

Attitudes toward futile therapy among nurses and non-medically educated participants: potential benefits of a simple educational intervention in a randomized controlled study

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Abstract

Introduction: Futile therapy should be understood as treatment that prolongs dying, increases suffering, but for which the clinical goal cannot be met. People differ in their attitudes toward this issue.

Aim of the research: The aim of this study was to determine whether stress coping strategies affect the way people understand topics related to futile therapy and whether a simple educational intervention could be beneficial.

Material and methods: Non-medically educated participants ($n = 117$) and non-ICU nurses ($n = 46$) took part in the study. The Brief COPE questionnaire was used to assess coping strategies. Non-medically educated participants were randomized to the study and control groups. A slide with written information about futile therapy was presented to participants in the study group. Subsequently, all participants completed a short survey consisting of three questions. They were asked whether they would expect intensive treatment of a loved one until the end, whether they believed that refraining from certain therapies may be beneficial for the patient, and whether they agreed that futile therapy exists.

Results: Nurses presented the highest level of understanding of the topic. Nurses with a higher level of problem-focused coping tended to understand the futile therapy better (positive correlation, $r = 0.44$; $p = 0.002$), whilst dysfunctional stress coping strategy correlated negatively ($r = -0.32$; $p = 0.03$). The control group represented the lowest level of understanding. Higher education was associated with better understanding among non-medically educated participants.

Conclusions: A relatively simple intervention may significantly increase the understanding of futile therapy related topics among non-medically educated participants. It is worth explaining to relatives the nature of the issue in order to potentially improve communication.

Introduction

Contemporary medicine, especially intensive care, is able to sustain artificially vital functions of critically ill patients for a long time. Increasingly, techniques that can prolong life are being implemented. Futile therapy should be understood as therapy that prolongs dying, increases suffering, but for which the clinical goal cannot be met [1–3]. When medicine does not serve the good of the patient, medical professionals should tend to withdraw such therapy; however, making a decision is not simple. It is recommended to decide collectively, engaging the whole medical team as well as families and patients (if possible) [3]. Moreover, while refraining from futile therapy, the patient continues to receive basic nursing care, pain relief, and other symptoms relief. They are also hydrated and fed, provided that this is beneficial to them [3, 4].

It should be strongly emphasized that withdrawing futile therapy is not the same as euthanasia (which is an active process that aims to stop vital functions [5]).

In Poland, there are implemented protocols which help medical professionals to suspend futile therapy. There are available proper versions for adult ICU [6], pediatric ICU [7], and general medicine departments [3].

Numerous factors affect whether futile therapy is sustained or suspended. They include cultural and religious differences, family members' attitudes, as well as awareness of the medical professionals [1, 2, 8, 9].

Futile therapy continuation is a source of distress for medical team members; it weakens their morale, lowers job satisfaction, and leads to negative coping strategies. Studies show that increased nurses' perception of futile care leads to burnout and emotional fatigue in the ICU [2].

Aim of the research

The aim of this study was to evaluate whether a simple educational intervention (such as giving a definition of futile therapy) could improve understanding of futile therapy related topics among non-medical participants. Moreover, the impact of stress coping strategies among non-medical participants as well as nurses was measured in order to evaluate whether they affected attitudes toward the issue. The rationale for combining stress coping strategies and views on the ethical aspects of intensive care stems from the fact that changing the treatment perspective from causal to palliative is associated with a high level of stress for the patient's family members and sometimes medical staff as well.

Material and methods

Participants were recruited via Facebook groups and channels dedicated to individuals who wish to participate in online survey studies (following a "survey-for-survey" approach). Even though online recruitment may raise some concerns regarding participant verification, it provides greater diversity in the study sample (e.g. in terms of geographic origin). This study is intended as a preliminary study to identify potential future research directions, not to provide definitive answers. Participants did not receive financial compensation. All participants were Polish. A total of 117 non-medically educated participants and 46 nurses (working in departments other than ICUs) took part in the study. Although futile therapy protocols are available for different hospital departments, only ICUs widely apply these protocols (in Poland). Nurses in these units are familiar with the topic, and including their replies would affect the total results. This is why they were excluded.

The study was conducted online. All participants provided signed consent. Non-medically educated participants were randomized to the study ($n = 58$) and control ($n = 59$) groups by the survey collecting system on an ongoing basis.

First, each participant completed a survey containing some basic demographic questions and the Brief COPE questionnaire in the Polish adaptation [10, 11]. It consists of 28 questions, assessing how people respond to stressful situations. Answers are given on a 0 (I haven't been doing this at all) to 3 (I've been doing this a lot) scale. Items are paired, and mean values are calculated to obtain scores for 14 coping strategies. Strategies are usually categorized in order to facilitate analysis. Three main categories are usually met: problem-focused coping, emotion-focused coping, and dysfunctional coping [12].

