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## Are religion and religiosity important to end-of-life decisions and patient autonomy in the ICU? The Ethicatt study

Received: 12 May 2011  
Accepted: 12 February 2012  
Published online: 14 April 2012  
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This article is discussed in the editorial available at: doi [10.1007/s00134-012-2557-5](https://doi.org/10.1007/s00134-012-2557-5).

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**Abstract Purpose:** This study explored differences in end-of-life (EOL) decisions and respect for patient autonomy of religious members versus those only affiliated to that particular religion (affiliated is a member without strong religious feelings). **Methods:** In 2005 structured questionnaires regarding EOL decisions were distributed in six European countries to ICUs in 142 hospital ICUs. This sub-study of the original data analyzed answers from Protestants, Catholics and Jews. **Results:** A total of 304 physicians, 386 nurses, 248 patients and 330 family members were included in the study. Professionals wanted less treatment (ICU admission, CPR, ventilator treatment) than patients and family members. Religious

respondents wanted more treatment and were more in favor of life prolongation, and they were less likely to want active euthanasia than those affiliated. Southern nurses and doctors favored euthanasia more than their Northern colleagues. Three quarters of doctors and nurses would respect a competent patient's refusal of a potentially life-saving treatment. No differences were found between religious and affiliated professionals regarding patient's autonomy. Inter-religious differences were detected, with Protestants most likely to follow competent patients' wishes and the Jewish respondents least likely to do so, and Jewish professionals more frequently accepting patients' wishes for futile treatment. However, these findings on autonomy were due to regional differences, not religious ones. **Conclusions:** Health-care professionals, families and patients who are religious will frequently want more extensive treatment than affiliated individuals. Views on active euthanasia are influenced by both religion and region, whereas views on patient autonomy are apparently more influenced by region.

**Keywords** End-of-life · Religion · Intensive care · Autonomy · Euthanasia

## Introduction

Religion plays an important role in health, sickness and death, and may influence end-of-life (EOL) discussions and limitations. Interest and research on decisions concerning patients who die in intensive care units (ICUs) have increased substantially in many countries during the last decade [1–4].

The Ethicatt study was initiated to elucidate and understand the attitudes of the four major participating groups (doctors, nurses, patients and families) in EOL decisions, and help improve end-of-life care and communication with patients and families [5]. This is an Ethicatt sub-study using the original data that evaluate a new religious aspect: not the role of religion per se, but the importance of being religious versus just affiliated to (being a member of) a religion, particularly when it comes to end-of-life decisions in the ICU. This study addresses two questions:

1. Are there significant differences in EOL decisions between those doctors, nurses, patients and families who consider themselves actively religious and those who just officially identify themselves as affiliated (belonging) to a specific religion?
2. Does being religious or just ‘affiliated’ with a religion have an impact on professionals’ respect for patients’ autonomy regarding EOL preferences?

## Methods

Questionnaires were distributed in Sweden, The Netherlands and the UK (Northern Region), and the Czech Republic, Israel and Portugal (Southern Region) to physicians, nurses, ICU survivors and families of surviving and non-surviving ICU patients in 142 hospitals approximately 3 months after hospital discharge. Seventy-nine percent of the patient/family responses were filled out with health-care professionals present to answer questions [5].

Eligible patients and families were consecutive patients hospitalized in the ICU for more than 3 days and close family members (e.g., spouse, child, parent) who were present in the ICU during most of the patient’s hospitalization and who could understand and complete the questionnaire. Eligible patients and families who did not return the questionnaire were contacted. Reasons for not responding included the following: responders were too ill, the questionnaire was too upsetting, refused to participate and incorrect contact information.

Participants were asked which religion they belonged to and if they considered themselves religious/very religious (both answers grouped together to define “religious”) or non-religious (defined as “affiliated”). Respondents with

unknown religion, atheists and those whose religion was known but with no indication of being religious or just affiliated were excluded.

Autonomy answers were dichotomized to yes/no responses for the questionnaire responses of “always,” “often,” “sometimes,” “seldom” and “never.” The first three possibilities were considered “yes” responses, and the last three as “no.”

