DEATH ANXIETY AND EMPATHY AMONG MALE AND FEMALE MEDICAL STUDENTS

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ABSTRACT

Background. Research reveals that death anxiety affects physicians' quality of work when he/she faces a patient suffering from a fatal disease (Field & Howells, 1988, Thiemann, Quince, Benson, Wood, & Barclay, 2015), while empathy leads to medical decision making and a better patient's healing process (Lor, Truong, Ip, & Barnett, 2015; Chen, Kiersma, Yehle, & Plake, 2015). The *aim* of this study was to investigate the relationship between death anxiety and empathy by gender among students of the medicine program in the Lithuanian University of Health Sciences.

Methods. The study involved 233 students of the medical program from the Faculty of Medicine in the Lithuanian University of Health Sciences. The sample consisted of 167 women (71.1%) and 56 men (24%), 10 participants have not specified their gender (4.9%). A questionnaire designed for the study consisted of demographic questions, *Interpersonal Reactivity Index* (IRI) (Davis, 1980) and *Revised Collet-Lester Fear of Death and Dying Scale* (Lester, 1990).

Results. Medical students that show higher than others anxiety about death of self[1], dying of self[2], death of others[3] and dying of others[4] also show greater personal distress ($r = .211^1$; $r = .217^2$; $r = .248^3$; $r = .219^4$), empathetic concern ($r = .205^1$; $r = .241^2$; $r = .246^3$; $r = .136^4$), emotional ($r = .27^1$; $r = .294^2$; $r = .319^3$; $r = .236^4$) and overall $r = .237^1$; $r = .262^2$; $r = .254^3$; $r = .227^4$) empathy and also had better fantasy ($r = .149^1$; $r = .173^2$; $r = .149^3$; $r = .184^4$) than others. Weak correlation in men sample was between death anxiety subscales and empathetic concern ($r = .532^1$; $r = .279^2$; $r = .3^3$; $r = .306^4$), emotional ($r = .48^1$; $r = .364^2$; $r = .373^3$; $r = .458^4$) and overall ($r = .369^1$; $r = .399^2$; $r = .32^3$; $r = .453^4$) empathy. Very weak correlation in women sample was found between emotional empathy and death of self ($r = .164$), dying of self ($r = .188$) and death of others ($r = .206$) anxiety. Personal distress subscale in women sample was associated with death of self ($r = .186$) and death of others ($r = .179$) anxiety.

Conclusion. It was found that medical students showing greater personal distress, empathetic concern, fantasy, emotional and overall empathy have a stronger sense of death anxiety. Correlations between death anxiety and empathy found in men sample were specified as weak, meanwhile correlations found in women sample were specified as very weak.

Keywords: cognitive empathy, emotional empathy, fear of death.

INTRODUCTION

Death anxiety concept in the science of psychology is traditionally defined as emotional discontent or helplessness that manifests itself when confronted with death. Usually, this phenomenon is operationalized with four indexes: 1) anxiety about dying of self; 2) anxiety about death as a phenomenon; 3) anxiety about dying of others; 4) anxiety about death of others as a phenomenon (Sherman, Norman, & McSherry, 2010).

Meanwhile, the well-known and widely used in the science of psychology concept of empathy is being treated ambiguously. Therefore, in the present article, empathy will be defined as cognitive attribute of a person, which consists of ability

to understand internal experiences of another person and his or her attitude towards the said experiences as well as possibility to communicate based on this awareness (Hojat et al., 2002, cit. from Hojat et al., 2005). Empathy consists of two functionally different components – cognitive and emotional empathy. Cognitive empathy is the ability to understand feelings of another person, while emotional empathy is defined as ability to experience emotions evoked by an emotional stimulus (Cuff, Brown, Taylor, & Howat, 2016).