Subsequently, participants were asked whether they had any personal experience with the hospitalization of a loved one in an ICU. The level of education (of non-medically educated participants) was

also collected: secondary education (participants who graduated from high school or technical school) or higher education (at least a bachelor degree). Immediately before the next part, study group members obtained a short information about futile therapy. The definition was adapted from the Society of Polish Internal Medicine Specialists [3]. A slide with written information that was presented to the study group members consisted of the following sentences:

"Futile therapy is the use of medical procedures to maintain vital functions of a terminally ill patient, which prolongs their dying, involves excessive suffering, or violates the patient's dignity. Even if we refrain from futile therapy, the patient continues to receive basic nursing care, pain relief, and other symptoms relief. They are also hydrated and fed, provided this is beneficial to them."

Moreover, all participants completed a short survey consisting of three questions regarding the hypothetical ICU hospitalization of a loved person:

– Q1: I would expect intensive treatment until the end, even if there is no chance of recovery.

– Q2: I believe that refraining from certain therapies may be beneficial for the patient (e.g., for the patient's comfort).

– Q3: For me, there is no such a thing as futile or persistent therapy.

Each statement (Q1–Q3) was assessed by participants on a scale from 1 = "I strongly disagree" to 5 = "I fully agree." Before further analysis, the scores for Q1 and Q3 were reversed. Thus, the more points obtained for each question, the higher was the level of understanding of topics related to futile therapy.

An opinion from the Bioethical Committee of Gdańsk Medical Chamber was obtained (KB-43/25). The study was conducted in accordance with the Declaration of Helsinki. The study was fully anonymous, and no personal data were collected.

Results from the Brief COPE questionnaire were processed according to the instructions to obtain 14 stress coping strategies which were grouped into 3 main categories: problem-focused coping, emotion-focused coping, and dysfunctional coping [12]. The statistics and figures were generated using jamovi software [13, 14]. Pearson's correlation analysis was performed, and the following non-parametric tests were used to detect significant differences: the Mann-Whitney U test and Kruskal-Wallis test with post-hoc Dwass-Steel-Critchlow-Fligner (DSCF) analysis. The χ^2 test was applied in case of categorical variables. Multidimensional analysis for non-medically educated participants was performed with principal component analysis (PCA) with subsequent K-means clustering (number of clusters – 1) in the jamovi MEDA plugin. PCA involved the results of Q1, Q2, and Q3 as well as levels of coping strategies divided into the three main categories, with group (study/control) included as a categorical supplementary variable.

Results

Table 1 presents demographic data of non-medical participants. General results of all the groups are presented in Table 2. There are no significant differences between groups in stress coping strategies and Q2 results. The non-parametric Kruskal-Wallis test revealed statistically significant differences between groups in Q1, Q3 and mean (Q1–3) results. Thus, post-hoc DSCF tests were performed, and the results are presented in Table 3 and Figure 1. As shown, the only significant difference between study group participants and nurses is observed in Q1, while there are differences in Q1, Q3 and mean (Q1–3) results between control group and nurses. For Q3 and mean (Q1–3) score, there are

significant differences between the study and the control group. This indicates that nurses in general represent the highest level of understanding of the topic, while the study group results are quite close. The control group showed the lowest level of understanding (Figure 1). There was no significant difference concerning stress coping strategies between groups.

Emotion-focused and problem-focused stress coping strategies correlated positively with each other in all groups of our study, whilst there was no significant correlation between other strategies. Among nurses, problem-focused coping correlated positively with mean (Q1–3) and Q2 results, emotion-focused coping correlated positively with Q2 scores, and dysfunctional

Table 1. Demographic data

Factor	Control group (n = 59)	Study group (n = 58)	Mann-Whitney U test or χ^2 test
Age (years)	M = 28.5 SD = 7.90	M = 30.7 SD = 10.6	$U = 1600$ $p = 0.544$
Sex: female	40	31	$\chi^2 = 2.52$ $p = 0.112$
Sex: male	19	27	
Education degree: secondary	21	26	$\chi^2 = 1.04$ $p = 0.308$
Education degree: higher	38	32	
Personal experience: Yes	12	14	$\chi^2 = 0.24$ $p = 0.621$
Personal experience: No	47	44	

