in suffering; however, uncertainty on the practical implementation and disagreements how to best achieve these goals were evident. Further, Penman et al.'s (2021) qualitative research found that Australian culturally and linguistically diverse nurses had variable levels of knowledge of VAD, as well as a range of cultural and religious beliefs that may conflict with VAD.

From the existing, primarily qualitative, literature we have developed a broad understanding of the various attitudes health professionals hold towards VAD, but it is currently unclear what contributes to these attitudes. Zanna and Rempel's (2008) tripartite model of attitudes posits that an attitude can be underpinned by one or more of three related, but empirically distinct, components: cognitive (beliefs and knowledge), affective (emotions), and behavioural (experiences). Zanna and Rempel's (2008) tripartite model of attitudes has been used previously to gain a better understanding of what contributes towards attitudes relating to various domains. For example, Zanna and Rempel's (2008) tripartite model of attitudes has been used to gain a greater understanding of what underpins community attitudes towards palliative care (O'Connor et al. 2019). Each component of the tripartite model significantly accounted for attitudes towards palliative care, with beliefs the strongest correlate (O'Connor et al. 2019). This is unsurprising as previously Haddock and Zanna (1998) found beliefs to be the best predictor of attitudes regarding sensitive or controversial topics.

In order to gain a greater understanding of what contributes to health professionals' attitudes towards VAD, we adopted Zanna and Rempel's (2008) tripartite model of attitudes in this research. Understanding the cumulative and relative contributions of the cognitive, affective, and behavioural components of the model to health professionals' attitudes towards VAD, as well as health professionals' knowledge of VAD, may inform policy and practice, including the devolvement of interventions.

In this research, we addressed four research questions: (1) What are Australian health professionals' attitudes toward VAD? (2) What are the psychological components that

explain those attitudes? (3) What is the level of health professionals' knowledge about VAD (4) What are health professionals' most common beliefs, emotions, and experiences in relation to VAD? We made two further hypotheses. (1) It was hypothesised that (a) beliefs, (b) emotions, (c) experience, and (d) knowledge would significantly account for attitudes towards VAD. Additionally, (2) it was hypothesised that beliefs would be the component from the tripartite model that had the most utility in accounting for health professionals' attitudes towards VAD. This is because beliefs typically best explain attitudes towards sensitive or controversial topics (Haddock and Zanna 1998).

2. Materials and Methods

2.1. Design

A cross-sectional correlational survey design was used.

2.2. Participants

2.2.1. Recruitment

After approval from the Human Research Ethics Committee (HRE2019-0225) for this study, convenience and snowball sampling were used to recruit Australian health professionals. The inclusion criteria were: 18 years or over, ability to understand English, residing in Australia, and currently or previously worked as a paid health professional.

Online noticeboards, newsletters, and social media pages specific to health care professional groups were targeted (e.g., www.psychology.org.au/for-members/publications/aps-update, accessed on 28 September 2021). We distributed flyers at community and health settings across ten suburbs in Perth, WA, Australia. Other health professional groups were identified through the researchers' networks. Participants who completed the questionnaire were asked to share the link. An a priori power analysis (G*Power, version 3.1.9.2) indicated that 85 participants would provide sufficient power (0.8) to detect a medium effect size of $f^2 = 0.15$ (established by (Cohen et al. 2002)), at an alpha level of 0.05, between the criterion and each of the four correlates. To account for a reduction in power due to anticipated intra-group clustering, this number was multiplied by the design effect (1.336), increasing the required sample size to 113.

2.2.2. Sample Characteristics

After data cleaning, the total sample size was 182. The participants' ages ranged from 21 to 85 years ($M = 48.70$, $SD = 13.93$) and years of experience in their discipline ranged from 1 to 60 years ($M = 19.10$, $SD = 13.36$). See Table 1 for participant demographics.

Table 1. Demographic Characteristics of the Participant Sample.

