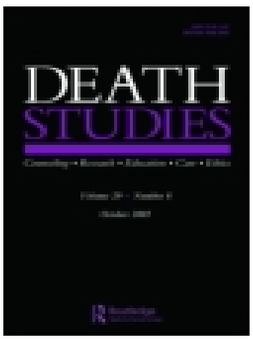

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Interpretation and timing of death: The development and initial validation of the interpretation of death (IOD) scale and the attitudes toward medical interventions in the timing of death (AMITOD) scale

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Interpretation and timing of death: The development and initial validation of the interpretation of death (IOD) scale and the attitudes toward medical interventions in the timing of death (AMITOD) scale

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ABSTRACT

Decreasing religious authority and increasing medical interventions at the end-of-life emphasize the importance of the interpretation and timing of death. Therefore, the three-dimensional interpretation of death scale (evaluating religious, rational, and personal interpretation of death) and the three-dimensional attitudes toward medical interventions in the timing of death scale (evaluating euthanasia, life prolongation and nonintervention) were constructed and assessed in a survey among 356 older Dutch adults. Religious interpretation of death was found to be associated with disapproval of euthanasia and approval of nonintervention, rational interpretation of death with approval of euthanasia, and personal interpretation of death with approval of nonintervention.

Introduction

During the course of history religion has often been regarded as a major source of meaning in the face of death. In 1912, Marett described the psychological function of religion as restoring confidence when people are shaken by crises such as sickness and death (Marett, 1912, pp. 211–212). Malinowski considered death, as "the supreme and final crisis of life", a paramount source of religion (Malinowski, 1925, p. 46). In a similar vein Peter Berger (1967) argued that while death threatens the basic assumptions of order on which society rests, religion establishes an all-embracing sacred order that maintains itself in the face of chaos. In his study on the sociology of death and dying, Kearl (1989, p. 197) observed that religion is the social institution traditionally having had the highest impact on the cultural death ethos. However, in contemporary society, the traditional "grand narratives" that answered the questions of creation, good life, good death, and the afterlife have lost their self-evident authority (Kellehear, 2017; Mellor & Shilling, 1993). Moreover, modernity has failed to replace the traditional religious certainties with scientific certainties (Bregman, 2003; Mellor & Shilling, 1993). On the contrary, contemporary society offers new narratives provided by world religions, shamanism, paganism, "deviant" Christian traditions, psychological traditions referring to the hidden dimensions of the inner self and other forms of alternative religiosity or spirituality (Bregman, 2003; Kellehear, 2017; Knoblauch, 2008). Mirroring these developments, a shift in authority on death can be observed from religious tradition toward medical expertise and finally toward dying individuals themselves (Walter, 1994). In line with such shifts, Bregman (2003) describes a "death awareness movement", which emerged in the 1970s. This movement firstly seemed to call for a "scientific" approach of death but later emphasized spirituality and personal experience. When evaluating the meanings people express while talking about approaching death, three realms of meaning can be discerned: meanings grounded in religious authority and established tradition, in rational and utilitarian reasoning, and in authentic self-expression (Fortuin, Schilderman, & Venbrux, 2017). Based on this previous study the "interpretation of death" (IOD) scale was developed, which evaluates the extent to which individuals have a religious, rational and/or personal interpretation of death. The present study describes and evaluates this scale.

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Aging individuals in contemporary society do not only face existential insecurity caused by the multiplicity of death explanations (Kellehear, 2017). The huge developments in medical technology, which offer more and more possibilities to prolong people's lives, have increasingly brought about a crisis in the timing of death. Indeed, Kellehear (2007) considers the timing of death to be the major challenge for dying in the future. Until the 1950s and 1960s, medical ethics was a matter of etiquette for physicians grounded in the principle of absolute respect for life. However, the rise and development of resuscitation and transplantation techniques during this period induced a radical change in the medical approach toward life and death, in which prolonging life did not seem to be the right decision in every attempt for resuscitation (Kater, Houtepen, De Vries, & Widdershoven, 2003). Such developments have caused contemporary end-of-life to occur rarely as a completely intervention-free process (Norwood, 2015). Presently, three approaches can be distinguished regarding medical interventions in the timing of death (Kellehear, 2017). Firstly, medical interventions such as cardiopulmonary resuscitation, ventilation, and artificial nutrition and hydration offer increasing possibilities to prolong life. Secondly, in some countries, medicine offers the possibility of termination of life by euthanasia or physician-assisted suicide. The Netherlands has the longest standing legal practice of euthanasia (Norwood, 2015) and therefore offers an interesting location for this study. Thirdly, the "death awareness movement" (Bregman, 2003) stresses the conception of death as "natural" and encourages nonintervention in the timing of death. This approach is in line with the aim of palliative care to improve the quality of life of patients with a life-threatening illness and their families by offering physical, psychosocial and spiritual support, intending neither to hasten nor to postpone death (World Health Organization, 2002). Considering these developments, the "attitudes toward medical interventions in the timing of death" (AMITOD) scale was developed, which assesses the extent to which individuals approve of euthanasia, life prolongation, and natural death. The present study describes and evaluates this scale. The shift in authority on death and the increase in medical interventions at the end-of-life emphasize the need to investigate the relationship between the interpretation and timing of death. As an initial validation of the two new scales, the relationships between the subdimensions of these scales were predicted and subsequently tested by means of regression analyses.

Study aims and hypotheses

This study aims to develop new scales evaluating the interpretation of death and attitudes toward medical interventions in the timing of death, to assess their reliability and to validate them in a sample of older Dutch adults. To assess the validity of these scales, several hypotheses were formulated concerning their associations.