More detailed methodological information has been published previously [5]. Ethics Committee approval included informed consent from respondents or a waiver of informed consent.

## Statistical methods

In the first phase the statistical analyses concentrated on the dichotomized responses to four questions: “In the event of a terminal illness and in the event of being permanently unconscious how much treatment do you want?”, and three questions on life prolongation. For all the above-mentioned questions the groups of religious and affiliated were compared within each of the four types of respondents.

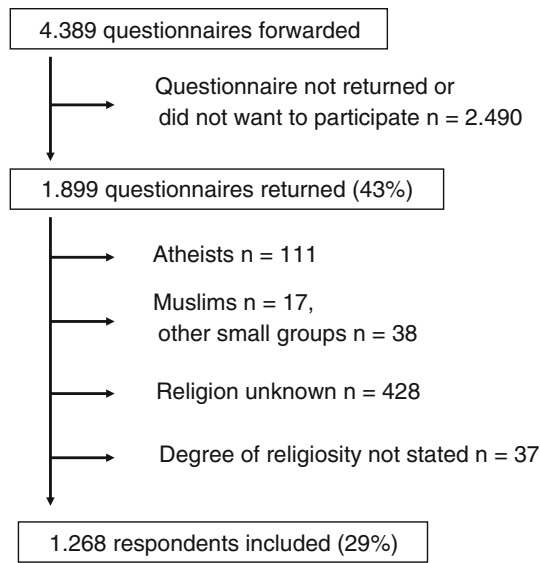
Additional dichotomized responses analyzed patient autonomy, relevant only for health professionals. Responses were dichotomized, and the three religions were compared for each of the two types of respondents.

All the statistical tests applied were Fisher’s exact test for  $2 \times 2$  tables and chi-square for all other tables. Six multivariate logistic regression models were constructed, three for physicians and three for nurses, and the three outcome variables were: “In the event of terminal illness do you want ICU admission?” “In the event of terminal illness do you want active euthanasia if in pain?” “A competent patient does not want treatment that you believe will save him. Would you do what you think is best against that patient’s wishes?” The covariates in the models were religion, religiosity, region and age. Prior to building the models two interactions were examined—between religion and religiosity and religion and region. Both interactions were found not to be significant and were not included in the final models.

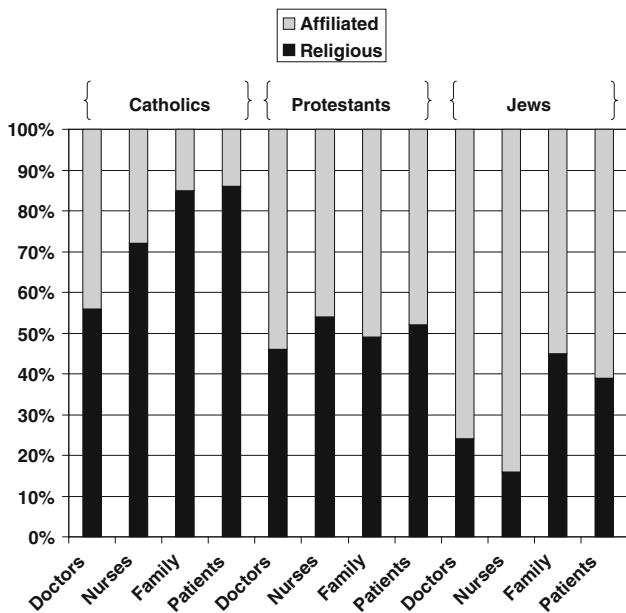
## Results

Questionnaires were forwarded to 4,389 individuals and completed by 1,899 (43 % response rate). This substudy further excluded 631 respondents, leaving four groups with 304 physicians, 386 nurses, 330 family members and 248 patients (29 % final response rate) (Fig. 1).

Figure 2 shows that in all four groups of respondents (doctors, nurses, families and patients) the Catholics had



**Fig. 1** Flowchart showing how respondents were included in the study



**Fig. 2** The percentages of affiliated and religious respondents within the three religions

the highest percentage of religious respondents. There were 74 % religious Catholics, 50 % religious Protestants and 33 % religious Jews. Sixty percent of families and patients responded that they were religious versus only 50 % of the staff.