Characteristic	N	%
<i>Gender</i>		
Female	140	76.9
Male	41	22.5
<i>State or territory of residence</i>		
Western Australia	55	30.2
New South Wales	46	25.3
Queensland	39	21.4
Victoria	17	9.3
South Australia	10	5.5
Tasmania	9	4.9
Northern Territory	3	1.6
Australian Capital Territory	2	1.1

Table 1. Cont.

Characteristic	N	%
<i>Discipline</i>		
Medicine	83	45.6
Nursing	57	31.3
Allied or other health profession	42	23.1
<i>Works in palliative care</i>		
Yes	16	8.8
No	166	91.2
<i>Experience in end-of life care</i>		
Yes	120	65.9
No	62	34.1
<i>Education</i>		
Postgraduate degree	117	64.3
Undergraduate degree	50	27.5
Associate degree, diploma, or advanced diploma	11	6.0
Certificate 3–4	2	1.1
Secondary certificate of education	1	0.5
<i>Religious affiliation</i>		
Affiliated with a religion	116	63.7
Not affiliated with a religion	62	34.1
<i>Importance of religion</i>		
Very important	70	38.2
Somewhat important	23	12.6
Not too important	17	9.3
Not at all important	69	37.9
<i>Cultural identity</i>		
Identifies as Australian	145	79.7
Identifies as another	32	17.6

Note. Allied or other health profession includes professions such as psychologist and social workers. Not all demographic characteristics sum to 182 (100%) due to missing data.

2.3. Measures

The survey was developed using Eagly et al.'s (1994) survey template. In our sample, Cronbach's alphas were 0.94, 0.90, 0.89, and 0.78 for the beliefs, emotions, experience, and knowledge subscales, respectively. A strength of the survey design is the use of self-generated items which have less susceptibility to framing effects (Eagly et al. 1994). A pilot test of our survey was conducted with a small sample to detect any technical or readability issues.

Our survey comprised six sections; in section one, participants rated their overall attitude toward VAD on a seven-point scale from very positive (+3) to very negative (−3). Sections two through four asked the participants to list up to seven self-generated (a) beliefs, (b) emotions and (c) experiences, respectively. Participants were provided with an example of a belief, emotion, and experience for an unrelated topic. The participants then rated each of their self-generated responses on a seven-point scale, from very positive (+3) to very negative (−3). Sections two, three, and four were presented randomly to minimise order effects (Belton and Sugden 2018).

Section five comprised 22 statements (half true and half false) about VAD, in randomised order, to measure participants' knowledge. The statements were developed from the literature and reviewed by people with expertise in VAD, including a legal professional, a medical professional, psychologists, and educators. Experts provided feedback on the accuracy, relevance, and importance of the statements. Participants rated each statement as true, false, or unsure. In section six, participants provided demographic information: age, gender, state or territory of residence, discipline, years of experience in discipline, experience in end-of-life care, religious affiliation, importance of religion, and cultural identity.

2.4. Procedure

Data were collected via an online questionnaire on the Qualtrics survey platform. Participants self-identified as a health professional, and we categorised participants into specific health professional occupations based on the profession they provided. This process optimised participation from a broad range of health professionals, including not only those that may be directly involved with VAD administration, but also those who may be involved in discussions or services with patients and their families engaging in the VAD process. Participants accessed the questionnaire using a link or QR code. Participants indicated that they had read and understood the information presented, were 18 years or over, and consented to participating in this study. Participation was anonymous and took approximately 20 min. Participants were informed that they could 'skip' ahead if they did not wish to answer a question, and that closing the browser prior to completion automatically saved and submitted completed data. Participants were also informed that once responses were submitted, withdrawal was not possible due to the anonymous nature of this study. Upon completion, an information page was presented containing links to relevant support services. Participants were able to enter an optional prize draw to win one of six \$25 gift cards via a separate link.

