

# MASTERTHESIS

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Datum: 28-06-2010

Master Klinische en

Gezondheidspsychologie

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**A MULTIDIMENSIONAL APPROACH OF DEATH ANXIETY:  
PHYSICAL HEALTH, GENDER AND PSYCHOSOCIAL  
CORRELATES IN A COMMUNITY SAMPLE AND A CLINICAL  
SAMPLE OF DUTCH ELDERLY PEOPLE**

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*Abstract*

To clarify the concept of death anxiety, three factors of the Multidimensional Model of Fear of Personal Death were explored in Dutch elderly people ( $n=110$ ). 69 women and 41 men from 60 to 96 years old (mean age 80.7, SD 7.5) were interviewed. The sample was computed out of two smaller samples of either a community ( $n=49$ , mean age 78.94, SD 9.53) or a hospital ( $n= 61$ , mean age 82.3, SD 4.9). Several potential correlates, including physical health, gender, social support, purpose in life and self-esteem were analysed in separate hierarchical regression analyses for both the clinical sample and the total sample. Results revealed that aforementioned correlates did not predict Fear of the Unknown for Dutch participants. Physical health and purpose in life emerged as predictors of Fear for the Dying Process. Moreover, social support and self-esteem contributed to Fear for Significant Others. Women show higher levels of this final component of death anxiety than men. Findings are reviewed in the light of existing literature. Also, the practical relevance of these findings for an aging population is discussed.

**Introduction**

In 2005, 245 million people in the world were over 60 years old. It is estimated that by 2050, this number will have increased to 406 million, whereas the population under the age of 60 will have decreased in the meantime (United Nations, 2010). This worldwide trend is recognised in the Netherlands as well. Besides posing a rather large problem for societies, economies and health care in the near future, this statistic also signifies the importance for researchers and health care professionals to turn their attention to this elderly population. It may be interesting to determine the specific problems that the elderly encounter. With death statistically close, it seems plausible that elderly people have to find ways to deal with anxieties concerning death and dying. For them, death is not a remote problem that they can easily ignore or cognitively push aside like younger people can. Instead, as they grow older, elderly people must face up to the undeniable finitude of their own lives. Perhaps, the acceptance of one's personal mortality may be a main task in old age, in addition

to Erikson's psychosocial stage theory. This theory poses that elderly people should find integrity and satisfaction with the way they led their lives (Erikson, 1968).

Since death anxiety research among elderly people is only in its infancy, teasing out the various correlates and predictors of death anxiety is still a relevant task for researchers. Even though studies identify various correlates, many of these studies use student samples in exploring the death anxiety construct (Hoogstraten, Koele, & Van der Laan, 1998; Loo & Shea, 1996). Although the use of student samples in research is understandable, the question rises as to what extent student samples are informative for death anxiety research in other samples, especially given the relevance of this type of anxiety for elderly populations.

Missler, Geurtsen, Mastenbroek and Chmoun (2009) made a first attempt to explore the various correlates of death anxiety in a Dutch elderly community sample. This study aims to follow in their footsteps, by combining their data of a community sample, with a sample of elderly clinical patients in a Dutch hospital. In doing so, methodological advantages such as an increased power leading to more statistical possibilities, are available in investigating both groups combined as a total elderly sample.

### **Death anxiety**

Death anxiety is a unique and fundamental characteristic of people, since humans are the only species that recognise the inevitability of their own death (Cicirelli, 1997; Cicirelli, 1998). A growing number of researchers agree on a multidimensional approach of this construct (Florian & Mikulincer, 1997; Suhail & Akram, 2002). For instance, Collett and Lester (1969) proposed four dimensions in their study, whereas Neimeyer and Moore (1994) proposed eight. The scientific discussion about the number of essential components of death anxiety remains unresolved, but the agreement on the multidimensionality increases (Thorson & Powell, 2000). Divergent dimensions have been investigated, such as fear for the decaying of the body, fear for dying at a young age and fear of being falsely declared dead. Increasingly, there is agreement that death anxiety consists of fear about the death of others, fear of one's own death, fear of the dying process, and fear of the unknown after death (Fry, 2003). The question as to what aspects of death anxiety are of importance to elderly populations remains unanswered. The Multidimensional Model of Fear of Personal Death, proposed by Florian and Kravetz (1983), presumes that the overt expression of death anxiety is composed of three components that cover intrapersonal, interpersonal and transpersonal consequences of death (Florian et al., 1997). Death anxiety may arise from intrapersonal fears about the expected impact of death on mind and body, but also from interpersonal concerns about the consequences for significant others or one's own social identity. Finally, death anxiety may arise from concerns about the

transcendental nature of the self, such as the unknown nature of death and fear of punishment in the hereafter. Surprisingly, in Missler et al., no predictors could be identified for this final component. They explain this finding as a consequence of measurement problems. Their instrument contained questions concerning religious affiliation, such as ‘I am afraid to meet my Creator’. In the US, 13.3 percent of the population is self-reportedly not religious (US Census Bureau, 2009), whereas in the Netherlands, this number reaches 40-50% (Centraal Bureau voor de Statistiek, 2010). Perhaps, the underlying meaning of the transpersonal component may not be captured, when applied to a less religious population such as the Dutch. The question arises as to what extent different results may be expected in a clinical sample. This study aims to explore the multidimensional character of death anxiety, and to see which of the three components of the model by Florian and Kravetz are significant for a Dutch elderly sample.