Research reveals that anxiety about death influences the quality of work of a medical person when he or she encounters a patient suffering from lethal illness (Field & Howells, 1988; Thiemann et al., 2015), therefore, it would be beneficial to apply appropriate methods for inhibition of the said psychological phenomenon as early as the student years. No less significant for work of a medical person is empathy, which influences aspects related to treatment: creation and maintaining appropriate medical person–patient communication (Lor et al., 2015), adequate care for the patient (Chen et al., 2015), better prognosis of illness (Caruso & Bernstein, 2014), improved satisfaction of the patient regarding treatment (Regehr, Goldberg, & Hughes, 2002), and better observation of the treatment plan (Wimmers & Stuber, 2010). Research also shows that anxiety about death and empathy relation depends on the gender (Kastenbaum, 2006; Polat, Alemdar, & Gurol, 2012; Velea, Cercel, & Popp, 2012), however, the obtained regularities are ambiguous. In some studies stronger correlation of the said constructs was determined in the men sample (Velea et al., 2012), while other studies showed stronger correlation in women sample (Kastenbaum, 2006).

Currently, in Lithuania more and more research of death anxiety is coming up. Nurses are most frequently studied while medical students are researched rarely. There are some studies of death anxiety correlation with empathy done abroad, but analysis of literature has revealed that obtained results are controversial (Claxton-Oldfield & Banzen, 2010; Garbay, Gay, &Claxton-Oldfield, 2014; Kastenbaum, 2003; Servaty, Krejci, & Hayslip, 1996). No such studies have been found in Lithuania; therefore, it may be maintained that research of death anxiety and empathy could provide significant information about medical students in Lithuania.

The purpose of the present study was to determine death anxiety correlation with empathy by gender among Lithuanian medical students.

Objectives of the study:

1. Investigate correlation between death anxiety and empathy;
2. Determine correlation between death anxiety and empathy peculiarities by gender.

METHODS

The study was performed in the Lithuanian University of Health Sciences in the period of 2015–2016. Samples were selected based on convenient sampling strategy.

Participants of the study were 233 students of the Medical Academy of Lithuanian University of Health Sciences, 167 of which were females, 56 – males, and 10 participants did not specify their gender. The average age of subjects was 21.83 years (SD = 2.24).

Females comprised 71.1% of the sample, the average age of them was 21.83 years (SD = 2.41). The youngest subject was 18 years old, the oldest – 36. Males respectively comprised 24% of the sample, the average age of them was 21.71 years (SD = 1.61). The oldest subject was 25 years old, the youngest – 19.

A questionnaire, which consisted of *Interpersonal Reactivity Index* (IRI, Davis, 1980), the *Revised Collet-Lester Fear of Death and Dying Scale* (Lester, 1990), and questions of demographic attributes of medical students, was developed for the study.

To determine student empathy, *Interpersonal Reactivity Index Scale* was used. Each subscale consisted of 7 items that subjects were asked to evaluate from 1 to 6, where 1 meant that the item did not describe well feelings of the subject, whereas 6 indicated that feelings and attitudes of the subject were described very well. Subscale scores were calculated totalling item points (Naujokaitienė, 2010). The higher score indicated that the attribute characterizing the subscale was more typical of the subject. As it has been established by research, the said scale is distinguished by strong correlation with other questionnaires for empathy determination (Nenortienė, 2012). The determined internal reliability of used subscales showed that all subscales were appropriate (Table 1).

Table 1. **Internal reliability of subscales of Interpersonal Reactivity Index**

Subscale	Chronbach's alpha	Maximum score
Perspective	.721	42
Fantasy	.781	42
Empathetic concern	.578	42
Personal distress	.817	42
Cognitive empathy	.774	84
Emotional empathy	.734	84
Overall empathy	.780	168

To determine death anxiety experienced by medical students *Revised Collet-Lester Fear of Death and Dying Scale* was used. Each of subscales consisted of 8 items that respondents were asked to evaluate from 1 to 5, where 1 indicated that the subject is absolutely indifferent to the specific aspect of death, 3 – the subject is partially concerned about the specific aspect of death, and 5 indicated that the subject is very concerned about the specific aspect of death. Subscale scores were calculated by totalling item scores, the greater subscale total score indicated greater experienced anxiety about the specific death aspect (Vonžodienė, 2010). As it has been established by research the said scale is distinguished by sensitivity and strong correlation with other methods for determining the death anxiety (Mooney & O'Gorman, 2001). The determined internal reliability of used subscales showed that all subscales are appropriate (Table 2).