Religious interpretation of death

Although there are many religions and many movements within them, we restrict the description of a religious interpretation of death in the Netherlands to Christianity – the traditional religious framework – and focus on the official viewpoints specified in the *Catechism of the Catholic Church* and expressed by the Community of Protestant Churches in Europe, while acknowledging the fact that believers will not always share these viewpoints. Christian theology views life as given in stewardship by God. Life is not a human property to be disposed of at one's own discretion but requires fundamental protection. This represents an important motif both for Catholic and Protestant churches to reject euthanasia (*Catechism of the Catholic Church*, 1994, para. 2270, 2277, 2280; Community of Protestant Churches in Europe, 2011). Previous quantitative research indeed demonstrates an association between religiosity and disapproval of euthanasia (Cohen et al., 2006; Danyliv & O'Neill, 2015; Verbrakel & Jaspers, 2010) and indicates the necessity for researchers to account for specific religious beliefs (Sharp, 2017). Therefore, we expect a religious interpretation of death to be associated with the disapproval of euthanasia. Because of the emphasis placed by Christian theology on the fundamental need to protect human life, and the association between religiosity and approval of life-prolonging medical interventions (Balboni et al., 2007; Carmel & Mutran, 1997; Rietjens et al., 2005), we expect a religious interpretation of death to be associated with approval of life prolongation. However, churches also state that the protection of human life should not be pursued at all costs. The Catholic church declares that discontinuation of medical procedures that are burdensome, dangerous, extraordinary or disproportionate to the expected outcome can be legitimate since death is not sought, but merely the inability to impede it is accepted (*Catechism of the Catholic Church*, 1994, para. 2278). Protestant churches even state that discontinuing or withholding life-prolonging treatment is not only permitted, but might in fact even be required as an element of proper care and compassion for a seriously, irrevocably, or terminally ill

patient (Community of Protestant Churches in Europe, 2011, p. 12). Catholic bishops argue that, as death is unavoidable and can open the door to eternal life, the dying should accept death's reality and prepare for it emotionally and spiritually – without in any way hastening the hour of death (Committee for Pro-Life Activities, National Conference of Catholic Bishops, 1992, p. 35). Protestant and Catholic churches encourage palliative care and endorse its acknowledgment of the spiritual dimension (*Catechism of the Catholic Church*, 1994, para. 2279; Committee for Pro-Life Activities, National Conference of Catholic Bishops, 1992; Community of Protestant Churches in Europe, 2011). The Christian approval of palliative care is consistent with the historical roots of the hospice movement in Christianity (Phipps, 1988). Therefore, we expect a religious interpretation of death to be associated with approval of natural death (nonintervention).

Rational interpretation of death

Modernity has brought about interconnected processes of urbanization, rationalization, medicalization, secularization, individualization, and professionalization (Kellehear, 2007; Walter, 1994). Kellehear views urbanization and professionalization as leading to a "well-managed death": a death that is made good by having the right people attend to you at the right time (Kellehear, 2007, pp. 145–149). The scientific stance of modernity, which rejects empirically unverifiable claims, has led to the undermining of afterlife beliefs and a view of death as a random event leading into nothingness (Dahnke & Dreher, 2011, p. 101; Fortuin et al., 2017; Kearl, 1989, p. 11; Kellehear, 2017). If death is conceived as the final end of everything, without any judgment or afterlife existence, there does not seem to be any reason to live on if the remaining life is full of illness-induced suffering. Therefore, we expect a rational interpretation of death to be associated with approval of euthanasia. In modernity, death became deconstructed into an extensive series of medical causes of death that should be combatted (Bauman, 1992; Fortuin et al., 2017; Norwood, 2015; Walter, 1994, p. 12). Therefore, we also expect a rational interpretation of death to be associated with approval of life-prolonging medical interventions – at least until the search for the latest medical miracles and cures is exhausted (Norwood, 2018). We expect a rational interpretation of death to stem from secular materialism, which implies an instrumentalist conception of nature (De Witt, de Boer, Hedlund, & Osseweijer, 2016). Therefore, we expect a rational interpretation of death to be associated with the disapproval of natural death.

Personal interpretation of death

A central theme of the "death awareness movement", which emerged in the 1970s, is the personal uniqueness of each dying individual (Bregman, 2003). Dying is conceived as a personal act of self-completion: "unfinished business" is wound up, forgiveness is given or asked and a peaceful sense of closure is found. Moreover, one's own personal being, actualization, and growth are to be turned into a central life-project, which is conceived to be of interest for others (Bregman, 2003). Another central theme is the conception of death as "natural". Nature as a category evokes a sense of ecological harmony and of larger cycles of life and death. The death awareness movement is characterized both by nostalgia for the pre-high-tech-medicine days of "natural death" and by a turn toward "pristine" religions in an effort to find a spirituality matching the ideal of a "natural death" – even though the portrayal of these "pristine" worldviews is imbued with nostalgia and idealization (Bregman, 2003). Because the death awareness movement emphasizes both personal uniqueness and natural death we expect a personal interpretation of death to be associated with approval of nonintervention. As it portrays death as a natural event, promising self-fulfillment through acceptance of nature's seasons of birth, growth, and death, thus opposing the active pursuit of death, we expect a personal interpretation of death to be associated with the disapproval of euthanasia. Moreover, because it criticizes medicalized high-tech deaths and aggressive medical treatments whose major purpose seems to be to artificially prolong dying, we expect a personal interpretation of death to be associated with the disapproval of life prolongation.

Methods

The predicted associations between the interpretation of death and attitudes toward medical interventions in the timing of death were tested in a survey study among older Dutch adults.

Research ethics

The research protocol was first assessed by the research ethics committee of the Radboud University Medical Center (CMO Arnhem-Nijmegen), which

judged in October 2015 that since the research does not entail health risks or other notable burdens it does not fall within the remit of the Medical Research Involving Human Subjects Act (WMO) (registration number: 2015–2040). Subsequently, it was assessed by the Ethics Assessment Committee Humanities of Radboud University, which gave consent in November 2015 (registration number: 8903).

Sample

As study population, the age group of 75 years and older was chosen, for two reasons. Firstly, the age of 75 is perceived as the boundary between "active old age" and "later old age", in which older adults increasingly need intensive care (de Hollander, Hoeymans, Melse, van Oers, & Polder, 2007, p. 186) and have more psychosocial complaints (van den Berg Jeths, Timmermans, Hoeymans, & Woittiez, 2004, p. 30), making the question of the right time to die increasingly salient. Secondly, especially people over 75 may experience the shift from living long toward living too long (Kellehear, 2007, pp. 232–233). In his well-known essay on the self-chosen end of old people, Drion argued for legal distribution of medical means for euthanasia to Dutch people of 75 years and older – an issue that is still being discussed in the Netherlands (Drion, 1992). Thus, especially Dutch adults of 75 years and older will feel involved in the public debate on euthanasia in later life. The sample was drawn by the commercial agency Cendris, a subdivision of the Dutch national postal services, which provides addresses of Dutch consumers who have assented to the use and/or passing on of their addresses for direct mail. Cendris randomly selected 3000 addresses from an address pool of 269,160 addresses of Dutch adults estimated to be between 75 and 79 years old; an address pool representing 21% of the total Dutch population of 75 years and older. The selected people received a printed questionnaire by post in January 2016. Of the selected people 56 were reported to have died and 67 to have moved. Although the estimated age range of selected people was expected to contain only 1–2% errors, 114 selected people reported they could not participate since they were younger than 75 and 52 of the 356 respondents were older than 79 – indicating that in this case, the age assessment techniques had been less reliable than expected. Some respondents wrote their exact age on the questionnaire (which had not been requested); the oldest of these was 96 years old. Of the selected 2,763 people that could, in principle, participate 356 returned the survey, giving a response rate of 13%.[1] Table 1 presents the sample characteristics; where possible compared with the Dutch population of 75 years and older. Compared with the general Dutch population of 75 years and older in our sample men, people younger than 80, married people, people born in the Netherlands, higher educated people and religiously unaffiliated people were over-represented. Conversely, widowed people, people with lower education, Protestants, people with a religious affiliation other than Catholic or Protestant and institutionalized people were under-represented. When considering the mean values of the scales as reported in Table 1, the biases in the sample should be heeded. As the aim of this study is not descriptive but correlational we expect these biases in the sample not to over-influence the study results. The data-set has been deposited (both in Dutch and translated into English) at the Dutch data archive DANS (https://doi.org/10.17026/dans-xgz-qaft).