### **Physical health and death anxiety**

The main correlate investigated in this study is physical health, which is possibly the most relevant predictor of death anxiety for the clinical sample. Physical illness may arouse death anxiety, because one’s mortality and diminished feelings of invincibility may become more salient when one’s health is at risk. This relation is confirmed in prior research, where lower physical health is related to high levels of death anxiety (Fortner & Neimeyer, 1999; Fortner, Neimeyer & Rybarczyk, 2001; Moreno, De La Fuente Solana, Rico & Fernández, 2009; Neimeyer, Wittkowski & Moser, 2004). It is to be expected that this applies to elderly people, too. However, death anxiety has rarely been investigated among physically ill elderly people. Wu, Tang and Kwok investigated the connection between the number of physical disorders and death anxiety in the elderly, but were unable to demonstrate a relation (2002). Another study did find an effect for self-rated physical health and death anxiety in older adults (Lockhart, Bookwala, Fagerlin, Coppola, Ditto, Danks & Smucker, 2001). Establishing patients’ level of death anxiety is an important step towards planning interventions that deal with the cause of fears among elderly sick persons. In this way, we can explore patterns that are specific to elderly patients, and identify features of anxiety that are specifically problematic for patients as opposed to non-patients.

### **Psychosocial factors and death anxiety**

*Gender and death anxiety* An important and well-researched factor in death anxiety research is gender. Whereas most studies conclude that women show higher levels of death anxiety than men (Fortner et al., 1999; Lester, Templer & Abdel-Khalek, 2007; Madnawat & Kachhawa, 2007; Russac, Gatliff, Reece & Spottswood, 2007; Suhail et al., 2002), some studies do not replicate this finding

(Cicirelli, 2001; Depaola, Griffin, Young et al., 2003; Fortner et al., 2001; Moreno et al., 2009; Wu et al., 2002). Only a few studies have investigated gender in samples of elderly participants (Missler et al., 2009; Mullins & Lopez, 1982; Stevens, Cooper, & Thomas, 1980; in Russac et al., 2007). Therefore, this factor is taken into account in this study.

*Social support and death anxiety* Another important factor in death anxiety research is the amount of social support people receive. Some studies find a negative relation between death anxiety and social support (Aday, 2006; Besser & Priel, 2007). Many studies agree that a lack of social support may promote anxiety, loneliness and depression, possibly because of limited social integration (Miller, Perlman & Brehm, 2007). It is therefore not surprising that Mikulincer, Florian and Hirschberger (2003) propose that social support is a third buffering mechanism against death anxiety in Terror Management Theory (TMT), next to self-esteem and cultural worldview. TMT states that to escape from possibly terrifying thoughts about one's own death, people employ elaborate psychological mechanisms to suppress these thoughts from conscious experience (Greenberg, Pyszczynski, & Solomon, 1986; in Bassett, 2007). TMT offers important explanations in the field of death anxiety. The addition of factors to such an influential model is therefore important for this field. In accordance with aforementioned studies, Missler et al. hypothesised a negative relationship between social support and death anxiety. Instead, they found a positive relationship. They attributed this phenomenon to the greater chance of losing a loved one when one has a larger social network. A socially well-integrated person may not only be more attached to others. One may also be more attached to life itself, and thus experience more fear when ruminating about the possibility of dying.

*Purpose in life and death anxiety* A fourth factor that is relevant in death anxiety research is having a purpose in life, which may be conceptualised as having goals for the future. Purpose in life has been related to less death anxiety in studies of younger samples (Fortner et al., 1999). In Missler et al., a positive relation between death anxiety and purpose in life has been found. They argued that the same mechanism as in social support may play a role here. A high level of purpose in life would then indicate an increased attachment to life. As Missler et al. explained: '*when one has more to live for, one also has more to lose*'. People with little purpose in life, who live without having meaningful goals, may find it easier to accept death, and thus experience less death anxiety. As mentioned before, the acceptance of one's own mortality may be the main task in old age. This acceptance may be harder to achieve when one still has many goals or responsibilities to live up to. Possibly, the protective power of having a purpose in life proposed in TMT may become less relevant as people

age. Elderly people may need to alter their priorities from the will to survive that is adaptive in younger age to acceptance and peace of mind in old age.