Respondents were asked if in the event of a terminal illness they would want ICU admission, CPR, ventilator treatment and active euthanasia if in pain (Table 1). Fewer professionals (22 %) than patients and families (55 %) wanted treatment,  $p < 0.001$ , and in all four

groups religious respondents preferred treatment than affiliated respondents, but differences were significant only among nurses and family members (largest difference 23 % between religious and affiliated family members who wanted CPR,  $p < 0.001$ ). Fewer professionals (34 %) than patients and families (48 %) preferred active euthanasia for pain,  $p = 0.03$ , and less religious respondents chose this option. Significant differences were found between responses from doctors and patients.

Table 2 shows the answers if the respondent was permanently unconscious. The respondents in every group wanted less treatment than if they were terminally ill. The professionals again wanted less treatment than patients and families, with religious respondents wanting more treatments than affiliated respondents. Fewer professionals (42 %) than patients and families (48 %) again preferred active euthanasia for pain ( $p = 0.04$ ).

The multiple logistic regression analysis in Table 3 shows the same pattern as Table 1 that more religious doctors and nurses want admission to the ICU than those affiliated, but the differences were not significant. Table 3 also shows non-significant differences among the three religions and between the Northern and Southern regions concerning ICU admission. Older doctors did not want ICU admission compared to their younger colleagues.

Table 4 confirms data from Table 1 that affiliated doctors preferred active euthanasia more than their religious colleagues, but there were no significant differences between religious and affiliated nurses or the three religions. Professionals from the Southern region were significantly more in favor of active euthanasia than their Northern counterparts. The professionals' age was unimportant in the choice for euthanasia.

Professionals were less inclined than patients and families to have their life prolonged as much as possible by all available treatments in any condition (Table 5), but again religious physicians, patients and families wanted more treatments than affiliated respondents.

No significant differences between religious and affiliated respondents were found for autonomy. Although 75 % of doctors and nurses would respect the competent patient's desire to refuse treatment, 43 % of doctors versus 53 % of nurses ( $p < 0.05$ ) would act against a patient's wish if they believed that the patient would benefit. Most professionals (81 %) would try and convince a competent patient not to demand futile therapy.

More Protestant (84 %) than Catholic (73 %) or Jewish (67 %) professionals would follow a competent patient's wish to refuse a treatment that might be lifesaving,  $p < 0.001$  (Table 6). Fewer Protestant (35 %) than Catholic (53 %) or Jewish (66 %) professionals would act against a patient's wish even if it might be lifesaving,  $p < 0.001$ . On the other hand, 88 % of Protestants versus 84 % of Catholics and only 62 % of Jews would try and convince a competent patient not to receive therapy that the professionals considered futile,  $p < 0.001$ .

**Table 1** Respondent's answers in the event of a terminal illness

	ICU admission numbers (%)	<i>p</i> value	CPR numbers (%)	<i>p</i> value	Ventilator numbers (%)	<i>p</i> value	Active euthanasia numbers (%)	<i>p</i> value
Doctors								
Religious	33 (25)		10 (7)		12 (9)		24 (18)	<0.05
Affiliated	39 (23)		9 (5)		12 (7)		63 (38)	<0.05
Nurses								
Religious	52 (25)		30 (15)	<0.05	35 (17)	<0.05	78 (37)	
Affiliated	31 (18)		12 (7)	<0.05	11 (6)	<0.05	73 (42)	
Families								
Religious	124 (61)	<0.001	108 (53)	<0.001	95 (47)	<0.001	101 (50)	
Affiliated	49 (41)	<0.001	36 (30)	<0.001	32 (27)	<0.001	74 (60)	
Patients								
Religious	88 (62)		76 (54)		70 (50)		44 (31)	<0.001
Affiliated	56 (56)		52 (51)		45 (45)		60 (59)	<0.001