Item generation IOD scale

Based on our previous qualitative study exploring religious, rational and personal meanings concerning death (Fortuin et al., 2017) we developed a 27-item IOD scale. The initial scale consisted of nine items describing a religious interpretation of death (e.g., "I see my death as a coming home with God"), nine describing a rational interpretation of death (e.g. "My death means my absolute ending") and nine describing a personal interpretation of death (e.g. "I find it utterly important that I will be able to die in a way that is consistent with my way of living"). The scale was constructed in such a way that for each dimension items were included on death, afterlife belief, suffering during the last phase of life, meaning of life and funerary wishes. Items were scored on a 5-point Likert scale ranging from 1 (disagree completely) to 5 (agree completely). After formulation of these items, their face value was discussed in two panels of scholars of religion, after which some items were rephrased. The description of the dataset on DANS (https://doi.org/10.17026/dans-xgz-qaft) reports all 27 rephrased initial items. These were tested in a principal axis factoring factor analysis with oblique (oblimin) rotation based on the data collected in our survey study. Multiple factor analysis runs indicated that four items describing a religious interpretation of death had to be removed because of redundancy. Additionally, four items describing a rational interpretation of death were removed because of very low correlations ($R < 0.3$) with

all other variables and one was removed because of ambiguous factor loadings. Finally, two items describing a personal interpretation of death were removed because they loaded highest on the factor describing a religious interpretation of death, one was removed because of ambiguous factor loadings and one item (on reincarnation) was removed because it caused a new factor to appear. Removal of these items led to the final scale with 14 items that will be discussed in the results section.

Item generation AMITOD scale

In the Netherlands, euthanasia occurs far more often than physician-assisted suicide. In 2017, 6306 cases of euthanasia were reported, 250 cases of assisted suicide and 29 cases that were a combination of the two (Regional Euthanasia Review Committees, 2018, p. 11). Therefore, it is common that both forms of termination of life are referred to with the term 'euthanasia', both in parlance and in official reports (Regional Euthanasia Review Committees, 2018, p. 9). To conform to Dutch practice, in the AMITOD scale the term "euthanasia" was used instead of "euthanasia or physician-assisted suicide". Initially, 16 items were developed for the AMITOD scale; four items each for attitudes in favor of life termination, life prolongation, and natural death. For the sake of completeness, in the initial questionnaire also four items on cessation of futile medical treatment were included. Items were scored on a 5-point Likert scale ranging from 1 (disagree completely) to 5 (agree completely). After formulation of these items, their face value was discussed with several medical experts and religious scholars, and some were rephrased. The description of the dataset on DANS (https://doi.org/10.17026/dans-xgz-qaft) reports all 16 rephrased initial items. These were tested in a principal axis factoring factor analysis with oblique (oblimin) rotation based on the data collected in our survey. The initial factor analysis showed that the four items describing the cessation of futile medical treatment had to be removed because of ambiguous factor loadings. This led to the final scale with 12 items that will be discussed in the results section.

Religious variables

To evaluate whether associations between a religious interpretation of death and attitudes toward medical interventions in the timing of death are simply a reflection of respondents' overall religiosity, we controlled for church attendance, religious affiliation, and commitment toward one's worldview. Church attendance was measured on a scale ranging from (1) less than once a year/(almost) never to (6) weekly or more often.[2] Religious affiliation of respondents was divided into three groups: Catholics (the reference group), Protestants and religiously unaffiliated respondents. Of the 85 Protestant respondents, 67 were mainline, seven orthodox or pietistic, eight evangelical and three latitudinarian Protestants. Commitment of older adults toward their worldview was evaluated with the Utrecht Management of Identity Commitments Scale (U-MICS), a three-dimensional model evaluating the dynamics of identity formation, evaluation, and revision (Crocetti, Rubini, & Meeus, 2008; Crocetti, Schwartz, Fermani, & Meeus, 2010; Meeus, van de Schoot, Keijsers, Schwartz, & Branje, 2010). Crocetti et al. (2008, 2010) used this scale to evaluate educational and relational identity. We applied it to the identity domain of "worldview", which we described as "your personal outlook on life: on the value and nature of life and how it should be lived". Factor analysis of our survey data indicates three factors representing commitment toward one's worldview, in-depth exploration of one's worldview and reconsideration of the commitment toward one's worldview. In a previous article we expounded the application of this scale in our survey among older Dutch adults (Fortuin, Schilderman, & Venbrux, 2018).

Sociodemographic variables

To investigate the influence of sociodemographic variables, in a third model run we controlled for health-related quality of life, education, civil state, parenthood, gender, and age. Health-related quality of life was measured by the EQ-5D-5L scale, a validated instrument that has been made suitable for economic evaluations by attachment of societal values to all 3125 possible health states (Brooks, 1996; Herdman et al., 2011; Janssen et al., 2013; The Euroqol Group, 1990; Versteegh et al., 2016). The resulting tariff score can be used to estimate the impact of health care interventions on quality of life. The Dutch tariff for the EQ-5D-5L (Versteegh et al., 2016) was used to calculate a tariff score for each respondent. Education level was measured on a scale ranging from (1) "no completed education after primary education" to (12) "PhD or doctorate". Civil state was measured in four groups: married or civil partnership (the reference group), unmarried (never been in marriage or civil partnership), widowed (after marriage or civil partnership) and divorced (after marriage or civil partnership).