Table 2. **Internal reliability of subscales of Revised Collet-Lester Fear of Death and Dying Scale**

Subscale	Chronbach's alpha	Maximum score
Death of self	.804	40
Dying of self	.798	40
Death of others	.699	40
Dying of others	.799	40

Normally distributed samples were described by the mean and the standard deviation. Those samples that were not normally distributed were described by the mean, the standard deviation, the median, and the interquartile range. Based on Central Limit Theorem, to determine correlation between two continuous magnitudes parametric Pearson's correlation factor was applied. The determined significance level was $p \leq .05$.

RESULTS

To determine correlations between death anxiety and empathy among medical students, each death anxiety and empathy subscale score distribution was firstly determined. The lowest mean score on the *Collet-Lester Fear of Death and Dying Scale* among medical students was obtained on the anxiety about death of self as a phenomenon subscale; meanwhile mean scores of the remaining three subscales were higher (Table 3).

In the *Interpersonal Reactivity Index Scale*, the highest mean scores of medical students were determined in perspective, empathic concern, and cognitive empathy subscales (Table 4).

In correlation between death anxiety and empathy analysis based on Central Limit Theorem,

Death anxiety subscale	Criteria of normality	Mean	Mean percentage	Standard deviation	Median	Interquartile range
Death of self	$p > .05$	23.70	59.25	6.77		
Dying of self	***p < .05***	27.83	69.58	6.27	29	24–33
Death of others	***p < .001***	27.64	69.1	5.15	29	25–31
Dying of others	***p < .05***	27.37	68.43	6.32	28	23–32

Table 3. **Descriptive statistics of Subscales of Collet-Lester Fear of Death and Dying Scale**

Table 4. **Descriptive statistics of Subscales of Interpersonal Reactivity Index**

Empathy subscale	Criteria of normality	Mean	Mean percentage	Standard deviation	Median	Interquartile range
Perspective	***p* < .05**	28.16	67.05	5.33	28	24–32
Fantasy	***p* < .05**	26.54	63.19	6.68	26	22–32
Empathetic concern	***p* < .05**	29.8	70.95	4.53	30	27–33
Personal distress	*p* > .05	21.09	50.21	5.92		
Cognitive empathy	*p* > .05	54.7	65.12	9.54		
Emotional empathy	*p* > .05	50.89	60.58	8.09		
Overall empathy	*p*> .05	105.59	56.77	13.68		

Table 5. **Correlation matrix of subscales of Interpersonal Reactivity Index Scale and Revised Collet-Lester Fear of Death and Dying Scale**

	P.	F.	E.c.	P.d.	C.e.	E.e.	O.e.	A.s.	A.s.y.	A.o.	A.o.y.
P.	1										
F.	***.253****	1									
E.c.	***.351****	***.283****	1								
P.d.	***–.195****	.112	***.186****	1							
C.e.	***.736****	***.841****	***.394****	–.03	1						
E.e.	.054	***.24****	***.696****	***.835****	***.198****	1					
O.e.	***.545****	***.729****	***.686****	***.473****	***.815****	***.73****	1				
A.s.	.012	***.149****	***.205****	***.211****	.111	***.27****	***.237****	1			
A.s.y.	.008	***.173****	***.241****	***.217****	.126	***.294****	***.262****	***.558****	1		
A.o.	–.021	***.149****	***.246****	***.248****	.093	***.319****	***.254****	***.458****	***.528****	1	
A.o.y.	–.005	***.184****	***.136****	***.219****	.126	***.236****	***.227****	***.394****	***.553****	***.618****	1

Notes. **p* ≤ .05, ***p* ≤ .001; applied Pearson's correlation factor; P.: Perspective; F.: Fantasy; E.c.: Empathetic concern; P.d.: Personal distress; C.e. Cognitive empathy, E.e.: Emotional empathy; O.e.: Overall empathy; A.s.: Anxiety about death of self; A.s.y.: Anxiety about dying of self; A.o.: Anxiety about death of others; A.o.y.: Anxiety about dying of others.

Pearson's correlation factor was used. Weak, but statistically significant correlation was obtained among fantasy, empathetic concern, personal distress, emotional and overall empathy subscales as well as correlation among all four death anxiety subscales (Table 5). Therefore, it can be maintained that medical students who feel greater death anxiety also experience greater empathetic concern, personal distress, emotional and overall empathy, and are able to better empathize with others employing fantasy.