2.5. Analysis

To determine if beliefs, emotions, experiences, and knowledge significantly explained attitude toward VAD, we conducted a binomial logistic regression through a Generalised Linear Mixed Model (GLMM), using SPSS's (v.25) GENLIMMIXED procedure.

Cases were removed if they were not a health professional ($n = 35$, e.g., employed in a volunteer capacity, or indicated a professional outside of health such as law), or if they did not complete at least one item on each subscale ($n = 280$). Missing data for the remaining sample ranged from 0.50% to 3.80% per item on the demographic subscale. Little's Missing Completely at Random Test (MCAR) determined that the data were MCAR $\chi^2(203) = 204.67, p = 0.454$.

Overall attitude toward VAD was transformed into a binary variable, whereby cases with a rating of 0 ($n = 5$) were removed; positive ratings from 1 to 3 were recoded as 1, and negative ratings from -1 to -3 were recoded as 2. This was due to a bimodal split in responses. A mean score was calculated for each participant's beliefs, emotions, and experiences (-3 to 3). For the knowledge subscale, correct responses were coded 1 and incorrect/unsure responses coded 0, then a total score was calculated for each participant (0 to 22).

Listed beliefs, emotions, and behaviours were analysed using conventional content analysis. Categories were derived from the text data directly (Hsieh and Shannon 2005).

To accommodate violations of normality and a violation of logit linearity, we employed the 'robust statistics' option in the GLMM. Cook's Distance statistics for each case < 1 indicated that there were no influential cases (including univariate and multivariate outliers). Additionally, tolerance values for each correlate > 0.10 indicated that multicollinearity was not an issue. A multilevel data structure (health professional within discipline within state) was specified in the GLMM syntax to accommodate dependencies in the criterion.

3. Results

Eighty-eight participants (48.4%) reported a positive attitude toward VAD and 94 participants (51.6%) reported a negative attitude. Mean attitude was -0.04 ($SD = 2.76$). Descriptive statistics for the primary correlates for the full sample are shown in Table 2, descriptive statistics for the same correlates per discipline are shown in Table 3.

Table 2. Descriptive Statistics for Main Correlates.

Variable	M	SD
Beliefs	−0.12	2.49
Emotions	−0.58	2.27
Experiences	−0.45	2.26
Knowledge	12.65	4.36

Note. M = mean; SD = standard deviation.

Table 3. Mean Scores per Discipline for Main Correlates.

Variable Mean (SD)	Medicine Specialty (N = 24)	Medicine General (N = 44)	Nursing (N = 57)	Allied Health (N = 29)	Palliative Care (N = 15)	Pharmacy (N = 4)	Other (N = 9)
Beliefs	−1.78 (1.77)	−1.31 (2.34)	1.10 (2.16)	1.37 (1.82)	−1.74 (2.00)	1.88 (1.43)	−0.61 (2.61)
Emotions	−1.84 (1.67)	−1.57 (1.89)	0.45 (2.20)	0.41 (2.22)	−1.80 (1.83)	0.38 (1.70)	−0.63 (2.63)
Experiences	−1.82 (1.72)	−1.03 (2.22)	0.10 (2.24)	0.97 (1.97)	−1.67 (1.61)	0.31 (1.84)	−0.29 (2.60)
Knowledge	14.13 (4.05)	12.84 (3.26)	11.51 (4.41)	11.35 (5.01)	16.60 (3.33)	13.50 (1.91)	12.00 (5.40)

Note. M = mean; SD = standard deviation.

In total, 1145 beliefs, 709 emotions and 757 experiences were reported. The five most salient themes are shown in Table 4. There were 7 questions where more participants responded incorrectly or were not sure than those who responded correctly (Table 5). Participants' responses to the knowledge statements were low (Mean = 12.65, SD 4.36), and are shown in Table 6.

Table 4. Beliefs, Emotions, and Experiences Indicated.