M – mean, *SD* – standard deviation

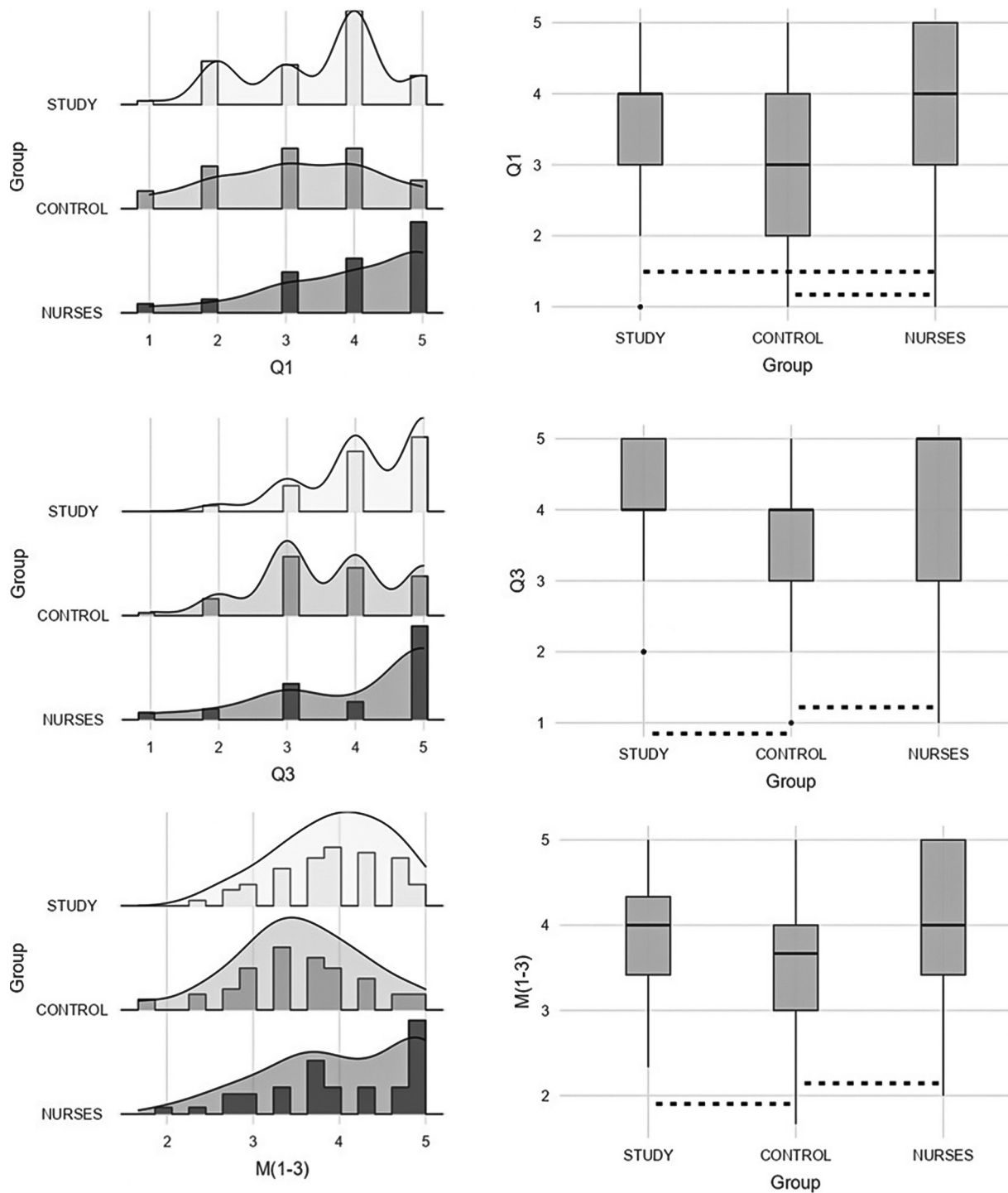
Table 2. General results

	Control group (n = 59)	Study group (n = 58)	Nurses (n = 46)	Kruskal-Wallis test results
Q1 (1–5 scale)	M = 3.19 SD = 1.17	M = 3.48 SD = 1.03	M = 3.98 SD = 1.14	$\chi^2 = 13.40$ $p = 0.001^*$ $\epsilon^2 = 0.083$
Q2 (1–5 scale)	M = 3.80 SD = 1.14	M = 4.09 SD = 0.84	M = 4.07 SD = 1.25	$\chi^2 = 3.178$ $p = 0.204$ $\epsilon^2 = 0.020$
Q3 (1–5 scale)	M = 3.63 SD = 1.02	M = 4.22 SD = 0.84	M = 4.09 SD = 1.21	$\chi^2 = 11.70$ $p = 0.003^*$ $\epsilon^2 = 0.072$
Mean (Q1–Q3)	M = 3.54 SD = 0.76	M = 3.93 SD = 0.66	M = 4.04 SD = 0.87	$\chi^2 = 12.55$ $p = 0.002^*$ $\epsilon^2 = 0.077$
Problem – focused (0–3 scale)	M = 2.02 SD = 0.57	M = 2.09 SD = 0.54	M = 2.06 SD = 0.61	$\chi^2 = 0.279$ $p = 0.870$ $\epsilon^2 = 0.002$
Emotion – focused (0–3 scale)	M = 1.40 SD = 0.44	M = 1.51 SD = 0.44	M = 1.42 SD = 0.40	$\chi^2 = 3.368$ $p = 0.186$ $\epsilon^2 = 0.021$
Dysfunctional (0–3 scale)	M = 1.09 SD = 0.43	M = 1.13 SD = 0.49	M = 1.00 SD = 0.42	$\chi^2 = 2.162$ $p = 0.339$ $\epsilon^2 = 0.013$