Parenthood was measured as (0) "having living children and/or grandchildren" and (1) "having no living children and/or grandchildren". Gender was measured as (0) male and (1) female. Age was measured as (0) 75–79[3] and (1) 80+.

Results

Factor structure and internal consistency IOD scale

A principal axis factoring factor analysis ($N = 322$) with oblique rotation (oblimin) on the remaining 14 items indicates that the determinant of the correlation matrix is 0.00024, which is above the boundary value of 0.00001 (Field, 2013, p. 695), indicating that there are no problems with multicollinearity. The Kaiser-Meyer-Olkin measure (KMO = 0.90) verifies the sampling adequacy (on the boundary between "meritorious" and "marvelous" according to Hutcheson & Sofroniou, 1999, p. 225) and all KMO values for individual items exceed 0.60, which is above the acceptable limit of 0.5 (Field, 2013, p. 695). Bartlett's test of sphericity is significant ($p < 0.001$). An initial analysis was run to obtain eigenvalues for each factor in the data. Three factors have eigenvalues over Kaiser's criterion of 1 and together explain 63.73% of the variance. The scree plot shows inflexions that justify retaining three factors. Thus, the factor analysis confirms the three-dimensional theoretical structure of this scale. Table 2 shows the factor loadings after rotation. The items that cluster on the same factor indicate that factor one represents a religious, factor two a personal and factor three a rational interpretation of death. A religious interpretation of death is positively related with a personal interpretation of death (factor correlation = 0.33) and negatively related with a rational interpretation of death (factor correlation= −0.46). A personal interpretation of death is uncorrelated with a rational interpretation of death (factor correlation = 0.01). Reliability of the religious interpretation of death subscale is very high (Cronbach's $\alpha = 0.96$), indicating that this subscale could be shortened for future use (DeVellis, 2012, p. 109). Reliability of the rational interpretation of death subscale is respectable (Cronbach's $\alpha = 0.73$). Reliability of the personal interpretation of death subscale is undesirable, albeit not unacceptable (Cronbach's $\alpha = 0.63$; DeVellis, 2012, p. 109). The factor loadings of item 13 of this subscale ("My life is always meaningful because under all circumstances it offers me possibilities of inner growth") indicate ambiguity since this item loads only slightly higher on its own factor than on the factor religious interpretation of death. This is probably caused by inner growth having both a personal connotation (my own development) as a spiritual connotation (spiritual development). Since deletion of this item would reduce the reliability of the personal interpretation of death subscale to 0.58, making it unacceptable, this item was retained.

Factor structure and internal consistency AMITOD scale

A principal axis factoring factor analysis ($N = 328$) on the remaining 12 items with oblique rotation (promax)[4] indicates that the determinant of the correlation matrix is 0.002. This is well above the boundary value of 0.00001 (Field, 2013, p. 695), indicating that there are no problems with multicollinearity. The KMO measure (KMO = 0.82) verifies the sampling adequacy for the analysis ("meritorious" according to Hutcheson and Sofroniou, 1999, p. 225) and all KMO values for individual items are above the acceptable limit of 0.5 (Field, 2013, p. 695). Bartlett's test of sphericity is significant ($p < 0.001$). An initial analysis was run to obtain eigenvalues for each factor in the data. Three factors have eigenvalues over Kaiser's criterion of 1 and together explain 69.07% of the variance. Moreover, the scree plot shows inflexions that justify retaining three factors. Thus, the factor analysis confirms the three-dimensional theoretical structure of this scale. Table 3 shows the factor loadings after rotation. The items that cluster on the same factor indicate that factor one represents approval of euthanasia, factor two approval of life-prolonging medical interventions and factor three approval of nonintervention, thus of natural death. The factor euthanasia is negatively correlated with the factors life prolongation (factor correlation = −0.41) and nonintervention (factor correlation = −0.16). The factors life prolongation and nonintervention are positively correlated (factor correlation = 0.23). Reliability is very good for the euthanasia subscale (Cronbach's $\alpha = 0.93$) and the life prolongation subscale (Cronbach's $\alpha = 0.84$) and respectable for the nonintervention subscale (Cronbach's $\alpha = 0.72$; DeVellis, 2012, p. 109).

Models and assumptions

To evaluate the validity of the newly developed scales the hypothesized relationships between the interpretation of death and attitudes toward medical interventions in the timing of death were tested in three series of hierarchical

Table 1. Sample characteristics; where possible compared with the Dutch population of 75 years and older.

Variable	Sample			Dutch 75+ population	
	Mean (standard deviation) or category	*N*	%	*N*	%
Gender	Male	227	63.8	532,798	40.7
	Female	129	36.2	776,295[a]	59.3
Age[b]	75–79	301	85.3	560,345	42.8
	80+	52	14.7	748,748	57.2
Civil state	Single	15	4.2	66,281	5.1
	Married/civil partnership	228	64.4	623,516	47.6
	Widowed	83	23.4	526,913	40.3
	Divorced	28	7.9	92,383	7.1
Country of birth	Netherlands	344	97.7	1,147,800	87.7
	other country	8	2.3	161,293	12.3
Education level	Lower	171	48.3	700,000	58.6
	Intermediary	90	25.4	343,000	28.7
	Higher	93	26.3	151,000[c]	12.6
Church membership	None	136	38.9		28
	Roman Catholic	127	36.3		36
	Protestant	85	24.3		31
	Other	2	0.6		5[d]
Church attendance[e]	Weekly or more often	56	16.0		20
	Several times a month	38	10.9		6
	Monthly	10	2.9		5
	One to ten times a year	49	14.0		7
	Seldom/never	197	56.3		62
Living situation	Community-dwelling	336	97.1		
	Institutionalized	10	2.9	110,159[f]	8.4
Commitment	3.49 (0.81)	347			
Exploration	2.59 (0.76)	346			
Reconsideration	1.81 (0.63)	343			
Religious interpretation of death	2.91 (1.32)	351			
Rational interpretation of death	3.66 (0.95)	343			
Personal interpretation of death	3.66 (0.65)	333			
Euthanasia	4.25 (0.92)	347			
Life prolongation	2.08 (0.90)	346			
Nonintervention	3.80 (0.75)	335			
EQ-5D-5L tariff	0.82 (0.20)	346			

[a]Source for population values on gender, age, civil state and country of birth: Statline, Statistics Netherlands, "Population in The Netherlands on 1 January by sex, age, marital status, migration background and generation"; year: 2016 (https://opendata.cbs.nl/statline/portal.html?_la=en&_catalog=CBS&tableId=37325eng&_theme=1046).