Component	Count	Example Beliefs
<i>Beliefs</i>		
Rights, autonomy, choice, freedom	225	<ul style="list-style-type: none"> • People have the intrinsic right to self-determination and bodily autonomy. • People with terminal or degenerative illness have the right to choose how they die.
Palliative care	122	<ul style="list-style-type: none"> • Excellent palliative care at the end of life eliminates the need to assist a patient to end their life. • Too much money is being used to achieve legal VAD and taking funding from providing more palliative care services.
Preserving dignity, alleviating pain and suffering	110	<ul style="list-style-type: none"> • It enables the prevention of unnecessary suffering, and trauma for family members. • It will help patients die with dignity.
Vulnerable people at risk, coercion, abuse, slippery slope, safeguards	98	<ul style="list-style-type: none"> • It is potentially going to leave vulnerable patients feeling pressured to die so they are not a burden. • VAD safeguards erode over time and inclusion criteria for VAD broaden over time.
Professional role and ethics	86	<ul style="list-style-type: none"> • It is against our duty as doctors to end the life of a patient. • It is contrary to medical ethics.
<i>Emotions</i>		
Concerned, nervous, anxious, apprehensive, worried, fearful	186	<ul style="list-style-type: none"> • Concerned I may suffer and will not be able to make the decision. • Concerned that many excellent doctors will be placed under pressure to conform to VAD against their consciences.
Sad, disappointed, despair, despondent, hopeless	171	<ul style="list-style-type: none"> • Sad that the medical profession would consider helping people to die prematurely. • Sad for people suffering.

Table 4. Cont.

Component	Count	Example Beliefs
Angry, outraged, frustrated, annoyed	118	<ul style="list-style-type: none"> • Angry that they want to fund this yet cannot fully fund adequate palliative care to all in Australia. • Angry that people who have never seen anyone really suffering, think they can make decisions on their behalf.
Hopeful, optimistic	83	<ul style="list-style-type: none"> • Hopeful for the future and for better deaths for people and families. • Hopeful that this is another option of treatment when all other treatment options have been exhausted.
Relieved, happy, glad, pleased.	70	<ul style="list-style-type: none"> • Relieved this issue is now being addressed but believe we need to widen the discussion. • Relieved that the access to VAD will be restricted to individuals with terminal illness & a life expectancy of 6 or 12 months.
<i>Experiences</i>		
Working with patients at end-of life	240	<ul style="list-style-type: none"> • Patients suffering terminal illnesses, dying a slow and painful death with few options to ease or shorten suffering. • Patients being pro-euthanasia but then changing their minds and then being glad that euthanasia was illegal.
Suffering/pain of a family member or friend	116	<ul style="list-style-type: none"> • Witnessing the death of my mother under terrible circumstances. • I have seen a friend die in great pain.
Attend conference, listen to debate, read	113	<ul style="list-style-type: none"> • Attending health professional forums about voluntary assisted dying. • Reading journal articles on palliative care and Victorian voluntarily assisted dying laws.
Palliative care services	89	<ul style="list-style-type: none"> • The privilege of being present at many deaths where very good palliative care was provided. • Observing patients die comfortably and with dignity with palliative care involvement.
Discuss/converse with others	85	<ul style="list-style-type: none"> • Ethical discussions with clinicians. • Many clients have discussed end of life choices, voluntary assisted dying, the right to die with dignity.

Table 5. Knowledge Statements That People Responded Incorrectly or Were Unsure Greater Than Those Who Responded Correctly.

Statements	True (n)	False (n)	Unsure (n)
<i>True Statements</i>			
In Australia, there have been over thirty attempts to legalise voluntary assisted dying.	67	14	101
The World Medical Association is opposed to voluntary assisted dying.	65	12	105
In some countries/states, persons under the age of 18 can be eligible for voluntary assisted dying.	83	32	67
In Victoria, health professionals are prohibited from suggesting or initiating conversation about voluntary assisted dying with their patient.	82	26	74
<i>False Statements</i>			
The Geneva Conventions explicitly prohibit health professionals from providing voluntary assisted dying.	30	31	121
In Australia, people are required to have an assessment by a mental health professional prior to accessing voluntary assisted dying.	85	37	56
According to the United Nations, voluntary assisted dying is a human right.	19	67	96

Table 6. Counts of Responses to the Knowledge Questions.