*Self-esteem and death anxiety* According to TMT, self-esteem is one of two proposed symbolic psychological defences against anxiety (Pyszczynski, Greenberg, & Solomon, 1999). However, Cicirelli (2002) states that TMT needs further elaboration on the various conceptions of death anxiety. Leary (2004) places a critical note regarding the assumptions of TMT, by stating that '*TMT's claim that self-esteem evolved as a buffer against the fear of death is based on three questionable and untested assumptions*'. In his opinion, there is little evidence for self-esteem functioning as a buffer against death anxiety. Therefore, in the present study, a new line of thinking is pronounced to explore what role self-esteem might play in elderly people's death anxiety. It may be that self-esteem is not a protection against death anxiety, but rather functions as an aggravating factor. When one has low self-esteem and thinks of oneself as worthless and less of value than others, it may be easier to accept death. On the contrary, when someone exhibits high self-esteem, and therefore considers one's own life as valuable and important, it may be harder to accept death, since one's own life is of high significance. Reactions of disbelief, denial and anxiety are expected in such a case.

### **Research questions and hypotheses**

Various questions can be posed regarding death anxiety. This study will explore the multidimensionality of death anxiety when viewed from the Multidimensional Model of Fear of Personal Death. Are the three components of this model applicable to a Dutch elderly sample? Will the transpersonal component be as relevant for the less religious Dutch, as it is for other cultures? A previous Dutch study did not find relevant predictors of this component. Whether this is also true for the present study will be explored.

Furthermore, the relationships of several factors that have shown importance in prior death anxiety research will be investigated. The first factor, physical health, has shown a negative relationship with death anxiety in prior research. Since both a clinical sample and a combination of this clinical sample and a community sample are used, physical health is a factor of extra interest in this study. It is proposed that physical health is a predictor of death anxiety in the total sample, where it is expected to correlate negatively with death anxiety. The predictor is expected to be stronger within the clinical sample, since death anxiety might be a more relevant for this group. Physical health is the only factor in this study for which a specific relationship is expected within the clinical sample.

Since many studies have identified gender differences in death anxiety research, a hypothesis was formed in accordance with previous results. It is proposed that women in this sample will display higher death anxiety than men.

A third factor, the amount of social support one receives, is commonly believed to be negatively correlated to death anxiety. A study in a Dutch elderly sample found an inverse relationship between these concepts (Missler et al., 2009). This unexpected finding was explained by stating that a stronger attachment to life is formed when high levels of social support are present. Since this study investigates a comparable sample, it was decided to follow the direction of the previous study. The present study has no reason to expect that adding a clinical group to the sample would alter the positive relationship between death anxiety and social support that has been identified in the community sample. It is therefore proposed that social support will show a positive relation with death anxiety.

Purpose in life has shown negative correlations with death anxiety in prior research. It would make sense to follow these indications for a negative relationship between the two concepts. However, this study follows the direction of the Missler study once more. After finding a positive correlation, Missler et al. proposed a similar mechanism for purpose in life as they did for social support. Having more to live for, as in having more meaningful goals and purposes in one's life, might make one more anxious about death and dying. It is thus hypothesised that having a higher purpose in life predicts higher levels of death anxiety in this sample.

The final factor that has been extensively investigated in prior research is self-esteem. While most studies confirm the buffering effect of self-esteem when anxiety about death and dying is present, critique on this assumption is also expressed. This study aims to investigate self-esteem, to see whether it indeed functions as a shield against death anxiety, or not. Also, a new line of thinking is proposed, to explore whether it is possible that self-esteem is a factor that increases death anxiety. When one views oneself as important and valuable, would death anxiety be higher, or rather be lower? These questions and hypotheses will be examined in an elderly population.

## **Method**

### **Participants**

*Community sample* Participants in the community sample, investigated earlier in Missler et al., lived autonomously in apartments connected to a care centre for elderly people in Utrecht, the Netherlands. The sample used for the analysis consisted of 49 older adults, with 33 women and 16 men (mean age 78.94, SD 9.53), ranging from 60 to 96 years old.

*Clinical sample* Participants in the clinical sample were outpatients in two hospitals in Utrecht en Zeist, two cities in the Netherlands. Patients were asked to participate after visiting the geriatric ward of this hospital. Fifteen different reasons for visiting the geriatrician were stated. These reasons were memory problems, neurological problems, rheumatism, cardiological problems, anxiety, polypharmaceutic problems, respiratory problems, gastrointestinal problems, mood problems, balance problems, back-aching problems, urological problems, fatigue, locomotion problems and pain. The sample used for the analysis consisted of 61 older adults, with 36 women and 25 men, ranging from 67 to 92 years old (mean 82.3, SD 4.9).