M – mean, *SD* – standard deviation

Table 3. Post-hoc DSCF tests

	Study – Control	Study – Nurses	Control – Nurses
Q1 (1–5 scale)	$W = -2.00$ $p = 0.335$	$W = 3.65$ $p = 0.027^*$	$W = 4.90$ $p = 0.002^*$
Q3 (1–5 scale)	$W = -4.63$ $p = 0.003^*$	$W = 0.12$ $p = 0.996$	$W = 3.50$ $p = 0.036^*$
Mean (Q1–Q3)	$W = -4.09$ $p = 0.011^*$	$W = 1.44$ $p = 0.566$	$W = 4.31$ $p = 0.007^*$

**Figure 1.** Differences between groups. Dashed lines in the box plots indicate statistically significant differences. The figure was generated using jamovi software

		Problem	Emotion	Dysf.	M(1-3)	Q1	Q2	Q3
Problem	r Pearsona	—						
	df	—						
	p	—						
Emotion	r Pearsona	0.570 ***	—					
	df	44	—					
	p	< .001	—					
Dysf.	r Pearsona	-0.241	-0.014	—				
	df	44	44	—				
	p	0.107	0.927	—				
M(1-3)	r Pearsona	0.444 **	0.106	-0.320 *	—			
	df	44	44	44	—			
	p	0.002	0.485	0.030	—			
Q1	r Pearsona	0.151	-0.141	-0.288	0.784 ***	—		
	df	44	44	44	44	—		
	p	0.317	0.349	0.052	< .001	—		
Q2	r Pearsona	0.636 ***	0.347 *	-0.111	0.596 ***	0.125	—	
	df	44	44	44	44	44	—	
	p	< .001	0.018	0.461	< .001	0.409	—	
Q3	r Pearsona	0.154	0.001	-0.301 *	0.795 ***	0.612 ***	0.128	—
	df	44	44	44	44	44	44	—
	p	0.307	0.993	0.042	< .001	< .001	0.396	—

* p < .05, ** p < .01, *** p < .001

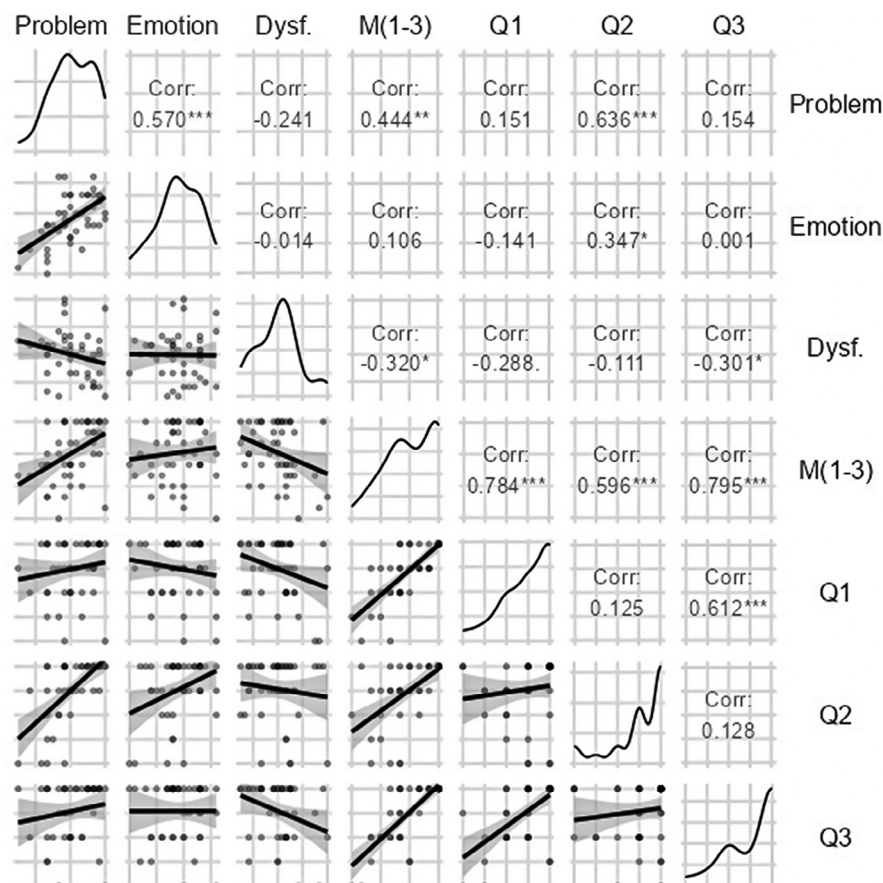


Figure 2. Correlations in nurses group. The figure was generated using jamovi software

coping correlated negatively with mean (Q1–3) and Q3 results (Figure 2). Interestingly, these findings were generally not observed in the non-medical participants. Only in the control group (Figure 3) was there a significant positive correlation between problem-focused coping and Q2, and dysfunctional coping was positively correlated with Q1 answers. For the study group (Figure 4), stress coping strategies did not seem to affect the understanding of topics related to futile therapy.

