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ORIGINAL PAPER

Who Does Believe in life After Death? Brazilian Data from Clinical and Non-clinical Samples

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Abstract
Belief in afterlife is frequent, but little is known about how it relates to religiousness/spirituality (R/S) and socio-demographic variables. To investigate how the beliefs in afterlife and that "there is something beyond matter" are associated with socio-demographic, health, and R/S dimensions in a sample of medical inpatients and their companions. In multivariate analysis, afterlife belief correlated positively to educational level, religious affiliation, belief in something beyond matter, and private religious practices. Believe in something beyond matter correlated positively to afterlife belief and being spiritual. Educational level, rates of spirituality, religious affiliation, and private religious practices seem to influence the belief of afterlife and in a non-materialist cosmology.

Keywords Afterlife · Transcendent · Beliefs · Spirituality · Religion · Life after death

Introduction

It has been well established the relevant role of religiousness and spirituality (R/S) to individual's life, his/her well-being, and mental and physical health. These findings have been consistent in clinical and non-clinical populations, including caregivers of patients (Koenig et al. 2001; Koenig et al. 2012). Almost 85% of world's population reports a religious affiliation, what means that there are more than 6 billion religiously affiliated people around the world (Hackett and Grim 2012).

However, the mechanisms by which R/S impacts people's well-being and health is still poorly understood (Moreira-Almeida 2013). Surprisingly, religious beliefs, a key aspect of R/S, have been largely neglected in R/S and health research. R/S beliefs encompass deep stances about the universe and human nature. Some of the chief R/S beliefs are the ones about the transcendent (there is something beyond matter) and about life after death. Many authors consider these beliefs are in the core of most religions. These beliefs may give purpose to the present life, and to promise a continuity of life after the death of our physical

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body (Malinowski 1948; Stark and Bainbridge 1996; Thalbourne 1996; Flannelly et al. 2012).

Most human beings believe in life after death, as showed by many national surveys. In the USA, 75% of the population believe in afterlife (Greeley and Hout 1999), and these figures increased from 1970 to 1990 (Greeley and Hout 1999). The belief in life after death was fairly high (46.5–60.0%) even among people with no religious affiliation (Greeley and Hout 1999). In Brazil, 60% of a nationally representative sample fully believed in life after death, 18% were in doubt, and 21% did not believe (Datafolha 2007).

The European Values Survey (1999–2002) found that over a third of Germans (39%) and 79% of the Irish believe in life after death. Data from Nordic countries show that in Denmark, 38% believe in life after death and 78% in Iceland (Haraldsson 2006). Data from the World Values Survey also showed that belief in life after death was endorsed by the majority in Australia (63%), Canada (72%), India (65%), Japan (51%), Mexico (76%), Philippines (86%), and South Africa (73%). These figures are even higher in Muslim countries, where the rates were close to 100%: Algeria (99.8%), Indonesia (99%), Iran (98%), Morocco (99.8%), Nigeria (87.5%), and Pakistan (100%) (Inglehart et al. 2014).

Despite the high prevalence of afterlife belief and, literally, thousands of studies on R/S and health, few of them have investigated the impact of this belief in health and well-being (Exline 2003; Flannelly et al. 2012). Previous studies consistently found associations of believing in life after death and lower death anxiety (Alvarado et al. 1995; Chaiwutikornwanich 2015). More recent studies have found that afterlife belief is related to lower psychiatric symptoms (specially anxiety), with stronger effects sizes than church attendance, one of the most used and relevant R/S variables in studies on R/S and health (Flannelly et al. 2006; Flannelly et al. 2008; Ellison et al. 2009; Laarhoven et al. 2011). It has also been associated with lower suicide deaths in cancer patients (McClain-Jacobson et al. 2004), higher level of well-being, life satisfaction, and feelings of tranquility (Ellison et al. 2009; Imamura et al. 2015). In summary, belief in afterlife is very common around the world and could partially explain the role of R/S to well-being and health. However, it is still not well understood how afterlife belief is distributed in clinical samples and how it correlates with other R/S and socio-demographic variables. So, the aim of this study is to investigate how the beliefs in afterlife and in transcendence ("that there is something beyond matter") are associated with R/S dimensions, socio-demographic, and health variables in a sample of medical inpatients and their companions.

Methods

Sample Selection and Procedure

This study was carried out from August 2011 to July 2012 in Juiz de Fora, a midsized city in Southeast Brazil. In order to widen the socio-demographic range by including both low- and high-income individuals, inpatients were enrolled from two general hospitals: a public/university hospital (University Hospital—from Universidade Federal de Juiz de Fora, Brazil) and a private hospital (Hospital Monte Sinai, Brazil). Participants were drawn from two distinct groups: inpatients (clinical sample) and their companions (non-clinical sample). In order to be included in the study, participants had to be 18 years old or older, be hospitalized or an inpatient companion, must have been indicated by the nursing staff as being able to answer the questionnaire, and had to agree to participate in the study by signing a consent form.

Participants were interviewed by trained research assistants (psychology students) who were supervised by the authors. Each hospital was visited three times a week during the data collection period. The chief nurse (which knew about the research and the instruments to be applied) provided the list of inpatients who were considered as able to respond to the questionnaire (e.g., without signs of mental confusion, dementia, able to read or speak, and not under sedation). In order to enlarge our non-clinical sample, all companions who were in the room with the adult patient and companions of the pediatric ward were also invited to participate.

It is worth to note that the recruited inpatients came from similar wards (male and female internal medicine and pediatrics) from both hospitals.