*Total sample* The total sample used for the analyses consisted of 110 older adults, with 69 women and 41 men, ranging from 60 to 96 years old (mean 80.7, SD 7.5).

## Measures

*The questionnaire: general comments* In total, the survey consisted of five sub-questionnaires. After the demographic information, the questionnaire continued with the Social Support survey; followed by the Purpose in Life Questionnaire. The three scales of the Multidimensional Fear Of Death Scale were then measured, followed by the Physical health survey, concluding with the Self-Esteem Scale. The sequence was given careful consideration. This way, the other sub-questionnaires might distract the focus from possible distress caused by the MFODS. The lay out of the questionnaire was adapted to meet the needs of elderly people by using alternating background colours and larger fonts (Van Berkum, 2009).

*Death anxiety* To assess death anxiety in this study, three subscales of the Multidimensional Fear of Death Scale were used (MFODS; Hoelter, 1979). These were: Fear of the Dying Process, including fear for painful or violent deaths; Fear for Significant Others, including apprehension about the impact of the one's death on others; and Fear of the Unknown, including fear of nonexistence and lack of knowledge about afterlife (Cicirelli, 2002). The three subscales reflect the three components in Florian's and Kravetz' (1983) Multidimensional Model of Fear of Personal Death. The intrapersonal, interpersonal, and transpersonal components were covered by respectively the Fear of the Dying Process scale, the Fear for Significant Others scale and the Fear of the Unknown scale (Cicirelli, 1999). Missler et al. were unable to find relevant correlates to Fear of the Unknown in their study. Therefore, the relevance of the transpersonal component for Dutch populations when measured by the Fear of the Unknown-subscale remains unclear. Death anxiety was measured by

means of 17 items. Scores were examined per subscale, with a high score indicating more death anxiety. The MFODS demonstrated good psychometric properties, with test-retest correlations ranging from .61 to .81 (Neimeyer & Moore, 1994 in Depaola et al., 2003). In these studies, internal reliability coefficients (Cronbach's  $\alpha$ ) for the various subscales were at least .75.

### **Measures of the correlates of death anxiety**

*Physical health* Physical health was measured with a scale from the Short Form Health Survey-36 (Ware, 2003). Items from the Physical Functioning (PF, six items) were translated into Dutch. Also, the scale was extended with ten items that represent the ten most prevalent illnesses in elderly people in the Netherlands (Pieterse & de Vos, 2005). This method has been used successfully by Cicirelli (2001). A low score on the PF-scale indicates that performance in physical activities is perceived to be impaired. The questionnaire used in this study consisted of 16 items. Reliability was computed for the newly constructed Physical Health Scale. A good reliability was found ( $\alpha = .78$ ).

*Social support* To assess social support, fifteen items from two subscales of the Dutch Sociale Steun Lijst-Discrepanties (SSL-D, van Sonderen, 1993) were used to measure the level of perceived discrepancy between received and desired support from friends and family. To minimise the strain put on the participants, only the subscales 'instrumental support and 'emotional support with problems', were used. They were believed to represent the construct sufficiently. The four other subscales (problemfocused emotional support, appreciational support, social companionship and informative support) were excluded. Cronbach's alpha's for the scales are .59 to .87 for 'instrumental support' and .69 to .91 for 'emotional support with problems' (van Sonderen, 1993). The SSL-D's test-retest reliability after four weeks was .77 for 'emotional support with problems' and .71 for 'instrumental support'.

*Purpose in Life* To assess purpose in life, twenty self-report items of the Purpose In Life questionnaire were used (PIL, Crumbaugh & Maholik, 1969). Items were translated to Dutch, and rated on a 7-point scale ranging from 1 (*low purpose*) to 7 (*high purpose*). The PIL has shown good reliability, with the authors of the scale reporting split-half reliability coefficients of .90 and .92.

*Self-Esteem* Self-esteem was measured with the 10 items of the Self-Esteem Scale (Rosenberg, 1965). The internal consistency of the scale ranges from .77 to .88 (Cicirelli, 2002). Sufficient

evidence for the convergent and discriminant validity of the scale emerged (Robinson, Shaver & Wrightsman, 1991; in Cicirelli, 2002).

*Demographics*      Age and gender were examined to control for demographics

*Statistical design and analyses*      All analyses were performed by SPSS 18.0 (SPSS Inc., 2009). Data were analysed with correlations, hierarchical regressions and t-tests.

## **Procedures**

*Community sample*      Participants in the community sample were approached via a letter explaining the purpose of the study in broad and nonspecific terms. 155 letters were distributed. In all cases, the questionnaire was read to participants by one of the researchers, who also noted the responses. Even though completing the interview took approximately thirty minutes, the time attributed to each participant varied from half an hour to two hours.