Higher education among non-medical participants was associated with higher Q2 (M 4.08, Me 4.0, SD 1.00 vs. M 3.29, Me 3.0, SD 1.23; U 250, $p = 0.014$) and mean (Q1–3) results (M 3.70, Me 3.67, SD 0.71 vs. M 3.24, Me 3.33, SD 0.75; U 257, $p = 0.024$) in comparison with those having only a secondary education. Age did not correlate with any other parameter. Sex of the participant and personal experience with the hospitalization of a loved one in the ICU did not influence scoring in the survey as well.

Cluster analysis of non-medically educated participants revealed 3 subgroups (Table 4). According to clustering, the following types of participants can be differentiated:

- Cluster 1: problem-focused coping, low level of understanding of futile therapy related topics. These participants are present mainly in the control group.
- Cluster 2: dysfunctional coping, mostly with higher education, high level of understanding of futile therapy related topics. These participants are present equally in both groups.
- Cluster 3: the highest level of emotion- and problem-focused coping, high level of understanding of futile therapy related topics, study group members prevail.

Discussion

Participants in each group in general agree that refraining from certain therapies may be beneficial for the patient, since no differences were observed between groups. Interestingly, this aspect is the only one which is affected by the level of education (among non-medical participants). Even though in Poland there is no health education in schools or at non-medical universities, there is a higher understanding of the topic among participants with academic education. This may be connected with their higher trust toward science and people representing a scientific approach (physicians). Such a relation was investigated; the higher the level of education was, the higher was the observed trust in science [15, 16]. The most visible impact of the applied intervention is present in the question asking participants whether they believe that futile therapy truly exists. We need to remember that many non-medically educated individuals could not understand the problem. When they become

family members of ICU patients, they could be confused with medical terms. Thus, introducing common language could be beneficial for communication improvement.

Cluster analysis revealed additional findings. It was found that there were participants (present equally in both groups) with dysfunctional coping strategies who in general understood the issue. They mainly had higher education (Cluster 2). For such people, our intervention did not appear to produce substantial differences. This may correspond to the previously described finding that higher education is associated with higher trust in science [15, 16], and these individuals may generally be more prepared to discuss the topic without additional preparation. The lowest level of understanding was observed in Cluster 1, where participants with secondary education and those from the study group predominated. They were mainly problem-focused coping individuals, and some of them could benefit from some additional information (intervention). Cluster 3 contained members mostly from the study group with quite a high level of understanding. This group consisted of individuals whose better understanding may have resulted from the intervention. They were also mainly problem-focused coping people with quite a high level of emotion-focused strategies as well. Summing up, it seems that emotion- and problem-focused coping may be associated with greater improvement in understanding of futile therapy-related topics following the intervention. Individuals with dysfunctional coping strategies and higher education (Cluster 2) generally demonstrated greater understanding and may be less likely to change their opinions after receiving additional information about the issue.

It is known that stress coping strategies are crucial among medical professionals. Active strategies (problem-focused ones) are in general correlated positively with their effectiveness and are believed to be protective against burnout [17–19]. These strategies should be promoted and emphasized in healthcare workers. In this context, the positive association between problem-focused coping and level of futile therapy understanding is quite obvious. Changing from cure- to comfort-oriented care faces numerous difficulties. Psychological challenges among nurses were described with some examples of their coping strategies by J.M. Badger [20]. These strategies were divided into three main groups: cognitive, effective, and behavioral. This study did not use the Brief-COPE questionnaire, and none of the strategies was favored. Despite this, providing futile therapy has been described by nurses as the most emotionally and morally distressing [20–22]. Nurses working in departments other than ICUs (as in our study) face the problem of medical futility as well and may experience similar distress from time to time. Therefore, those with a higher level

		Problem	Emotion	Dysf.	M(1-3)	Q1	Q2	Q3
Problem	r Pearsona	—						
	df	—						
	p	—						
Emotion	r Pearsona	0.445***	—					
	df	57	—					
	p	< .001	—					
Dysf.	r Pearsona	0.013	0.208	—				
	df	57	57	—				
	p	0.922	0.113	—				
M(1-3)	r Pearsona	0.073	0.043	0.226	—			
	df	57	57	57	—			
	p	0.584	0.747	0.086	—			
Q1	r Pearsona	-0.183	0.072	0.288*	0.739***	—		
	df	57	57	57	57	—		
	p	0.166	0.590	0.027	< .001	—		
Q2	r Pearsona	0.315*	0.231	0.187	0.609***	0.107	—	
	df	57	57	57	57	57	—	
	p	0.015	0.078	0.156	< .001	0.421	—	
Q3	r Pearsona	0.018	-0.246	-0.038	0.700***	0.380**	0.112	—
	df	57	57	57	57	57	57	—
	p	0.893	0.060	0.776	< .001	0.003	0.399	—