Comparisons of religious versus affiliated for each type of respondent

Empty boxes indicates *p* value >0.05

**Table 2** Respondent's answers in the event of permanent unconsciousness

	ICU admission numbers (%)	<i>p</i> value	CPR numbers (%)	<i>p</i> value	Ventilator numbers (%)	<i>p</i> value	Active euthanasia numbers (%)	<i>p</i> value
Doctors								
Religious	11 (8)		3 (2)		7 (5)		32 (25)	<0.05
Affiliated	12 (7)		4 (2)		4 (2)		70 (42)	<0.05
Nurses								
Religious	32 (16)	<0.05	23 (11)	<0.05	24 (12)	<0.05	92 (44)	
Affiliated	13 (8)	<0.05	6 (4)	<0.05	7 (4)	<0.05	90 (53)	
Families								
Religious	97 (48)	<0.001	79 (40)	<0.001	81 (40)	<0.001	83 (41)	<0.001
Affiliated	30 (25)	<0.001	22 (18)	<0.001	24 (20)	<0.001	85 (69)	<0.001
Patients								
Religious	65 (46)		53 (38)		52 (37)		52 (37)	<0.001
Affiliated	38 (39)		34 (35)		30 (30)		39 (59)	<0.001

Comparisons of religious versus affiliated for each type of respondent

Empty boxes indicates *p* value >0.05

Multiple logistic regression analysis of the question “would you do what you think is best against the patient's will, if you believe that would save him/her?” shows that more Southern than Northern professionals would act against a competent patient's will, whereas there were no significant differences between religious and affiliated respondents or the three religions (Table 7).

## Discussion

This study's principal finding is that a person's religion is important, but equally important is whether an individual considers himself religious or just affiliated. This distinction influences how physicians, nurses, patients and families choose among treatment options.

Religious nurses and families almost consistently wanted more extensive treatments than those affiliated in

the same religion if they were terminally ill or permanently unconscious. More religious doctors, families and patients wanted to prolong their lives as long as possible compared to affiliated respondents.

Multiple logistic regression analyses did not show any significance of the outcome “In the event of terminal illness do you want ICU admission?” for religious doctors and nurses—but such a difference was also not found in Table 1. There was no regional difference between the Northern and Southern respondents concerning this question. Only age had a significant influence among doctors, with older doctors wanting less ICU admissions.

The importance of religiosity versus mere affiliation was also evident in the question of active euthanasia. Fewer religious doctors, families and patients wanted active euthanasia if terminally ill or permanently unconscious compared to those affiliated, and this was confirmed by the multiple logistic regression analysis for doctors.

**Table 3** Multiple logistic regression of the outcome “In the event of terminal illness do you want ICU admission?” evaluating religiosity, religion, region and age

	N	OR	95 % CI	p
<b>Religiosity</b>				
Non-religious doctors	166	1		
Religious doctors	129	1.06	0.6–1.9	0.84
Non-religious nurses	168	1		
Religious nurses	205	1.46	0.8–2.6	0.18
<b>Religion</b>				
Catholic doctors	100	1		
Protestant doctors	123	2.02	0.8–4.9	0.12
Jewish doctors	72	1.44	0.6–3.3	0.39
Catholic nurses	164	1		
Protestant nurses	141	0.72	0.4–1.4	0.34
Jewish nurses	68	1.03	0.4–2.5	0.94
<b>Region</b>				
Northern doctors	165	1		
Southern doctors	130	1.49	0.6–3.9	0.41
Northern nurses	208	1		
Southern nurses	165	0.89	0.4–1.8	0.75
<b>Age (years)</b>				
Doctors, median age 41	295	0.95	0.92–0.98	0.003
Nurses, median age 35	373	0.99	0.97–1.03	0.82

CI confidence interval

**Table 4** Multiple logistic regression analysis of the outcome “In the event of terminal illness do you want active euthanasia if in pain?” evaluating religiosity, religion, region and age