To determine gender peculiarities of correlation between death anxiety and empathy Central Limit Theorem was also used and Pearson's correlation factor was applied. It was established that in the male sample weak correlation existed among empathetic concern, emotional and overall empathy, and all four subscales of anxiety about death (Table 6). Also, in the male sample, correlation between subscale of fantasy and anxiety about dying of self and dying of others as well as correlation between subscale of personal distress and anxiety about death of others were established (Table 6).

Meanwhile, in the female sample very weak correlations were observed – it was established

Table 6. **Correlation matrix of subscales of Interpersonal Reactivity Index Scale and Revised Collet-Lester Fear of Death and Dying Scale, male sample**

	P.	F.	E.c.	P.d.	C.e.	E.e.	O.e.	A.s.	A.s.y.	A.o.	A.o.y.
P.	1										
F.	***.285****	1									
E.c.	.197	***.292****	1								
P.d.	–.226	.053	.07	1							
C.e.	***.768****	***.833****	***.309****	–.095	1						
E.e.	–.048	.219	***.665****	***.792****	.119	1					
O.e.	***.531****	***.74****	***.627****	***.409****	***.801****	***.69****	1				
A.s.	–.048	.204	***.532****	.206	.109	***.48****	***.369****	1			
A.s.y.	.053	***.321****	***.279****	.258	.246	***.364****	***.399****	.553	1		
A.o.	–.013	.206	***.3****	.253	.13	***.373****	***.32****	***.744****	***.745****	1	
A.o.y.	–.049	***.404****	***.306****	***.361****	.242	***.458****	***.453****	***.707****	.433	***.832****	1

Notes. *$p \leq .05$, **$p \leq .001$; applied Pearson's correlation factor.

Table 7. **Correlation matrix of subscales of Interpersonal Reactivity Index Scale and Revised Collet-Lester Fear of Death and Dying Scale, female sample**

	P.	F.	E.c.	P.d.	C.e.	E.e.	O.e.	A.s.	A.s.y.	A.o.	A.o.y.
P.	1										
F.	***.246****	1									
E.c.	***.394****	***.271****	1								
P.d.	***–.211****	.114	.142	1							
C.e.	***.729****	***.843****	***.41****	–.037	1						
E.e.	.061	***.238****	***.666****	***.833****	***.202****	1					
O.e.	***.551****	***.734****	***.675****	***.4556****	***.824****	***.721****	1				
A.s.	.009	.121	.043	***.186****	.09	***.164****	***.159****	1			
A.s.y.	.003	.133	***.154****	.136	.095	***.188****	***.176****	***.544****	1		
A.o.	–.054	.092	.128	***.179****	.034	***.206****	.144	***.369****	***.467****	1	
A.o.y.	–.047	.062	–.011	.133	.017	.094	.067	***.33****	***.484****	***.559****	1

Notes. *$p \leq .05$, **$p \leq .001$; applied Pearson's correlation factor.

that subscale of personal distress correlated with subscales of anxiety about death of self and death of others, while empathetic concern correlated with anxiety about dying of self (Table 7). It has also been established that subscales of anxiety about death of self and death of others in the female sample correlate with the overall empathy, while emotional empathy correlates with the said subscale and the subscale of dying of self (Table 7).

DISCUSSION

The study has revealed that those medical students who experience greater empathetic concern and personal distress have higher scores of emotional and overall empathy as well as have better ability to empathize with others by employing fantasy experience greater anxiety about death of self, dying of self, the death of others, and dying of others.

Analysis of gender peculiarities of correlation between empathy and death anxiety has shown that a weak correlation among empathetic concern, emotional and overall empathy, and all four death anxiety subscales exists in the male sample. Correlation among subscale of fantasy and subscale of anxiety about dying of self, dying of others, and personal distress, as well as anxiety about death of others has been established in the male sample. On the other hand, the observed correlation in the female sample was very weak – it has been established that personal distress scale correlates with subscales of anxiety about death of self and death of others, while empathetic concern correlates with anxiety about dying of self. It has also been established that, in the female sample, subscales of anxiety about death of self and death of others correlate with the overall empathy, while emotional empathy correlates with the said anxiety about dying subscales and the subscale of anxiety about dying of self.