* p < .05, ** p < .01, *** p < .001

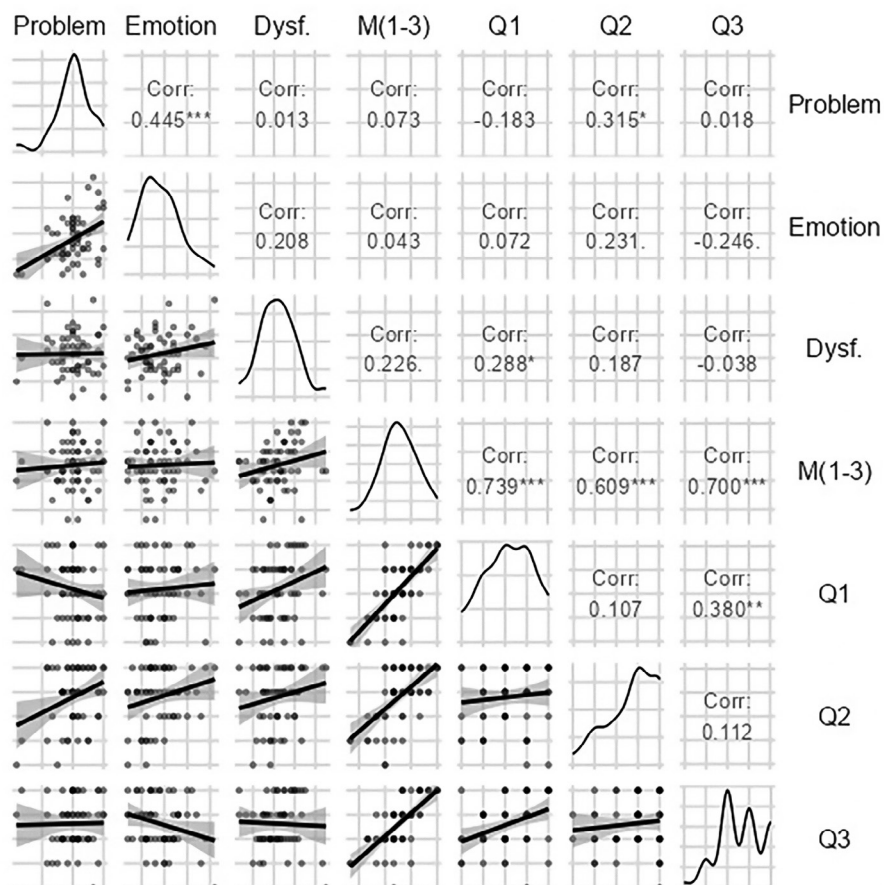


Figure 3. Correlations in control group. The figure was generated using jamovi software

		Problem	Emotion	Dysf.	M(1-3)	Q1	Q2	Q3
Problem	r Pearsona	—						
	df	—						
	p	—						
Emotion	r Pearsona	0.557***	—					
	df	56	—					
	p	< .001	—					
Dysf.	r Pearsona	-0.122	0.111	—				
	df	56	56	—				
	p	0.361	0.408	—				
M(1-3)	r Pearsona	0.128	-0.050	0.134	—			
	df	56	56	56	—			
	p	0.337	0.711	0.317	—			
Q1	r Pearsona	0.008	-0.151	0.045	0.812***	—		
	df	56	56	56	56	—		
	p	0.953	0.258	0.738	< .001	—		
Q2	r Pearsona	0.150	0.012	0.103	0.659***	0.294*	—	
	df	56	56	56	56	56	—	
	p	0.261	0.930	0.442	< .001	0.025	—	
Q3	r Pearsona	0.144	0.056	0.159	0.712***	0.401**	0.195	—
	df	56	56	56	56	56	56	—
	p	0.282	0.679	0.234	< .001	0.002	0.142	—