Statements	True (n)	False (n)	Unsure (n)
<i>True Statements</i>			
Voluntary assisted dying is legal in more than five countries/states.	116	23	43
In Australia, there have been over thirty attempts to legalise voluntary assisted dying.	67	14	101
The World Medical Association is opposed to voluntary assisted dying.	65	12	105
Legally, terminal sedation is considered different to voluntary assisted dying.	120	18	44
In at least one country/state, voluntary assisted dying has been legal for more than 20 years.	108	14	60
There can be unintended consequences when taking voluntary assisted dying medications.	132	14	36
In some countries/states, persons under the age of 18 can be eligible for voluntary assisted dying.	83	32	67
In some countries/states, pharmacists can refuse to dispense voluntary assisted dying medications.	97	5	80
In Victoria, health professionals are prohibited from suggesting or initiating conversation about voluntary assisted dying with their patient.	82	26	74
A person with a disability can access voluntary assisted dying if they meet the eligibility criteria.	110	30	42
In some countries/states, diagnosis of a terminal illness is not a requirement for voluntary assisted dying.	114	19	49
<i>False Statements</i>			
Legal frameworks for voluntary assisted dying are the same in all countries/states.	1	168	13
Legally, withdrawing life support (e.g., ventilation) is considered the same as voluntary assisted dying.	4	164	14
The first stage of voluntary assisted dying involves restricting all of the person's food and hydration.	2	153	27
Voluntary assisted dying can be provided without the person's explicit request if consent has been provided by a substitute decision maker.	15	111	56
In Australia, a person can request voluntary assisted dying in an advance health directive.	24	93	65
Qualified health professionals must provide voluntary assisted dying if it is requested by their patient.	12	141	29
The Geneva Conventions explicitly prohibit health professionals from providing voluntary assisted dying.	30	31	121
In Australia, voluntary assisted dying is considered part of palliative care.	14	144	24
In Australia, there are laws to prevent people travelling overseas to access voluntary assisted dying.	11	100	71
In Australia, people are required to have an assessment by a mental health professional prior to accessing voluntary assisted dying.	85	37	56
According to the United Nations, voluntary assisted dying is a human right.	19	67	96

To identify potential covariates, all bivariate estimates of association between the demographic, criterion and correlate variables were examined (Table 7). Age, years of experience in discipline, employment status and cultural identity were not significantly associated with attitude toward VAD and were excluded from the subsequent analysis.

Table 7. Mean Scores per Discipline for Main Correlates.