[b]Nine respondents who were still 74 but would turn 75 in the year the survey was taken, were included in the age range of 75–79. The three respondents who did not indicate their age range did declare they were 75 years or older.

[c]Source for population values on education level: Statline, Statistics Netherlands, datafile "Bevolking; hoogstbehaald onderwijsniveau en onderwijsrichting"; year: 2016; first quarter (https://opendata.cbs.nl/#/CBS/nl/dataset/82816NED/table?ts=1516870377246); data based on the Labour Force Survey (LFS).

[d]Source for population values on church membership and attendance: Statline, Statistics Netherlands, datafile: "Religieuze betrokkenheid; persoonskenmerken"; year 2016 (https://opendata.cbs.nl/#/CBS/nl/dataset/82904NED/table?ts=1516870408662); data based on the survey "Social cohesion and well-being".

[e]For religiously unaffiliated respondents, who were not requested to indicate their frequency of church attendance, frequency of church attendance was set at the lowest level.

[f]Source for population values on institutionalization: Statline, Statistics Netherlands, datafile "Personen in institutionele huishoudens; geslacht en leeftijd"; year 2016, January the first. https://opendata.cbs.nl/#/CBS/nl/dataset/82887NED/table?ts=1516870439308).

linear regression analyses, predicting attitudes toward euthanasia, life prolongation, and nonintervention. Each series is based on three successive models using forced entry. In the first model, religious, rational and personal interpretation of death were entered as predictors. In the second model church attendance, religious affiliation, and commitment, exploration and reconsideration of the commitment toward one's worldview were added as religious control variables. In the third model health-related quality of life, education, civil state, parenthood, gender and age were added as socio-demographic control variables. For all regression analyses variance inflation factors of predictors are below 3.3, which is well below the cutoff value of 10 (Meuleman, Loosveldt, & Emonds, 2015, p. 107), indicating that there are no problems with multicollinearity. For all regressions the Durbin–Watson statistics (2.02, 2.00, and 1.96) are very close to 2, indicating that the assumption of independent errors had been met (Field, 2013, p. 311). Case-wise diagnostics indicate that 94.9% (for euthanasia), 96.0% (for life prolongation), and 95.2% (for nonintervention) of cases have standardized residuals within ±1.96, which is close to the expected 95%. All outliers have Cook's distance < 0.13, which is well below the cutoff value of 1 (Field, 2013, p. 306, 345). The P–P plot of the regression standardized residual indicates negative skew for euthanasia and, to a lesser

Table 2. Rotated factor loadings of the interpretation of death (IOD) scale. Factor loadings over 0.35 appear in bold ($N = 322$).

Item[a]	*F*1	*F*2	*F*3
I believe that God will judge me after my death.[b]	**0.92**	0.02	0.04
I believe that after death we leave the earthly realm and enter the heavenly realm of God.	**0.89**	0.00	−0.05
During the last phase of my life I find it important to pray to God.	**0.89**	0.02	−0.05
I see my death as a coming home with God.	**0.88**	0.05	−0.08
My life and death are in God's hand.	**0.86**	−0.08	−0.08
I find it important to take time during the last phase of my life to ponder my life story.	0.13	**0.56**	−0.12
Before I die I wish to prepare a personal legacy, such as letters and gifts for my loved ones, poems, a book of memories or a work of art.	−0.14	**0.52**	−0.09
After my death I wish for a personal funeral that exactly expresses who I am.	0.18	**0.47**	0.09
I find it utterly important that I will be able to die in a way that is consistent with my way of living.	0.00	**0.42**	0.26
My life is always meaningful because under all circumstances it offers me possibilities of inner growth.	0.29	**0.35**	−0.05
My consciousness will utterly cease to exist when my brain stops functioning.	0.09	0.00	**0.68**
The world we can perceive here and now is the only thing that exists.	−0.21	−0.08	**0.55**
Suffering during the last phase of life is meaningless.	−0.13	0.02	**0.53**
My death means my absolute ending.	−0.34	−0.08	**0.50**
Eigenvalues	5.88	1.85	1.19
% of variance	41.98	13.25	8.50
α	0.96	0.63	0.73

[a]All items were originally phrased in Dutch and have been translated by the first author.

[b]In order to explicate what is meant by God, we wrote above this scale: "It is important that, where 'God' is mentioned, we do not necessarily mean the Christian God. You can also read 'the creator', 'Allah', 'the eternal' or another indication for who or what you consider to be God or the divine".

Table 3. Rotated factor loadings of the attitudes toward medical interventions in the timing of death (AMITOD) scale. Factor loadings over 0.35 appear in bold ($N = 328$).

Item[a]	*F*1	*F*2	*F*3
I find it a good thing that, should I find myself in a situation of unbearable and hopeless suffering, I can request a physician for euthanasia.	**0.95**	0.06	0.00
I find it reassuring that, if I suffer unbearably and hopelessly, my life can be ended by a physician at my request.	**0.92**	0.02	0.05
I can imagine requesting my physician for euthanasia in case of unbearable and hopeless suffering.	**0.85**	−0.09	−0.02
I approve of the fact that physicians have the possibility to end my life at my request in case of hopeless and unbearable suffering.	**0.73**	−0.01	−0.03
I want the moment of my death to be postponed as long as possible by medical interventions.	0.04	**0.84**	0.04
I want physicians to always do what they can to resuscitate me, even if I do not have much longer to live.	0.01	**0.74**	−0.01
I want physicians to apply all possible medical means to prolong my life, even if I can no longer be cured.	0.01	**0.73**	−0.05
I wish to be kept alive as long as possible, even if that means that I will be dependent on medical aids such as artificial respiration, coronary care or tube feeding.	−0.10	**0.71**	−0.02
I find it important that the moment of my death will be determined by my own body.	−0.06	−0.01	**0.70**
I want to die in a natural way and in homely surroundings.	0.11	0.05	**0.66**
I want my passing away to be as natural as possible.	−0.02	0.14	**0.61**
I want as little interference as possible in the natural dying process of my body.	−0.04	−0.20	**0.59**
Eigenvalues	4.33	2.12	1.84
% of variance	36.07	17.70	15.30
α	0.93	0.84	0.72

[a]All items were originally phrased in Dutch and have been translated by the first author.

degree, for nonintervention and some positive skew for life prolongation. Therefore, 2000 bootstrap samples were used to determine the 95% bias corrected and accelerated (BCa) confidence intervals and significance levels of *B*, which do not rely on assumptions of normality or homoscedasticity (Field, 2013, p. 320). None of the confidence intervals of the *B*-values that are significant at $p < 0.050$ cross zero, giving confidence that for these predictors there is a genuine effect in the population.