	N	OR	95 % CI	p
<b>Religiosity</b>				
Affiliated doctors	166	1		
Religious doctors	129	0.36	0.2–0.7	0.001
Affiliated nurses	168	1		
Religious nurses	208	0.66	0.4–1.1	0.66
<b>Religion</b>				
Catholic doctors	100	1		
Protestant doctors	122	0.89	0.4–2.3	0.81
Jewish doctors	72	0.85	0.4–1.8	0.67
Catholic nurses	167	1		
Protestant nurses	141	0.55	0.3–1.0	0.55
Jewish nurses	68	0.55	0.3–1.2	0.55
<b>Region</b>				
Northern doctors	164	1		
Southern doctors	131	3.63	1.4–9.3	0.01
Northern nurses	210	1		
Southern nurses	166	2.58	1.4–4.9	0.003
<b>Age (years)</b>				
Doctors, median age 41	295	1.01	0.98–1.0	0.61
Nurses, median age 35	376	1.02	0.99–1.1	0.08

CI confidence interval

There was no difference between the three religions regarding euthanasia, but surprisingly a greater preference for euthanasia in the Southern compared to the Northern region. We are puzzled by this finding since Southerners are typically more conservative, did not usually withdraw treatments and performed CPR more frequently than their Northern colleagues in the Ethicus study [2]. One possible

**Table 5** Respondents’ answers for life prolongation

	“Yes” numbers (%)	“Uncertain” numbers (%)	“No” numbers (%)	p value
<b>Doctors</b>				
Religious	10 (8)	28 (21)	94 (71)	0.04
Affiliated	10 (6)	19 (11)	140 (83)	0.04
<b>Nurses</b>				
Religious	21 (10)	47 (22)	143 (68)	0.20
Affiliated	11 (6)	31 (18)	131 (76)	0.20
<b>Families</b>				
Religious	75 (37)	59 (30)	69 (34)	<0.001
Affiliated	22 (18)	37 (30)	64 (52)	<0.001
<b>Patients</b>				
Religious	64 (45)	30 (21)	48 (34)	0.04
Affiliated	30 (30)	26 (26)	46 (44)	0.04

Comparisons of religious versus affiliated for each type of respondent

explanation is that Ethicus was a study of what actually occurred, whereas Ethicatt was a study of opinions and preferences.

A striking difference was found between Christians and Jews characterizing themselves as religious or affiliated. Jewish respondents consistently had the smallest proportion of religious responders. This is in line with a survey among American Jews where 48 % strongly agreed that God exists, but only 9 % characterized themselves as religious [6]. This may reflect the perception of more stringent demands of the Jewish religion, in that more responders considered themselves affiliated and not religious unless they practiced most of the commandments.

An apparent contradictory attitude towards patient autonomy was found as professionals responded that they would respect the wish of a competent patient but also act against a patient’s will. This may relate to the way autonomy answers were dichotomized to yes/no responses (see methods) where respondents who answered “sometimes” to both questions, would result in an apparent “yes” response for both questions, which was not necessarily a contradictory response. Eighty percent of respondents stated that they would try to convince a patient against treatment if they thought that treatment was futile.

In all three autonomy questions there was no difference between religious and affiliated respondents, but there was a significant difference among the three religions with Protestant professionals more frequently following patient wishes. Jewish respondents were least likely to follow a patient’s wish and most likely to go against a wish, but also most likely not to try and convince a patient against futile treatment. The results on autonomy, however, were almost certainly not due to religion alone but to the strong correlation between religion and region. The percentage of Protestant respondents

**Table 6** Professional respondent's answers for autonomy

	Catholics	Protestants	Jews	<i>p</i> value
Competent patient does not want life-saving treatment that you believe will save him				
Would you follow the patient's wish to refuse treatment?	194 (73 %)	223 (84 %)	94 (67 %)	<0.001
Would you do what you think best against the patient's wish?	137 (53 %)	90 (35 %)	93 (66 %)	<0.001
Competent patient wants life-saving treatment that you believe will not help				
Would you communicate with the patient and convince him not to receive the treatment?	224 (84 %)	225 (88 %)	85 (62 %)	<0.001

Number and percentage of those who answered "always," "often" and "sometimes"

**Table 7** Multiple logistic regression analysis of the outcome "Competent patient does not want life-saving treatment that you believe will save him Would you do what you think is best against that patient's will?" evaluating religiosity, religion, region and age