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
1. Attitude	-																
2. Beliefs	-0.65 ^b **	-															
3. Emotions	-0.62 ^b **	0.61 ^b **	-														
4. Experience	-0.49 ^b **	0.53 ^b **	0.47 ^b **	-													
5. Knowledge	0.25 ^a **	-0.19 ^b **	-0.21 ^b **	-0.14 ^b *	-												
6. Age	0.01 ^b	0.01 ^b	0.01 ^b	-0.01 ^b	0.10 ^a	-											
7. Gender	0.31 ^d **	0.17 ^b **	0.18 ^b **	0.17 ^b **	-0.10 ^a	-0.20 ^a **	-										
8. State	0.29 ^d *	0.05 ^c	0.07 ^c	0.04 ^c	0.22 ^c	0.05 ^c	0.24 ^d	-									
9. Education	0.20 ^b **	-0.13 ^b *	-0.14 ^b *	-0.09 ^b	0.09 ^b	0.06 ^b	-0.16 ^b *	0.20 ^d	-								
10. Discipline	0.67 ^d **	0.25 ^c **	0.18 ^c **	0.14 ^c **	0.06 ^c	0.00 ^c	0.35 ^d **	0.32 ^d **	0.30 ^d **	-							
11. Disc years	0.05 ^a	-0.01 ^b	-0.00 ^b	-0.05 ^b	0.10 ^a	0.79 ^a **	-0.20 ^a **	0.06 ^c	0.07 ^b	0.01 ^c	-						
12. EOLC	0.16 ^d *	0.10 ^b	0.11 ^b	0.17 ^b **	-0.26 ^a **	-0.01 ^a	0.14 ^d	0.24 ^d	0.02 ^b	0.46 ^d **	-0.03 ^a	-					
13. EOLC years	0.24 ^a **	-0.14 ^b *	-0.18 ^b **	-0.18 ^b **	0.28 ^a **	0.41 ^a **	-0.31 ^a **	0.06 ^c	0.04 ^b	0.09 ^c **	0.47 ^a **	-0.54 ^a **	-				
14. RA	0.49 ^d **	-0.35 ^b **	-0.28 ^b **	-0.26 ^b **	0.08 ^a	0.18 ^a *	0.16 ^d *	0.25 ^d	-0.04 ^b	0.35 ^d **	0.21 ^a **	0.06 ^d	0.22 ^a **	-			
15. RI	0.61 ^b **	-0.39 ^b **	-0.36 ^b **	-0.28 ^b **	0.09 ^b	0.04 ^b	-0.25 ^b **	0.24 ^d	0.00 ^b	0.35 ^d **	0.04 ^b	0.04 ^d	0.07 ^b	0.79 ^b **	-		
16. CI	0.03 ^d	-0.06 ^b	-0.05 ^b	-0.11 ^b	-0.06 ^a	0.00 ^a	0.03 ^d	0.13 ^d	0.14 ^b *	0.21 ^d *	-0.05 ^a	0.09 ^d	-0.09 ^a	0.09 ^d	-0.01 ^b	-	
17. Employment	0.06 ^d	0.02 ^c	0.02 ^c	0.01 ^c	-0.03 ^c	0.03 ^c	0.16 ^d	0.16 ^d	0.15 ^d	0.17 ^d	0.01 ^c	0.12 ^d	0.00 ^c	0.20 ^d *	0.18 ^d	0.05 ^d	-

Note. EOLC = end-of-life care; RA = religious affiliation; RI = religious importance; CI = cultural identity. ^a Pearson's *r*. ^b Kendall's tau-b. ^c Partial-eta squared. ^d Cramer's *V*. * $p < 0.05$. ** $p < 0.01$.

The GLMM included three nominal random effects (health professional, discipline, state/territory); four scale fixed effects (beliefs, emotions, experiences, and knowledge); three ordinal covariates (years of experience in end-of-life care, level of education, and strength of religious beliefs); and three binary covariates (gender [1 = male, 2 = female], experience in end-of-life-care [1 = yes, 2 = no], and religious [1 = no, 2 = yes]). A binomial probability distribution was specified for the binary criterion variable (attitude toward VAD), which was linked to the fixed effects and covariates using a logit function.

After controlling for covariates, our first hypothesis that (a) beliefs, (b) emotions, (c) experience, and (d) knowledge would be significantly account for attitudes towards VAD, was partially supported. (a) Beliefs and (b) emotions were significant correlates of attitude toward VAD with positive beliefs and positive emotions were associated with positive attitude. Our second hypothesis that beliefs would be the strongest correlate from the tripartite model of health professionals' attitudes towards VAD was supported. The odds ratios indicated that if a participant's mean belief rating increased by one point, they were 1.68-fold more likely to have a positive attitude toward VAD. If their mean emotion rating increased by one point, they were 1.33-fold more likely to have a positive attitude towards VAD. Two covariates, education and religiosity, were significant in the GLMM. Participants who had obtained a tertiary certificate were 3.54-fold more likely to hold favourable views towards VAD and participants with a diploma to an advanced diploma were 3.28-fold more likely to view VAD favourably. For religiosity there was a consistent trend showing that as the importance of religious beliefs increased, favourable views towards VAD decreased (Not at all important, OR = 19.47; Not too important, OR = 11.19; Somewhat important, OR = 7.42).