* p < .05, ** p < .01, *** p < .001

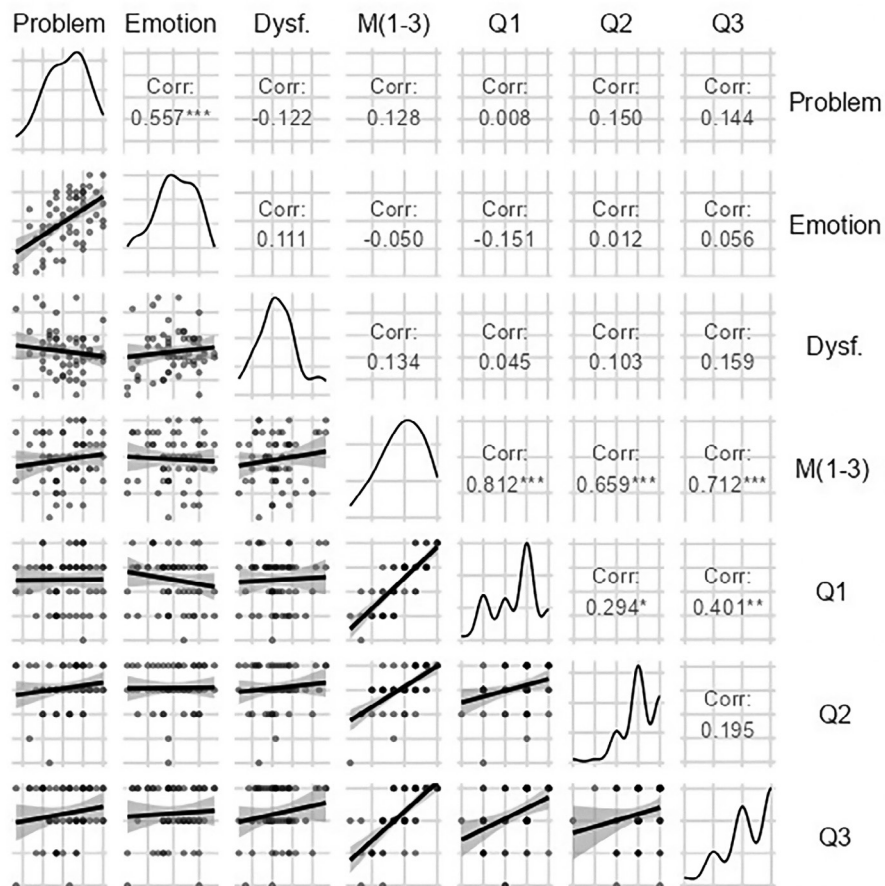


Figure 4. Correlations in study group. The figure was generated using jamovi software

Table 4. Cluster analysis of non-medical participants (members of study and control groups)

	Cluster 1 (n = 43)	Cluster 2 (n = 32)	Cluster 3 (n = 42)	Kruskal-Wallis test or χ^2 test
Group	Study: 14 Control: 29	Study: 17 Control: 15	Study: 27 Control: 15	$\chi^2 = 8.78$ $p = 0.012^*$
Sex	Female: 16 Male: 27	Female: 12 Male: 20	Female: 18 Male: 24	$\chi^2 0.345$ $p = 0.842$
Education degree	Secondary: 24 Higher: 19	Secondary: 9 Higher: 23	Secondary: 14 Higher: 28	$\chi^2 7.13$ $p = 0.028^*$
Personal experience	Yes: 8 No: 35	Yes: 7 No: 25	Yes: 11 No: 31	$\chi^2 0.71$ $p = 0.701$
Age (years)	M = 28.5 SD = 8.25	M = 30.3 SD = 9.86	M = 30.1 SD = 10.2	$\chi^2 0.941$ $p = 0.625$ $\varepsilon^2 0.008$
Problem – focused (0–3 scale)	M = 1.86 SD = 0.47	M = 1.71 SD = 0.52	M = 2.50 SD = 0.34	$\chi^2 51.09$ $p = 0.001^*$ $\varepsilon^2 0.440$
Emotion – focused (0–3 scale)	M = 1.28 SD = 0.38	M = 1.23 SD = 0.33	M = 1.80 SD = 0.36	$\chi^2 38.85$ $p = 0.001^*$ $\varepsilon^2 0.335$
Dysfunctional (0–3 scale)	M = 0.98 SD = 0.42	M = 1.43 SD = 0.43	M = 1.01 SD = 0.41	$\chi^2 21.32$ $p = 0.001^*$ $\varepsilon^2 0.184$
Q1 (1–5 scale)	M = 2.53 SD = 0.96	M = 4.13 SD = 0.66	M = 3.55 SD = 0.99	$\chi^2 41.12$ $p = 0.001^*$ $\varepsilon^2 0.354$
Q2 (1–5 scale)	M = 3.33 SD = 1.11	M = 4.31 SD = 0.82	M = 4.29 SD = 0.71	$\chi^2 23.78$ $p = 0.001^*$ $\varepsilon^2 0.205$
Q3 (1–5 scale)	M = 3.21 SD = 0.68	M = 4.50 SD = 0.88	M = 4.21 SD = 0.87	$\chi^2 44.34$ $p = 0.001^*$ $\varepsilon^2 0.382$

of problem-focused or emotion-focused coping strategies may be more likely to oppose continuing futile treatment. On the other hand, a high level of dysfunctional strategies is associated with lower understanding of the described issue among nurses. Dysfunctional coping leads to higher levels of anxiety and moral distress in nurses and nursing students [23–26]. Anxiety and moral distress may impair rational clinical judgment and negatively affect the complete nursing care [27–29]. This may contribute to fear associated with refraining from the futile treatment among nurses representing a higher level of dysfunctional coping strategies.