	<i>N</i>	OR	95 % CI	<i>p</i>
<b>Religiosity</b>				
Affiliated doctors	154	1		
Religious doctors	121	1.13	0.7–2.0	0.66
Affiliated nurses	159	1		
Religious nurses	198	0.84	0.5–1.4	0.84
<b>Religion</b>				
Catholic doctors	91	1		
Protestant doctors	118	1.14	0.5–2.7	0.77
Jewish doctors	66	1.52	0.7–3.3	0.28
Catholic nurses	158	1		
Protestant nurses	133	0.87	0.5–1.6	0.87
Jewish nurses	66	0.74	0.4–1.6	0.44
<b>Region</b>				
Northern doctors	157	1		
Southern doctors	118	6.41	2.7–15.4	<0.001
Northern nurses	194	1		
Southern nurses	163	2.61	1.4–4.9	0.003
<b>Age (years)</b>				
Doctors, median age 41	275	0.99	0.9–1.0	0.40
Nurses, median age 35	357	1.02	0.99–1.1	0.12

*CI* confidence interval

in the Northern region was 70 versus 2 % in the South and for Jewish respondents 1 % in the North versus 46 % in the South. In one Ethicus substudy of EOL decisions in European ICU's, patient requests were more frequently honored in Northern Europe than in the South [7]. Another Ethicus substudy found Protestants in the North more likely to discuss EOL decisions with families than Jewish physicians from the South [8], but this last finding was not tested with multivariate analysis of religion versus region. By using such a test here it was shown that respecting a patient's wish apparently is not so much influenced by the professionals' religious faith, but is more a matter of culture and region since we found no difference between religious and affiliated professionals and no differences among the three religions, but a highly significant regional difference.

The strength of this study is that results came from a large European sample of health-care professionals, patients and families, providing a picture of the importance of religion on EOL decisions and on active

euthanasia. The main finding was that there are indeed differences between religious individuals and people merely affiliated to a religion. The fact that this study confirmed other prior findings related to EOL decisions, active euthanasia and religion indicate that these findings are real.

This study found that religious individuals prefer more treatment. A US prospective multicenter cohort study of 345 patients with advanced cancer revealed that patients coping with their illness through religion (prayer, meditation or religious study at least daily) received significantly more treatment near death [9]. Likewise, an Israeli study among Jewish physicians [10] and a recent Korean study [11] (among cancer patients, family caregivers and oncologists) found that religious respondents versus non-religious respondents were less likely to withhold life-sustaining measures in terminally ill patients. The Korean study also found that older respondents were in favor of withdrawing futile therapy—in accordance with the older respondents in this study who were less in favor of ICU admittance when terminally ill.

It can be argued that the self-definition of religiosity is problematic as this is likely to vary from one religious group to another and from one person to another. However, whether a person considers himself/herself religious does mean something, and the results of this study show that this self-perception does have implications. Therefore, this is not a weakness but actually a strength—for the first time mere affiliation to a religion has been shown to have implications on end-of-life decisions.

Affiliated respondents were more likely to favor active euthanasia than their religious counterparts. Similar findings have been reported among Jewish physicians [10] and in a recent survey among UK doctors where non-religious doctors were more likely to make decisions that might shorten life [12]. Religious respondents undoubtedly abstain from euthanasia because it is religiously prohibited [13]. Interestingly, a large minority of the religious doctors and more than one-third of the religious nurses still favored euthanasia if terminally ill despite the religious prohibition and despite being illegal in all the countries in this study except The Netherlands. It is not surprising that nurses are more in favor of euthanasia than doctors [14].

The hypothesis that the degree of religiosity would influence the respondents' view on autonomy was not confirmed. This contrasts to a US mailed survey to primary care physicians where religion was shown to have an impact [15]. Two-thirds of the respondents with low religious motivation gave patient wishes "the highest possible weight," whereas only 47 % of the doctors with high intrinsic religious motivation would do the same [15]. Interestingly, the present study found that nurses would more frequently act against a patient's wish than doctors, and as mentioned above, more religious nurses than religious doctors were in favor of active euthanasia. Such differences may cause conflicts between nurses and physicians at the time of EOL decisions [16, 17].