In scientific literature it is noted that death anxiety and empathy are negatively correlated. It is maintained that individuals that are distinguished with lower level of death anxiety are more empathic than those who have higher level of death anxiety (Claxton-Oldfield & Banzen, 2010; Garbay et al., 2014; Polat et al., 2012). Some results of the present study contradict to this correlation – it has been established that death anxiety does not correlate either with the ability to empathize with others by employing perspective, or with cognitive empathy. Therefore, it may be assumed that cognitive empathy and its aspects are more related to intellectual abilities of an individual than to such emotional factors as death anxiety.

These results contradict to the findings of other investigators which indicated that death anxiety and empathy were positively correlated (Kastenbaum, 2003; Servaty et al., 1996; Valmaitė, 2006). Results obtained in the present study support such conclusions. It has been established that medical students who experience greater anxiety about death of self, dying of self, death of others, and dying of others are distinguished by higher levels of personal distress, empathetic concern, fantasy, emotional and overall empathy. We could not find explanation of this tendency in the scientific literature, but it may be assumed that an individual who experiences death anxiety is susceptible to react emphatically to others in such way establishing his/her own being. Such individual feels important when helping others, and this, possibly, helps strengthening the sense of meaningfulness of life.

The research revealed that correlation between death anxiety and empathy is gender related. In the literature, it is maintained that the said correlation is stronger in the female sample (Kastenbaum, 2006; Polat et al., 2012). In the study of Velea and others (2012) opposite results were obtained that showed correlation between death anxiety and empathy in the male sample. Results of the present study conform to those obtained by Velea and others. It has been established that correlation among empathetic concern, emotional and overall empathy, and death anxiety exists in the male sample, whereas the obtained correlation in the female sample was weak. The obtained result makes females emotionality questionable and allows assumption that, despite public expectations that restrict emotional expression of men (Neimeyer, 2009), when confronted with death anxiety men are capable of responding emotionally and empathically to others.

The present small scale pilot study has both scientific and practical value. Both analyzed constructs – anxiety about death and empathy – are significant in medical professionals' work, therefore, knowledge of indexes that reveal the said constructs, their correlation, and expression by gender allows creating special empathy development and death anxiety suppression programs and applying them in the course of studies of medical students.

The present study is distinguished by several limitations. First of all, the sample was selected using the convenient method and students of

medical program of only one university of the country were surveyed. Second, it is difficult to compare the results of the study with data of foreign authors as different death anxiety and empathy questionnaires are used in studies. Third, comparison with the work of foreign authors is limited by time and cultural differences.

On the other hand, the study will be expanded in the future in the sense of quantity and geography of subjects. It also would be valuable to perform comparative analysis of scores and correlation of death anxiety and empathy of medical students and those who are not related to healthcare. Thus it would be possible to determine whether the established regularities are also reflected among other members of society or the said regularities are characteristic only of the sample of medical students. Furthermore, to find out peculiarities of correlation between death anxiety and empathy, it would be meaningful to perform multi-dimensional analysis in future studies. Based on such strategy it would be possible to determine side effects that possibly have impact on correlations between death anxiety and empathy.

CONCLUSIONS

Medical students who experience greater anxiety about death of self, dying of self, death of others, and dying of others suffer from greater personal distress and empathetic concern, are distinguished by higher scores of emotional and overall empathy, and are capable of empathizing with others employing fantasy. No statistically significant correlation was found among subscales of perspective and cognitive empathy, and anxiety about death of self, dying of self, death of others, and dying of others.

Among males, statistically weak correlation among subscales of empathetic concern, emotional and overall empathy, and anxiety about death of self, dying of self, death of others, and dying of others was determined. Correlation between subscale of fantasy and anxiety about death of self, dying of self, dying of others, and between subscale of personal distress and anxiety about death of others has been established in the male sample.

Statistically significant very weak correlation among subscales of personal distress and anxiety about death of self, and death of others as well as between subscales of empathetic concern and anxiety about dying of self was determined in the female sample. In the female sample, correlation among subscales of overall empathy and anxiety about death as well as anxiety about death of others has been established, while emotional empathy correlates with the said death anxiety subscales and the subscale of dying of self.

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