The lower impact of stress coping strategies in the results of our survey in non-medical groups may suggest that futile therapy is a source of distress for medical professionals, which may be difficult to appreciate for people who do not work in a hospital setting.

Even if there are some correlations between strategies and attitudes toward the futile therapy in the control group, they were no longer observed in the study

one. Such a simple intervention (as presented in this study) may help overcome some difficulties concerning the way which family members face their stress.

Family members of ICU patient present with high levels of anxiety, depression, and stress [30]. One of the highest stress levels is associated with family-staff communication. Problem-focused coping strategies are the most popular among families, but an interesting finding is that this strategy is positively correlated with the level of experienced stress [31–33]. Some authors describe complex psychological, social and spiritual aspects connected with ICU hospitalization as family intensive care unit syndrome (FICUS) [34, 35]. It can be described in 12 subcategories: emotional disturbances, hopelessness, changes in sleep pattern, mood changes, physical symptoms, aggravation of the existing illnesses, negligence towards personal health, alteration in social interactions, alteration in the burden of responsibility, alteration in the life process, resort to spiritual beliefs, and spiritual conflict [34, 35]. This topic has been increasingly

explored in recent years. Nevertheless, there is a lack of studies connecting FICUS with the perception of futile therapy. Moreover, no study has explored how stress coping strategies affect attitudes toward medical futility among non-medical participants.

It is interesting that perception of futility depends on the nature of the procedure according to nurses. Interdependent nursing interventions (e.g. pharmacotherapy, mechanical ventilation, renal replacement therapy) are usually more frequently perceived as futile in comparison with autonomous nursing interventions (e.g. hygiene, non-pharmacological pain control, dressing for skin lesions) [36]. This opinion corresponds with the nature of futile therapy and its definition [3].

Despite the novel approach and randomized control design, the study is not free from some limitations. There is a need to assess how other psychological factors (e.g. personality traits) affect the issue. In our study, we used only limited information about futile therapy. Potentially, more complex educational intervention would improve the understanding more effectively. We are aware of intercultural differences which likely influence the topic. They also need to be evaluated and addressed appropriately, if possible. The study was based only on a survey information, and the findings require confirmation in clinical settings.

This study may bring novel insights for medical professionals who face the issue of futile therapy. Being a relative of an ICU patient is certainly a stressful situation. People differ in their coping strategies in everyday life. Some are problem-focused and try to resolve the problem actively while others are more emotional or avoidant in order not to face the issue. In everyday practice we see individuals who are very cooperative with us and fully understand our intentions, as well as relatives who disagree with most of our decisions (especially those related to futile therapy). The study aimed to determine whether the way people cope with their stress is associated with their attitudes toward futile therapy. Moreover, the impact of a simple intervention was also observed. It is not our duty to check their coping strategies before a conversation. Nevertheless, according to this study, it could be beneficial to begin with a simple educational intervention. Moreover, we should be aware that their coping strategies may play a role during the discussion. There is a field for cooperation with psychologists who can address their support tailored to a particular strategy represented by a family member. In recent months, articles have appeared pointing to other psychological factors that potentially influence perceptions of the ethical aspects of intensive care. These factors are personality traits included in the dark and light triads [37, 38]. There is a need for deeper investigation in this area, but this study brings us some novel insights.

According to the authors' professional experience (in ICU care and coma neuro-rehabilitation), there is a substantial difficulty in changing the treatment orientation from intensive to palliative care. Relatives differ in their attitudes, level of understanding the issue and willingness to cooperate with medical professionals. Evaluation which psychological factors affect this problem seems to be crucial for finding appropriate strategies to reduce the incidence of futile therapy.

Conclusions

A relatively simple intervention can significantly increase understanding of futile therapy related topics and may potentially improve communication and collaboration between family members of ICU patients and the hospital team. Higher education was associated with better understanding in general. Among non-medical participants, stress coping strategies did not seem to be associated with understanding in general. Nevertheless, cluster analysis showed that some participants in both groups (study and control), who presented higher levels of dysfunctional coping strategies, demonstrated better understanding of the issue. Other clusters suggested a potential beneficial effect of the applied intervention (information slide) on the understanding measured in the study. It requires further investigation in the future. On the other hand, nurses presenting a higher level of problem-focused coping tended to demonstrate better understanding of futile therapy (positive correlation), whereas dysfunctional stress coping strategies were negatively correlated with understanding.

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Ethical approval

The study was approved by the Bioethical Committee of the Gdańsk Medical Chamber (Decision No. KB-43/25).

Conflict of interest

The authors declare no conflict of interest.

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