4. Discussion

In this study, there was an almost even split between those reporting a positive attitude toward VAD and those reporting negative attitudes. This finding is consistent with recent Australian findings that health professionals working in the field of oncology failed to reach a clear consensus on VAD (Karapetis et al. 2018; Yoong et al. 2018), and international studies finding that health professionals hold diverse attitudes towards VAD (Young et al. 1993). Together this indicates polarised views on the topic. Our finding differs from a survey conducted by Sheahan (2016) in which a majority of palliative care professionals in Australia and New Zealand opposed the legalisation of VAD. Health professionals in palliative care are consistently found to be less supportive of VAD than those in other disciplines (e.g., Miccinesi et al. 2005).

Our first hypothesis that (a) beliefs, (b) emotions, (c) experiences and (d) knowledge would significantly account for health professionals' attitudes toward VAD was partially supported. After controlling for covariates (gender, religious affiliation, experience in end-of-life care, education, strength of religious beliefs, and years in end-of-life care), both beliefs and emotions were significant in our GLMM. Our second hypothesis that beliefs would be the strongest correlate from the tripartite model of health professionals' attitudes towards VAD was supported. Of the primary correlates, beliefs had the highest probability (68%) of explaining overall attitude, followed by emotions (42%). Higher ratings for beliefs and emotions increased the likelihood of having a positive attitude toward VAD. This finding provides support for the tripartite model (Zanna and Rempel 2008), which posits that an attitude may be composed of one or more psychological components, and is consistent with early work that found beliefs were better at explaining attitudes than emotions (Eagly et al. 1994; Haddock and Zanna 1998). Our findings also correspond with recent studies where beliefs followed by emotions explained the greatest amount of unique variance in attitudes toward grief counselling (Breen et al. 2018). However, studies related to other topics have found knowledge and emotions (Haddock and Zanna 1997) account for the greatest amount of unique variance in attitudes. Haddock and Zanna (1998) found beliefs were usually most salient in attitudes toward controversial topics.

Past experiences have been investigated in few studies using The Tripartite Theory (Breen et al. 2018; Croucamp et al. 2017; Haddock and Zanna 1997). In our study, participants' experiences were moderately and significantly associated with their attitudes toward VAD. However, they did not account for variance in attitude towards VAD, which is consistent with other studies that have found past experience to have little explanatory utility for attitudes (e.g., Breen et al. 2018; Croucamp et al. 2017). Studies that found length of work experience (Ay and Öz 2019) and experience with end-of-life (Terkamo-Moisio et al. 2019) to be significantly associated with attitudes toward VAD did not account for beliefs or emotions.

Participants' performance on the knowledge subscale indicated low knowledge of VAD. There were seven questions where more participants responded incorrectly or were not sure than those who responded correctly. Four of these were related to international guidelines or previous attempts at introducing voluntary assisted dying in Australia; three pertained to aspects of legislation (in Australia or internationally). This reflects findings from White et al. (2014) who reported gaps in physicians' legal knowledge related to end-of-life care. These authors argue that we need to improve physicians' knowledge of the law. Such knowledge would help mitigate the risk of patient harm and shield medical specialists (White et al. 2016). However, as knowledge was not significant in the GLMM, increasing knowledge is unlikely to influence attitudes toward VAD. This finding is consistent with previous research showing that knowledge did not explain any unique variance in nurses' general attitudes toward palliative care (Cohen et al. 2002).