There are limitations to this study. The data are 6 years old, and changes may have occurred since the original study. Changes in religion and culture, however, are usually evolutionary, slow and not dramatic [18]. The respondents were also required to express views on aspects of EOL other than the ones analyzed in this paper, a factor that has a potential impact on the attention and thought the respondents devoted to each item. Some of the apparent contradictions in answers may have been due to different interpretation of some of the questions (although potential errors were minimized by prospectively defining and describing all terms and offering assistance to families and patients answering the questionnaire).

The overall response rate of 43 % in the Ethicatt study was not impressive. If one reaches a response rate of 75 % the bias due to non-respondents is minimized [19]. However, a 43 % response rate is equivalent to other studies on families following the death of a patient where response rates were 41 and 54 % [20, 21], and the further reduction in response rate to 29 % in this substudy was expected as we had to exclude respondents without the variables being studied.

Little is known about attitudes among Muslims working in Western Europe. Unfortunately, we only received answers from 17 Muslims, too small a group for meaningful conclusions. As the Muslim community in most European countries is less than 5 %, the 17 returned questionnaires of 1.3 % are not inconsistent with a random collection of data.

## Conclusions

Religious patients or families may insist on life-prolonging measures perhaps even against physicians' advice [22, 23]. This study shows that being a member of a religion is not the only issue. Individuals (health-care professionals, patients and their families) defining themselves as religious want more extensive treatment for themselves compared to those who are merely affiliated with a religion, and they are less in favor of active euthanasia.

Among health-care professionals the respect for patient autonomy is apparently more a question of region and culture than a question of religion. Attitudes towards euthanasia are both a question of religion and region. Acknowledging these facts among providers of health services may simplify treatment and minimize conflicts.

**Acknowledgments** This paper has been supported by "Region Zealand Health Sciences Research Foundation," The European Commission contract QL6-CT-1999-00933 grant no. 5206 from the Chief Scientist's office of the Ministry of Health, Israel, the European Society of Intensive Care Medicine and the European Critical Care Research Network. The EU Commission and other sponsors had no role in the design and conduct of the study; collection, management, analysis and interpretation of the data or in the preparation, review or approval of the manuscript.

## References

1. Yazigi A, Riachi M, Dabbar G (2005) Withholding and withdrawal of life-sustaining treatment in a Lebanese intensive care unit. *Intensive Care Med* 31:562–567
2. Sprung CL, Cohen SL, Sjokvist P, Baras M, Bulow HH, Hovilehto S, Ledoux D, Lippert A, Maia P, Phelan D, Schobersberger W, Wennberg E, Woodcock T, Ethicus Study Group (2003) End of life decisions in European intensive care units—the Ethicus study. *JAMA* 290:790–797
3. Mani RK, Mandal AK, Bal S, Javeri Y, Kumar R, Nama DK, Pandey P, Rawat T, Singh N, Tewari H, Uttam R (2009) End-of-life decisions in an Indian intensive care unit. *Intensive Care Med* 35:1713–1719
4. Doval HC, Borracci RA, Giorgi MA, Darú V, Tanús E, Núñez C (2009) Survey of medical attitudes towards a "case scenario" of encephalopathy after cardiac arrest. *Medicina (B Aires)* 69:157–162 (article in Spanish)
5. Sprung CL, Carmel S, Sjokvist P, Baras M, Cohen SL, Maia P, Beishuizen A, Nalos D, Novak I, Svantesson M, Benbenishty J, Henderson B, ETHICATT Study Group (2007) Attitudes of European physicians, nurses, patients, and families regarding end-of-life decisions. The Ethicatt study. *Intensive Care Med* 33:104–110
6. [http://www.jewishdatabank.org/Archive/N-AJIS-2001-Highlights\\_Report.pdf](http://www.jewishdatabank.org/Archive/N-AJIS-2001-Highlights_Report.pdf). Accessed 5th of Jan 2012