Euthanasia

The results of the regression analysis for euthanasia ($N = 297$) are shown in Table 4. The change statistics (F change = 39.7) indicate that model one, which accounts for 28.9% of the variation in euthanasia attitudes, leads to a significant increase in explained variance ($p < 0.001$). In this model religious interpretation of death is a significant negative ($p < 0.001$) and rational interpretation of death a significant positive ($p < 0.001$) predictor of approval of euthanasia. The change statistics (F change = 5.8) show that model two, which accounts for 36.6% of the variation in euthanasia attitudes, leads to a significant increase in explained variance ($p < 0.001$). After the addition of other religious variables, rational interpretation of death remains a significant positive ($p < 0.001$) and religious interpretation of death remains a significant negative ($p < 0.05$) predictor of approval of euthanasia. Moreover, church attendance also emerges as a significant negative ($p < 0.001$) predictor of approval of euthanasia. The change statistics (F change = 0.7) of the third model, which accounts for 37.8% of the

Table 4. Linear regression analyses for attitudes toward euthanasia (*B* and *β*) with 95% BCa confidence intervals of *B* based on 2000 bootstrap samples reported in parentheses.

	Model 1 ($R^2 = 0.289$) (R^2 adj. = 0.282)		Model 2 ($R^2 = 0.366$) (R^2 adj. = 0.346)		Model 3 ($R^2 = 0.378$) (R^2 adj. = 0.341)	
Euthanasia ($N = 297$)	*B*	*β*	*B*	*β*	*B*	*β*
Religious interpretation of death	−0.20*** (−0.29, −0.10)	−0.29***	−0.12* (−0.24, −0.01)	−0.18*	−0.14* (−0.25, −0.02)	−0.20*
Rational interpretation of death	0.31*** (0.18, 0.45)	0.33***	0.22*** (0.11, 0.36)	0.24***	0.23*** (0.11, 0.36)	0.24***
Personal interpretation of death	0.09 (−0.06, 0.23)	0.07	0.12 (−0.03, 0.27)	0.09	0.13 (−0.01, 0.28)	0.09
Church attendance			−0.13*** (−0.21, −0.06)	−0.30***	−0.13** (−0.21, −0.05)	−0.28***
Religious affiliation (ref. = Catholic) Protestant			−0.19 (−0.46, 0.08)	−0.09	−0.17 (−0.45, 0.11)	−0.08
Unaffiliated			−0.21 (−.45,.01)	−0.12	−0.19 (−.44,.02)	−0.11
Commitment			0.00 (−0.13, 0.13)	0.00	0.02 (−0.11, 0.14)	0.01
Exploration			−0.09 (−0.26, 0.07)	−0.08	−0.11 (−0.28, 0.06)	−0.09
Reconsideration			0.05 (−0.10, 0.20)	0.03	0.04 (−0.13, 0.21)	0.03
Health-related quality of life (EQ-5D-5L)					−0.22 (−0.65, 0.23)	−0.05
Education level					−0.01 (−0.04, 0.03)	−0.03
Civil state (ref.=married) Widowed					−0.14 (−0.40, 0.10)	−0.07
Unmarried					0.21 (−0.38, 0.83)	0.05
Divorced					0.07 (−0.23, 0.37)	0.02
Childless (ref.=having children)					−0.18 (−0.66, 0.27)	−0.06
Gender (ref = male)					0.11 (−0.13, 0.32)	0.06
Age (ref = 75 − 79)					0.09 (−0.14, 0.31)	0.03

*$p < 0.050$; **$p < 0.010$; ***$p < 0.001$.

variation in euthanasia attitudes, indicate that the change in explained variance due to the addition of socio-demographic control variables is non-significant. Moreover, the adjusted R^2 decreases from model two to model three, indicating that the explanatory power of model three is less than that of model two. None of the socio-demographic variables are significant predictors of euthanasia attitudes. Addition of sociodemographic variables does not change the significance levels of the other predictors, except for the significance level of the *B*-value of church attendance, which decreases to $p < 0.01$. The regression analysis confirms the hypothesized associations between a religious interpretation of death and disapproval of euthanasia and between a rational interpretation of death and approval of euthanasia. However, it rejects the hypothesized association between a personal interpretation of death and disapproval of euthanasia.

Life prolongation

The results of the regression analysis for life prolongation ($N = 297$) are shown in Table 5. The change statistics (F change = 10.4) of the first model, which accounts for 9.6% of the variation in attitudes toward life prolongation, indicate that this model leads to a significant increase in explained variance ($p < 0.001$). In this model religious interpretation of death is a significant positive predictor of approval of life prolongation (p $B < 0.01$ and p $\beta < 0.001$). The change statistics (F change = 5.5) of the second model, which accounts for 18.9% of the variation in attitudes toward life prolongation, indicate that this model leads to a significant increase in explained variance ($p < 0.001$). After addition of religious variables, religious interpretation of death is no longer a significant predictor of approval of life prolongation. However, reconsideration of the commitment toward one's worldview (p $B < 0.01$ and p $\beta < 0.001$), church attendance (p $B < 0.05$ and p $\beta < 0.01$) and being Catholic instead of religiously unaffiliated (p $B < 0.05$ and p $\beta < 0.01$) emerge as significant positive predictors of approval of life prolongation. The change statistics (F change = 1.7) of the third model, which accounts for 22.7% of the variation in attitudes toward life prolongation, indicate that the explained variance does not significantly increase due to the addition of socio-demographic variables. However, gender emerges as a significant predictor of approval of life prolongation ($p < 0.001$): older Dutch women are less likely to appreciate life prolongation than older Dutch men. After addition of sociodemographic variables the significance level of the *B*-value of church attendance increases to $p < 0.01$, the significance level of the β-value of being religiously unaffiliated instead of Catholic decreases to $p < 0.05$ and the significance level of the β-value of reconsideration decreases to $p < 0.01$. The regression analysis rejects all hypothesized relationships between the interpretation of death and attitudes toward life prolongation.

Nonintervention

The results of the regression analysis for nonintervention ($N = 292$) are shown in Table 6. The change statistics (F change = 14.1) of the first model, which

Table 5. Linear regression analyses for attitudes toward life prolongation (*B* and *β*) with 95% BCa confidence intervals of *B* based on 2000 bootstrap samples reported in parentheses.