*Clinical sample*      Outpatients at the hospital were approached by the geriatrician, and participated in this study as part of their visit to the clinic. Participants received a letter in which the purpose of the study was explained. Completing the interview took approximately forty-five minutes.

## **Results**

Results are first of all described for the total sample. Firstly, correlations between the three scales of the MFODS were calculated. Then the correlations between these scales and the remaining correlates were calculated and presented in table 1. Subsequently, regression analyses for Fear of the Unknown, Fear of the Dying Process and Fear for Significant Others were conducted. Finally, t-tests were performed for Gender and the clinical versus the nonclinical sample. After the results for the total sample, findings of the regression analyses of the clinical sample are described.

### **Total sample**

*Correlations of death anxiety components*      Correlations were calculated for the three measures of death anxiety. The results showed a low correlation between Fear for Significant Others and Fear of the Dying Process ( $r = .10$ ;  $p < 0.01$ ). This indicates that these variables are distinct constructs. Results show that Fear of the Unknown correlates both with Fear of the Dying Process ( $r = .35$ ;  $p < 0.01$ ) and Fear for Significant Others ( $r = .30$ ;  $p < 0.01$ ), which indicates that this variable is not a

distinct construct. This collinearity problem poses a threat for the multidimensional character of the death anxiety construct. Fear of the Unknown does not vary substantially from the other two subscales of MFODS.

Table 1  
*Correlations between variables in the total sample.*

	2	3	4	5	6	7
1. Physical health	.23*	.14	.32**	.01	-.30**	-.12
2. Social support		.54**	.17	-.01	-.20*	.25**
3. Purpose in life			.16	-.02	-.14	.23*
4. Self-esteem				.18	-.02	.22*
5. FU					.35**	.30**
6. FDP						.10
7. FSO						

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

FU= Fear of the Unknown, FDP= Fear of the Dying Process, FSO= Fear for Significant Others

*Correlations of the variables* To examine bivariate associations between the variables, correlations were calculated for Physical health, Social Support, Purpose In Life, Self-Esteem, Fear of the Unknown, Fear of the Dying Process and Fear for Significant Others (Table 1). The low to moderate correlations between the independent variables, demonstrate that no multicollinearity is present.

*Regression analyses for the two types of death anxiety* A hierarchical regression analysis was conducted, using Enter as method. Beforehand, a t-test was performed for physical health, in order to examine whether the community sample and the clinical sample could be differentiated on this variable. As this was not the case ( $t = -1.551$ ;  $df = 108$ ;  $p = >0.001$ ), it was possible to include psychical health in the regression analyses for the total sample. In the first step, control measures Age and Gender were tested, and in the second step the key measures were added to the model.

No significant predictors emerged in the analysis of Fear of the Unknown. For Fear of the Dying Process, the regression analysis indicated that as a set, Age and Gender did not significantly contribute to the variance in the dependant variable. When the key measures were introduced in step two, as a set, they accounted significantly for the variance in Fear of the Dying Process (see table 2). Physical Health emerged as the only significant predictor, with a  $\beta$ -value of  $-.23$  ( $p < .05$ ).

People with lower physical health demonstrated higher fear of the dying process. The hypothesis that physical health correlates negatively with death anxiety can thus be accepted.

Table 2  
*Regression analysis predicting two types of death anxiety in the total sample (n = 110).*

Variables entered	Fear of the dying process		Fear for significant others	
	$\beta$	Sig	$\beta$	Sig
<b>Step 1. Control Measures</b>				
Age	.04	.68	-.17	.22
Gender <sup>a</sup>	-.01	.90	-.13	.18
<b>Step 2. Key Measures</b>				
Physical health	-.23	.04*	-.19	.08
Social support	-.11	.32	.25	.03*
Purpose in life	-.05	.70	.14	.24
Self-esteem	.14	.17	.27	.01*

\* $p < .05$ . <sup>a</sup> Gender: men are coded 1, women are coded 0

For Fear for Significant Others, the first model again proved insignificant. The second model including the key measures was able to predict death anxiety. Social Support and Self-Esteem emerged as significant predictors (table 2). Social Support showed a  $\beta$ -value of .25 ( $p < .05$ ) and Self-Esteem a  $\beta$ -value of .27 ( $p < .05$ ). People with higher social support show greater levels of fear for significant others. Therefore, the hypothesis that social support shows a positive relation with death anxiety can be accepted. In addition, people who demonstrate more self-esteem experienced higher levels of fear for significant others.