Strength of religious beliefs was significant in explaining attitudes but religious affiliation was not. This finding suggests that the importance placed on religious beliefs influences attitude toward VAD, rather than religious beliefs. Higher strength of religious beliefs increased the likelihood of having a negative attitude toward VAD. This finding is consistent with literature reporting a negative relationship between religiosity and attitude toward VAD (McCormack et al. 2012). Breen et al. (2018) also found that importance of religion, rather than affiliation, was salient in attitudes toward grief counselling. Other research has found that religious affiliation, particularly with Christian faiths, was significantly associated with negative attitudes toward VAD (e.g., Smets et al. 2011). International research has also shown that nurses, working in Israel, who observed religious traditions were less likely to support VAD (Musgrave et al. 2001). However, due to sample size constraints, religious affiliation was included as a dichotomous variable in our study; therefore, we were unable to explore affiliation differences in attitudes. We also found that level of education was a significant correlate of attitudes towards VAD; participants with higher qualifications had a more positive attitude toward VAD. The other covariates, gender, experience in end-of-life care and years in end-of-life care were not significantly associated with attitudes toward VAD.

The most frequently expressed beliefs were related to patient autonomy, discordance with palliative care philosophy, preservation of dignity, potential for abuse, and conflict with professional role and ethics. These beliefs are consistent with the qualitative literature where divergent moral philosophies and opinions were reported (Blaschke et al. 2019; Young et al. 2019). This highlights the ethical and moral principles that make VAD such a complex issue to navigate. Most frequently cited emotions included concern, sadness, anger, hope and relief. This is consistent with qualitative findings, in which health professionals expressed strong, mixed emotions about VAD (Brooks 2019). Health professionals' experiences included various palliative care services and the death of a patient, family member or friend. Many participants had also attended information sessions, read literature regarding VAD or had discussed the topic with their colleagues. These experiences were not found to affect attitude toward VAD.

4.1. Implications and Conclusions

Previous qualitative literature has given a broad understanding of the diversity and the range of attitudes health professionals hold toward VAD (Blaschke et al. 2019;

Penman et al. 2021); however, it was unknown what contributed towards their attitudes. Our results have implications for health professionals where VAD is legal or under consideration. Our findings indicate that health professionals have polarised attitudes toward VAD that are underpinned by beliefs and emotions, while experience and knowledge were non-significant correlates of attitudes towards VAD. Beliefs were the strongest correlate from the tripartite model of attitudes towards VAD. This finding paralleled previous evidence that beliefs are the most important contributor to attitudes towards sensitive or controversial topics (Haddock and Zanna 1998). This research highlights the importance of reflexive practice to help health professionals identify their personal values and feelings related to VAD, and to understand how these may affect their clinical practice (Petrillo et al. 2017). Reflexive practice has been suggested to help reduce moral distress (Lynch and Forde 2016; Musto et al. 2015; Rivard and Brown 2019) and improve clinical practice (Dubé and Ducharme 2014) among health professionals. Additionally, low knowledge of VAD in our sample suggests that training and education should be mandatory, particularly with regard to legislative requirements and organisational policies (Beardsley et al. 2018).

Organisations should ensure clear guidelines for all staff in relation to VAD (Breen and Radermacher 2019) and can play a role in providing VAD education, opportunities for professional development, and supports to mitigate emotional distress (Petrillo et al. 2017).

4.2. Limitations and Directions for Future Research

This research has shown the utility of examining the components that underpin attitudes towards VAD, and future research should use this approach to explore similar research questions globally. Within our study, it is plausible that a respondent bias is present (i.e., only those with strong attitudes toward VAD may have completed the survey). Comparison with data from the Australian Bureau of Statistics (2017) shows that males and individuals from culturally diverse backgrounds were underrepresented in our sample, limiting generalisability.

Future research should also explore in greater detail the potential differences in attitudes towards VAD between health professionals with different demographic characteristics and cultural backgrounds. Future researchers may examine changes in health professionals' attitudes following the legalisation of VAD using a longitudinal approach. Specifically, longitudinal work should map changes in attitudes and beliefs within jurisdictions following the implementation of VAD. Further, it would be useful to map any educational changes, and law and policy variations, and how these may be related to changes in attitudes towards VAD.

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