	Model 1 ($R^2 = 0.096$) (R^2 adj. = 0.087)		Model 2 ($R^2 = 0.189$) (R^2 adj. = 0.164)		Model 3 ($R^2 = 0.227$) (R^2 adj. = 0.180)	
Life prolongation ($N = 297$)	*B*	*β*	*B*	*β*	*B*	*β*
Religious Interpretation of death	0.20** (0.09, 0.32)	0.30***	0.04 (−0.10, 0.17)	0.05	0.04 (−0.10, 0.19)	0.06
Rational interpretation of death	0.01 (−0.16, 0.15)	0.01	−0.03 (−0.19, 0.12)	−0.03	−0.03 (−0.18, 0.10)	−0.03
Personal interpretation of death	0.05 (−0.11, 0.22)	0.03	0.07 (−0.09, 0.24)	0.05	0.08 (−0.07, 0.26)	0.06
Church attendance			0.10* (0.02, 0.17)	0.22**	0.10** (0.02, 0.18)	0.23**
Religious affiliation (ref. = Catholic) Protestant			−0.22 (−0.48, 0.03)	−0.11	−0.24 (−0.50, 0.03)	−0.11
Unaffiliated			−0.39* (−0.69, −0.09)	−0.21**	−0.38* (−0.70, −0.08)	−0.21*
Commitment			0.05 (−0.09, 0.19)	0.04	0.03 (−0.12, 0.17)	0.02
Exploration			−0.09 (−0.28, 0.09)	−0.08	−0.09 (−0.28, 0.09)	−0.07
Reconsideration			0.30** (0.11, 0.50)	0.20***	0.28** (0.10, 0.47)	0.19**
Health-related quality of life (EQ-5D-5L)					0.11 (−0.52, 0.63)	0.02
Education level					−0.02 (−0.05, 0.02)	−0.06
Civil state (ref = married) Widowed					0.22 (−0.04, 0.49)	0.10
Unmarried					0.23 (−0.47, 0.90)	0.06
Divorced					0.19 (−0.17, 0.51)	0.06
Childless (ref = having children)					−0.13 (−0.50, 0.27)	−0.04
Gender (ref = male)					−0.43*** (−0.67, −0.17)	−0.23***
Age (ref = 75 − 79)					0.04 (−0.22, 0.29)	0.01

*$p < 0.050$; **$p < 0.010$; ***$p < 0.001$.

Table 6. Linear regression analyses for attitudes toward nonintervention (*B* and *β*) with 95% BCa confidence intervals of *B* based on 2000 bootstrap samples reported in parentheses.

	Model 1 ($R^2 = 0.128$) (R^2 adj. = 0.119)		Model 2 ($R^2 = 0.154$) (R^2 adj. = 0.127)		Model 3 ($R^2 = 0.195$) (R^2 adj. = 0.145)	
Nonintervention ($N = 292$)	*B*	*β*	*B*	*β*	*B*	*β*
Religious interpretation of death	0.11* (0.02, 0.20)	0.19**	0.09 (−0.02, 0.19)	0.15	0.11* (0.01, 0.22)	0.19*
Rational interpretation of death	−0.01 (−0.12, 0.10)	−0.01	−0.03 (−0.15, 0.08)	−0.04	−0.03 (−0.15, 0.08)	−0.04
Personal interpretation of death	0.28*** (0.14, 0.42)	0.24***	0.26*** (0.12, 0.41)	0.22***	0.24** (0.09, 0.39)	0.20***
Church attendance			0.03 (−0.03, 0.09)	0.07	0.02 (−0.04, 0.07)	0.04
Religious affiliation (ref.=Catholic) Protestant			−0.11 (−0.31, 0.09)	−0.06	−0.12 (−0.34, 0.09)	−0.07
Unaffiliated			0.02 (−0.22, 0.27)	0.01	0.03 (−0.24, 0.29)	0.02
Commitment			0.18* (0.01, 0.35)	0.18**	0.15 (−0.03, 0.33)	0.15*
Exploration			−0.09 (−0.24, 0.06)	−0.09	−0.08 (−0.23, 0.06)	−0.08
Reconsideration			0.09 (−0.07, 0.27)	0.07	0.06 (−0.11, 0.23)	0.04
Health-related quality of life (EQ-5D-5L)					0.75* (0.05, 1.36)	0.20**
Education level					−0.02 (−0.05, 0.01)	−0.07
Civil state (ref = married) Widowed					0.07 (−0.17, 0.32)	0.04
Unmarried					0.30 (−0.32, 0.89)	0.08
Divorced					0.07 (−0.25, 0.36)	0.02
Childless (ref = having children)					−0.09 (−0.53, 0.31)	−0.03
Gender (ref = male)					−0.05 (−0.26, 0.16)	−0.03
Age (ref = 75 − 79)					0.01 (−0.27, 0.29)	0.00

*$p < 0.050$; **$p < 0.010$; ***$p < 0.001$.

accounts for 12.8% of the variation in attitudes toward nonintervention, indicate that this model leads to a significant increase in explained variance ($p < 0.001$). In this model personal interpretation of death ($p < 0.001$) and religious interpretation of death ($p\ B < 0.05$ and $p\ \beta < 0.01$) are positive predictors of approval of nonintervention. The change statistics (F change = 1.5) of the second model, which accounts for 15.4% of the variation in attitudes toward nonintervention, indicate that the change in explained variance due to the addition of religious variables is non-significant. After addition of religious variables religious interpretation of death becomes non-significant, but commitment toward one's worldview emerges as a significant predictor of nonintervention ($p\ B < 0.05$ and $p\ \beta < 0.01$). The change statistics (F change = 1.7) of the third model, which accounts for 19.5% of the variation in attitudes toward nonintervention, indicate that the change in explained variance due to the addition of socio-demographic variables is non-significant. However, health-related quality of life emerges as a significant positive predictor of approval of nonintervention ($p\ B < 0.05$ and $p\ \beta < 0.01$). After addition of socio-demographic variables religious interpretation of death becomes significant ($p < 0.05$), the significance level of the *B*-value of personal interpretation of death decreases to $p < 0.01$ and the significance level of commitment decreases (*B* becomes non-significant and $p\ \beta < 0.05$). Since only the *β*-value of commitment remains significant, commitment is

not considered a significant predictor of approval of nonintervention. The regression analysis confirms the hypothesized associations between a religious and personal interpretation of death and approval of nonintervention. However, it rejects the hypothesized association between a rational interpretation of death and disapproval of nonintervention.