*T-tests total sample* After the regression analyses for the total sample had been conducted, t-tests were performed for gender and for the clinical sample versus the community sample. All three types of death anxiety were normally distributed. Women have more fear for significant others than men (table 3). This difference is significant ( $t = 2.09$ ;  $df = 108$ ;  $p < 0.001$ ). The hypothesis that women show higher death anxiety than men can be accepted. This difference was not found for either Fear of the Unknown or Fear of the Dying Process. No differences between groups were found for the clinical sample and the community sample.

Table 3

*T-tests total sample for fear for significant others (n = 110).*

Groups	M	SD	SEdif	df	t
Women	20.68	4.59	0.83	108	2.09*
Men	18.88	3.98			
Clinical	19.92	4.28	0.86	108	.24
Non-clinical	20.12	4.68			

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

### Clinical sample

*Regression analyses for the two types of death anxiety* A hierarchical regression analysis was conducted, again with Age and Gender in step one, and the remaining variables in step two. For Fear of the Unknown, no significant predictors emerged from the analysis. For Fear of the Dying Process, the regression analysis indicated that as a set, Age and Gender did not contribute significantly to the variance in the dependant variable. When the key measures were introduced in step two, as a set, they accounted significantly for the variance in Fear of the Dying Process (table 5). Purpose in Life and Physical Health turned out to be significant variables, with  $\beta$ -values of .42 ( $p < .05$ ) and  $-.39$  ( $p < .05$ ) respectively. This suggests that having a higher purpose in life contributes to this type of death anxiety in the clinical sample. The hypothesis that having a higher purpose in life predicts higher death anxiety can be accepted for the clinical sample. The same applies to the hypothesis that physical health correlates negatively with death anxiety. The  $\beta$  for physical health in the clinical sample is  $-.39$ , whereas the  $\beta$  for physical health in the total sample was  $-.23$ . For Fear for Significant Others, the models did not contribute significantly.

Table 4

*Regression analysis of Fear of the dying process for the clinical sample (n = 62).*

Variables entered	Fear of the dying process	
	$\beta$	Sig
Step 1. Control Measures		
Age	.03	.84
Gender <sup>a</sup>	-.11	.41
Step 2. Key Measures		
Physical Health	-.39	.01*
Social Support	-.16	.29
Purpose in Life	.42	.02*
Self-esteem	-.08	.60

\* $p < .05$ . <sup>a</sup> Gender: men are coded 1, women are coded 0

## **Discussion**

The present study examined the effects of several variables on three components of death anxiety in a Dutch elderly population. The multidimensionality of death anxiety was explored with intercorrelations between the three subscales of the MFODS. While Fear of the Dying Process and Fear for Significant Others appeared as independent factors, results showed that Fear of the Unknown was not. Furthermore, the question was posed as to what extent this type of death anxiety is applicable to a Dutch elderly sample. No significant contributors for this Fear of the Unknown could be identified in any of the regression analyses.

Subsequently, multiple hypotheses were proposed regarding previously investigated factors in death anxiety research. Physical health was proposed to be a negative predictor of death anxiety. This hypothesis was confirmed for the intrapersonal aspect of death anxiety. Also, this relation was expected to be stronger when examined in only the clinical sample, since death anxiety was thought to be more relevant for this sample. Results confirmed these assumptions. A larger standardised  $\beta$  was found in this analysis, when compared to the analysis of the total group. Next, in accordance with previous research, it was proposed that women would show higher levels of death anxiety. This hypothesis can be confirmed for the interpersonal component of death anxiety. For social support, a positive correlation with death anxiety was hypothesised, in accordance with a previous Dutch study. As predicted, social support emerged as a predictor for the intrapersonal aspect of death anxiety. Therefore, the hypothesis can be confirmed. Purpose in life was expected to show a positive correlation with death anxiety. Surprisingly, having a higher purpose in life did not predict death anxiety in the total sample. Only in the clinical sample did purpose in life emerge as a positively correlating factor in the intrapersonal aspect of death anxiety. Finally, the concept of self-esteem was explored. It emerged as a predictor in the analyses of Fear for Significant Others, showing a positive correlation.

How can these results be explained in light of existing literature and proposed theories? This study confirmed the multidimensional character of death anxiety. The intrapersonal and interpersonal aspects were not intercorrelated, but this was not the case for the transpersonal component. As stated, the MFODS-scale may not be applicable to Dutch participants, because the Dutch are less religious than, for instance, Americans (US Census Bureau, 2009; Centraal Bureau voor de Statistiek, 2010). The question remains whether this conclusion can be drawn for just this MFODS-subscale, or the transpersonal component as a whole. It seems unlikely that non-religious people would have no

transpersonal death anxiety whatsoever. Perhaps, predictors could have been found when measuring this aspect of death anxiety without questions that might bias results for non-religious participants.