7. Sprung CL, Woodcock T, Sjøkvist P, Ricou B, Bulow HH, Lippert A, Maia P, Cohen S, Baras M, Hovilehto S, Ledoux D, Phelan D, Wennberg E, Schobersberger W (2008) Reasons, considerations, difficulties and documentation of end-of-life decisions in European intensive care units. *Intensive Care Med* 34:271–277
8. Sprung CL, Maia P, Bulow HH, Ricou B, Armaganidis A, Baras M, Wennberg E, Reinhart K, Cohen SL, Fries, Nakos G, Thijs LG, Ethicus Study Group (2007) The importance of religious affiliation and culture on end-of-life decisions in European intensive care units. *Intensive Care Med* 33:1732–1739
9. Phelps AC, Maciejewski PK, Nilsson M, Balboni TA, Wright AA, Paulk ME, Trice E, Schrag D, Peteet JR, Block SD, Prigerson HG (2009) Religious coping and use of intensive life-prolonging care near death in patients with advanced cancer. *JAMA* 301:1140–1147
10. Wenger NS, Carmel S (2004) Physicians' religiosity and end-of-life care attitudes and behaviours. *Mount Sinai J Med* 71:335–343
11. Yun YH, Han KH, Park S, Park BW, Cho CH, Kim S, Lee DH, Lee SN, Lee ES, Kang JH, Kim SY, Lee JL, Heo DS, Lee CG, Lim YK, Kim SY, Choi JS, Jeong HS, Chun M (2011) Attitudes of cancer patients, family caregivers, oncologists and members of the general public toward critical interventions at the end of life of terminally ill patients. *CMAJ* 183:E673–E679
12. Seale C (2010) The role of doctors' religious faith and ethnicity in taking ethically controversial decisions during end-of-life care. *J Med Ethics* 36:677–682
13. Bülow HH, Sprung CL, Reinhart K, Prayag S, Du B, Armaganidis A, Abroug F, Mitchell MM (2008) The world's major religions' point of view on end-of-life decisions in the ICU. *Intensive Care Med* 34:423–430
14. Holt J (2008) Nurses' attitudes to euthanasia: the influence of empirical studies and methodological concerns on nursing practice. *Nurs Philos* 9:257–272
15. Lawrence RE, Curlin FA (2009) Autonomy, religion and clinical decisions: findings from a national physician survey. *J Med Ethics* 35:214–218
16. Ferrand E, Lemaire F, Regnier B, Kuteifan K, Badet M, Asfar P, Jaber S, Chagnon JL, Renault A, Robert R, Pochard F, Herve C, Brun-Buisson C, Duvaldestin P, French RESENTI Group (2003) Discrepancies between perceptions of physicians and nurses in EOL decisions. *Am J Respir Crit Care Med* 167:1310–1315
17. Azoulay E, Timsit JF, Sprung CL, Conflicus Study Investigators and the Ethics Section of the European Society of Intensive Care Medicine et al (2009) Prevalence and factors of intensive care unit conflicts: the Conflicus study. *Am J Respir Crit Care Med* 180:853–860
18. Roland G (2004) Understanding institutional change: fast-moving and slow-moving institutions. *Studies in comparative international development (SCID)*, Springer, 38:109–131 doi: [10.1007/BF02686330](https://doi.org/10.1007/BF02686330)
19. Bowling A (2009) *Research methods in health. Investigating health and health services*. 3rd edn. Open University Press, Buckingham
20. Gerstel E, Engelberg RA, Koepsell T, Curtis JR (2008) Duration of withdrawal of life support in the intensive care unit, and association with family satisfaction. *Am J Resp Crit Care Med* 178:798–804
21. Casarett DJ, Crowley R, Hirschman KB (2003) Surveys to assess satisfaction with end-of-life care: does timing matter? *J Pain Symptom Manage* 25:128–132
22. Lo B, Ruston D, Kates LW, Arnold RM, Cohen CB, Faber-Langendoen K, Pantilat SZ, Puchalski CM, Quill TR, Rabow MW, Schreiber S, Sulmasy DP, Tulsky JA (2002) Discussing religious and spiritual issues at the end-of-life. A practical guide for physicians. *JAMA* 287:749–754
23. Balboni TA, Vanderwerker LC, Block SD, Paulk ME, Lathan CS, Peteet JR, Prigerson HG (2007) Religiousness and spiritual support among advanced cancer patients and associations with end-of-life treatment preferences and quality of life. *J Clin Oncol* 25:555–560