Discussion

The aim of this study is the development of two new scales – evaluating the interpretation of death and attitudes toward medical interventions in the timing of death – and assessment of their factor structure, reliability, and validity. Our survey among older Dutch adults confirms the three subscales of the IOD scale, representing a religious, rational and personal interpretation of death. These subscales correspond quite well with the factors "Christian meaning of life and death", "denial of meaning of life and death", and "personal meaning of life and death" that were found in a principal component analysis of survey data on socio-cultural developments in the Netherlands (Wojtkowiak, Rutjens, & Venbrux, 2010). It also confirms the three subscales of the AMITOD scale, representing approval of euthanasia, life prolongation, and nonintervention. The validity of these scales was examined by hypothesizing and subsequently testing the expected relationships between the dimensions of these scales. Of the nine hypothesized relationships, four were confirmed. A religious interpretation of death was found to be associated with the disapproval of euthanasia and the approval of nonintervention, a rational interpretation of death with the approval of euthanasia and a personal interpretation of death with the approval of nonintervention. Our finding that the three dimensions of the IOD scale are differently associated with attitudes toward medical interventions in the timing of death confirms that the dimensions religious, rational, and personal interpretation of death indeed have different meanings – and religious and rational interpretation of death are not merely the reverse of each other.

Our finding that a rational interpretation of death is positively associated with approval of euthanasia suggests that rationalization and medicalization of death indeed go hand in hand – although our study does not indicate a relationship between rationalization and approval of life prolongation, another possible aspect of medicalization. Apparently, for older Dutch adults, a rational conception of death does not induce a wish for sophisticated medical technologies that combat death. Our finding that a religious interpretation of death is both associated with lower approval of euthanasia and higher approval of nonintervention indicates that indeed a theological view on death may endorse both the fundamental right of protection of human life and the need to accept the reality of death and to prepare for it both emotionally and spiritually. Moreover, our finding that a personal interpretation of death is significantly associated with the approval of nonintervention indicates that the conception of death as "natural" and the personal uniqueness of each dying individual are indeed co-occurring notions in current conceptions of death and dying (Bregman, 2003).

Apart from the hypothesized relationships, our study also indicates other associations. Health-related quality of life of older Dutch adults was found to be associated with the approval of nonintervention. This seems plausible since healthier people are expected to have more faith in their bodies and will, therefore, more likely wish for their bodies to determine the moment of death. Church attendance was found to be associated with the disapproval of euthanasia and the approval of life prolongation. Moreover, church attendance is a more significant predictor of the disapproval of euthanasia than a religious interpretation of death. This suggests that going to church – where the view of the church on euthanasia may be actively spread – discourages euthanasia more than merely a religious interpretation of death. The association between church attendance and the approval of life prolongation may be explained in different ways. Perhaps some churchgoers may experience the choice not to prolong life as to some extent related to suicide. In such cases, the emphasis laid by churches on the need to protect life may discourage such decisions. Moreover, church attendance embeds older adults in a social network that can be perceived as supportive and it may help older adults to find meaning in life. Such social and – possibly – existential benefits may also encourage the wish to live longer. Our study also indicates that religiously unaffiliated participants approve less of life-prolonging medical interventions than Catholics, while Catholics and Protestants do not significantly differ in their approval of life prolongation. This further emphasizes the influence of churches on the approval of life prolongation.

Our study indicates no relationship between the interpretation of death and approval of life prolongation. Although initially, an association emerged between a religious interpretation of death and approval of life prolongation, this relationship became

non-significant after controlling for other religious variables. Gender emerged as the most significant predictor of approval of life prolongation. Our finding that men are significantly more likely to approve of life-prolonging medical interventions than women corroborates previous research (Arber et al., 2008; Barnato et al., 2009; Carmel, 2001; Frankl, Oye, & Bellamy, 1989; Rietjens et al., 2005). In their qualitative study of the attitudes of 69 older British adults toward life-prolonging medical technologies, Arber et al. (2008) found that women primarily articulated "other-oriented" reasons for not wishing life-prolonging medical interventions, particularly their wish not to be a burden on others. On the other hand, men primarily gave "self-oriented" reasons for their wish for life prolongation, reflecting a wish to stay alive for as long as possible. These gender differences were ascribed to women's greater involvement in (informal and formal) care, due to which they know more about the limitations and complications of medical interventions to prolong life (Arber et al., 2008; Carmel, 2001) and to the tendency of women to orient their actions toward the needs and emotional well-being of others (Arber et al., 2008). Reconsideration of the commitment toward one's worldview was also found to be associated with approval of life prolongation. The notion that a different worldview might have been better indicates the lack of a strong belief system. Since cultural worldviews imbue the world with meaning, order and stability it has often been argued that they buffer death anxiety (Solomon, Greenberg, & Pyszczynski, 1991); a view which is supported by a range of empirical research (Vail et al., 2010). Therefore, the association between reconsideration of commitment and approval of life prolongation may be explained by increased death anxiety caused by the lack of a strong belief system or well-formulated philosophy of death (McMordie, 1981; Wink & Scott, 2005), which may strengthen the wish to postpone death. Indeed, a study among 987 older Israelis shows that fear of death is associated with a stronger will to live, which is significantly correlated with the wish to prolong life (Carmel, 2001).

Limitations

The current survey study had a low response rate (13%) and comparison with the general Dutch population indicates biases in the sample. Moreover, the scales have been applied in the Netherlands only. A translation into English was made by the first author but has not yet been tested. When applying these scales internationally, it should be taken into account that the practice to refer to the termination of life on request by the term "euthanasia" instead of "euthanasia or physician-assisted suicide" is typical for the Netherlands. Finally, the personal interpretation of death subscale showed an undesirable, albeit not unacceptable reliability (Cronbach's $\alpha = 0.63$). The items of this subscale should be improved in order to increase the reliability of this subscale. Therefore, we advise a follow-up study that further evaluates the relationships between the developed scales and other relevant variables in a cross-national sample in which the items of the personal interpretation of death subscale should be further tested and improved.

Notes

1. Since we expect more people who were too young to have received the questionnaire but not to have reported this, the actual response rate was probably higher.

2. For religiously unaffiliated respondents, who were not requested to indicate their frequency of church attendance, frequency of church attendance was set at the lowest level (less than once a year/(almost) never).

3. Nine respondents who were still 74 when filling in the survey but would turn 75 in the year the survey was taken, were included in this group.

4. Since oblimin rotation gave negative factor loadings on factor one and promax rotation gave similar but positive factor loadings, promax rotation was applied.

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