*Physical health* As predicted, physical health emerged as a contributor to death anxiety. Physical health predicted of Fear of the Dying Process, but not Fear for Significant Others. Why would death anxiety influence the intrapersonal component, but not the interpersonal component? Physical health influences that component of death anxiety that captures the sense and the mortality of one's own body. It is possible that to be in either good or bad physical health is an intrapersonal experience. For the interpersonal component, Neimeyer, Wittkowski and Moser (2004), stated that the relationship between physical health and death anxiety was mediated by the level of social support in their sample. Even though this was not the case in this sample, it is possible that in samples where this is the case, physical health and Fear for Significant Others are more affiliated. Interestingly, physical health remained a predictor when examined in the clinical sample, and could account for more of the variance. Perhaps physical health becomes a much more relevant factor in one's life when one's health is at stake, unlike when one is as healthy as a horse. When one is sick, one may realise that one's body is not immortal, which in turn may cause a rise in levels of intrapersonal death anxiety. Moreover, participants in this sample filled out the questionnaire just after visiting the geriatrician's office, which might have made their health status more salient at the time of participation.

*Gender* This study confirms the gender difference in death anxiety, but only for the interpersonal aspect. What may account for the gender difference in this component of death anxiety? Women may disclose their need for others in their lives more easily than men. When examining the portrayal of men and women throughout the world, women were more likely to be portrayed in powerless, dependent roles than men, in every country in the world (Furnham & Mak, 1999, in: Aronson, Wilson & Akert, 2005). Also, almost universally, women are considered more caring and nurturing than men, and more concerned with the welfare of others (Swim, 1994, in: Aronson et al., 2005).

*Social support* As hypothesised, social support emerged as a positive predictor of death anxiety, but only for the interpersonal aspect. In this study, social support does not seem to function as a protection against death anxiety, but rather functions as an amplifier. As argued in the introduction of this article, when one is socially more integrated and has meaningful and rewarding social relationships, it is plausible that one also fears losing these. On the other hand, when one is

socially isolated, it may become easier to accept one's own mortality and the finitude of life, and therefore experience less interpersonal death anxiety. The role social support plays might also vary across the lifespan. When one is young, social support might be an effective defence against death anxiety. In old age, one has to realise that defences against death anxiety may no longer be beneficial, since acceptance of death may be more adaptive. Social support could become another attachment to life that is not necessarily helpful in accepting death. This acceptance is not yet necessary for most young people. Therefore, social support may play different roles in the various stages of life.

*Purpose in life*            Unexpectedly, purpose in life did not emerge as a predictor of death anxiety in the total sample. Within the clinical sample, purpose in life did emerge as a contributing factor of Fear of the Dying Process. These results might be explained by the possibility that sick people may be impaired in achieving present goals, or foresee obstacles in aims for the future. Perhaps, the use of both a clinical and a community sample biased the results, in the sense that health may have functioned as an influencing factor. Possibly, the abstract character of the scale caused biases in respondents answer.

*Self-esteem*            Self-esteem showed a positive correlation with the interpersonal aspect of death anxiety. Apparently, when one has high self-esteem, one also exhibits increased fears for the death of significant others and the effect of one's own death on these others. As stated before, self-esteem may not be the protection against death anxiety that TMT proposes, at least not in this Dutch elderly population. Several possible explanations for this fact are considered. In the first place, people with high self-esteem, who highly value their lives and themselves as a person, may experience more feelings of anxiety when ruminating about the possibility of dying. While self-esteem may be a defence against other anxieties, perhaps death anxiety is not one of them. Is it possible that this may even be more relevant for elderly people? They must come to terms with their own mortality, so is it possible that self-esteem is no longer a functional mechanism at this age? As considered above, social support may be a virtue for younger people who do not have to face this fact just yet, but loses this function in old age. Maybe, the same is true for self-esteem.

Now why did self-esteem predict the interpersonal, but not the intrapersonal aspect of death anxiety? Possibly, self-esteem is a feature that measures the quality of our relationships with others, according to Sociometer Theory, another leading theory in the field (Leary, 2003). When others value their relationships with us, our self-esteem is high. However, if we do not interest others, self-esteem is low. This is a complex relationship, since having high self-esteem is attractive for others,

which may make it easier to form new relationships. On the other hand, having these relationships may enhance self-esteem, as others liking you may cause you to like yourself more. It then seems plausible that one fears the interpersonal aspect of death anxiety when one has high self-esteem.

In conclusion, it appears that the acceptance of death is an important task for this particular sample. Participants showing low levels of social support and self-esteem display higher levels of death anxiety. Participants who seem more socially isolated and lonely, and feel inferior and unlovable, experience lower levels of death anxiety. Perhaps one feels that one has little to live for anymore. If one is more socially secluded, especially in old age, it may become easier to accept death. Investigating these aspects might be relevant for elderly populations, as rates of loneliness in older populations range from twenty to sixty percent (Hall & Havens, 1999). In fact, loneliness in old age has an increasing effect on mortality rates among depressed people (Arehart-Treichel, 2005). In healthy adults, loneliness is reduced by interaction with friends (Lee & Ishii-Kuntz, 1987).

On the other hand, when people are socially integrated, have plans and ideas about their future and have high self-esteem, accepting death might be harder to achieve. It is always harder to leave a fun party with friends and family that boost self-esteem, than to leave a boring one where one does not seem to fit in and feels out of place. Perhaps, defence mechanisms against death anxiety do not go well with acceptance of the finitude of life in old age. Other factors, such as health, play an important role as well. Physical health can be viewed as an external factor with which one has to deal with in the best possible way. Nonetheless, the aforementioned acceptance of death might play a decisive role in the interaction between health and death anxiety.

## **Implications**

The conclusions of this study have various implications for future research. This study aimed to clarify the multidimensional character of death anxiety. Within this sample, important predictors for both the intrapersonal and the interpersonal aspect of death anxiety have been identified. To assess the transpersonal aspect of death anxiety in diverse cultural samples, measuring the construct in a non-religious manner may be required. Future research might be able to clarify the role that the transpersonal aspect plays, when conceptualising death anxiety for cultures where religious affiliation is low.

This study tried to shed light on factors that may influence death anxiety. For the constructs investigated in this study, conflicting results were found. The role physical health plays in death anxiety needs further elaboration in order to fully understand this relationship. Comparing clinical and non-clinical samples may assist in this understanding. Perhaps, other factors are of influence,

such as personal resources and interpersonal factors. The role of psychosocial factors such as social support, purpose in life and self-esteem remains unclear. In future research, these factors should be investigated among various age groups, to examine whether their influence varies across the life-span. The protective qualities of these factors proposed in earlier theories, need to be examined carefully. This way, groups at either higher or lower risk of high levels of death anxiety can be adequately identified. Future research might be able to tease out other factors that contribute to levels death anxiety.

Identifying and understanding these influencing factors is especially important for the specific sample of this study. Clarifying death anxiety, especially for those people in the last decades of their lives, is a major step toward identifying possible problems that elderly people face nowadays. Today's researchers have the immense task to explore death anxiety and its many influencing factors, and to tease out ways to relieve and aid those who are anxious about death. Recognition of the relevance of death anxiety as an important phenomenon is a vital element in this task. Elderly people should become the focus of more scientific research in this area, since the issues surrounding death and dying have important implications for them and their families (Lehto & Stein, 2009). This growing population deserves the best care from their caregivers, including mental health professionals and physicians. A thorough understanding of fears about this basic fact that everybody must face someday could have significant social and medical implications.

### **Limitations and strengths**

There are several limitations of the present study. One of these limitations is the sample size. By using only 110 participants to test the hypotheses of this study, the reliability and validity of the results might be restricted. Secondly, this study investigated only correlations between various factors; therefore no causal conclusions can be drawn from the results. Besides, unknown factors could also shape the relationships between death anxiety and the other constructs included in this study. An important limitation is the lack of differences in physical health between the clinical and the community sample. Since the community sample was investigated prior to this study, no questions about possible hospital treatment were included in the questionnaire for this sample. Therefore, it was impossible to determine which participants in the community sample may have been under treatment as outpatients in a hospital. This weakens the distinction between the clinical sample and the community drastically. The lack of proper distinction limits the conclusions about the clinical sample that have been drawn in this study. Furthermore, a factor analysis of the three subscales of death anxiety may have shown interesting and more valid results about the independence of these scales. Unfortunately, a factor analysis was not possible due to a restricted

amount of participants in relation to the number of items in the subscales. Finally, measuring the transpersonal component of death anxiety with the Fear of the Unknown subscale may have caused biases for this particular sample. Although this study has shed some light on the character of this scale in relation with a different cultural sample, the use of a more neutral scale might have given much more information.

Apart from these limitations, there are several benefits that this study has to offer to the existing body of literature on death anxiety. First of all, an elderly population is used. Not only is this a relevant age group when examining death anxiety, but in modern day research, it is also a challenging one. Research on elderly people needs elaborate measurements that vary from standard measurements used with more commonly investigated populations. Secondly, the investigated population was Dutch. Research on death anxiety in the Netherlands is in its infancy, especially in terms of elderly populations. Finally, the use of both a clinical and a community sample created a new approach to death anxiety and physical health. A methodological advantage was achieved when both samples were analysed as a total sample.

## **Acknowledgements**

The author would like to thank supervisor Sibe Doosje, MSc, Marjolein Missler, BSc, dr. Gerwin van der Laan, second supervisor Prof. dr. Maggie Stroebe, geriatrician Marije Hamaker, MD and geriatrician Richard Faaij, MD for their assistance with this project.

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