A total of 721 individuals were approached and invited to participate in this study, we had 50 refusals and 15 withdrawals. The reasons most cited to refuse participation were: medical procedures (which would happen soon, or possible interruptions by a health professional at the time that the participant would respond to the questionnaire), pain and discomfort, hospital discharge (to be given soon) or because of e questionnaire length.

Measures

It used these following instruments:

- Socio-demographic data: age, ethnicity, gender, marital status, education, employment status, and income.
- Religious affiliation and practice: Religious affiliation (Do you have a religion? Religious affiliation answer options), practice (Do you practice this religion? With yes/no answer options), and syncretism (Are you interested in another religion? Yes/no answer options. Do you practice any other religion? Religious affiliation answer options).
- Beliefs: life after death (Do you believe that after the death of the physical body, something of us remains? (for example: soul, spirit) with yes/no answer options, and transcendence (Do you believe that there is something beyond matter? for example: soul, spirit, angels, demons, God etc.) with yes/no answer options.
- Self-reported health (In a general way, how do you classify your health in this last 30 days? Answer options: very good, good, regular, bad, or very bad).
- Duke Religion Index (DUREL) (Koenig et al. 1997): translated (Moreira-Almeida et al. 2008) and validated into Portuguese (Taunay et al. 2012; Lucchetti et al. 2012). It consists of five items covering three dimensions of religiosity: Organizational Religiousness (OR)—1 item; Non-organizational Religiousness (NOR)—1; and item and Intrinsic Religiosity (IR)—3 items. The scores are analyzed separately for each dimension and after inversion of the items values, higher scores indicate stronger religiosity.
- The Brief Multidimensional Measure of Religiousness/Spirituality (BMMRS) (Fetzer Institute 2003): a brief but fairly comprehensive instrument which evaluates 11 dimensions of R/S (1) Daily spiritual experiences, (2) Values/beliefs; (3) Forgiveness; (4) Private religious practices; (5) Overcoming religious; (6) Religious support; (7) Spiritual religious history; (8) Commitment; (9) Organizational religiosity; (10) Religious preference; and (11) Overall R/S. This instrument has been used in several studies worldwide (Bodling et al. 2013) and validated to Portuguese (Curcio et al. 2015). The dimensions of the BMMRS can be analyzed in general or separately which

allows a general or a specific score of religiousness/spirituality (R/S). Higher scores denote higher spirituality or religiousness (some items must be inverted).

Analyses

Statistical analyses were conducted with SPSS v.15.0 (SPSS, Inc.). Chi-square tests (for categorical variables) and Mann–Whitney tests (for continuous variables) were used to compare participants who believe or do not believe in after death and transcendent aspects. A binary logistic regression was made with the variables which have correlation with the beliefs in the bivariate analysis. A p value of 0.05 was used to define statistical significance. The study was reviewed and approved by the Institutional Review Board (IRB) at the University Hospital and by the IRB of Federal University of Juiz de Fora, Brazil, and all participants signed an informed consent form (protocol numbers 2122.182.2010 and 52745115.5.0000.5147).

Results

Demographics

The final sample consisted of 651 participants: 262 inpatients and 389 companions. Both inpatients and companions were predominantly female, white ethnicity, married or cohabitating, with high education level and with a mean age in the forties (See Table 1).

Beliefs and R/S Characteristics

From our data, 88.2% of the samples believe that "there is something beyond matter (e.g., soul, spirit, angels, demons, and God)," and 78.2% believe that "after the death of the physical body, something of us remain (e.g., soul, spirit)." Most respondents (94.5%) had a religious affiliation (60.8% Catholics, 22.6% Protestants, 4.6% atheists or without a religion) and more than 70.4% reported they practice their religion.

Correlations of Afterlife and Transcendental Beliefs

Table 2 shows afterlife and transcendental beliefs were highly correlated with each other and positively associated with higher educational level, private hospital, religious practice, daily spiritual experiences, values and beliefs, and positive religious coping. Religious affiliation had a more complex association with these beliefs. All Spiritists endorsed both beliefs and Protestants endorsed more transcendental than afterlife belief.

Gender and race had no association with the studied beliefs. To be student or an informal worker, having high private and organizational religiosity levels, and being a highly religious or spiritual person were associated only with the belief in life after the death. Being a religious person or being a spiritual person correlated only with transcendental belief. Self-rated health had a more complex interaction. There was an increasing belief in transcendent with better self-rated health (from bad [81.8%] to very good [94.1%]), with the exception of those who rated it as "very bad" who also had high level of belief (92.9%).

At the multivariate binary logistic regression (Table 3), afterlife belief correlated with higher educational level, being student, Spiritist, or with no religion. Compared to

Table 1 Socio-demographic, beliefs, and religious characteristics of inpatients (n = 262) and companions (n = 389)

Variable		Inpatients *n* (%)	Companions *n* (%)	Total *n* (%)	*p*
Hospital	Private hospital	97 (37.0)	144 (36.9)	241 (37.0)	0.979
	Public hospital (HU)	165 (63.0)	246 (63.1)	411 (63.0)	
Gender	Women	161 (62.6%)	305 (79%)	466 (72.5%)	**< 0.001**
Race	White	167 (65.7%)	230 (60.4%)	397 (62.5%)	0.18
	Nonwhite	87 (34.3%)	151 (39.6%)	238 (37.5%)	
Marital status	Not married	70 (27.1%)	88 (22.7%)	158 (24.5%)	**0.02**
	Married/amassed	140 (54.3%)	250 (64.6%)	390 (60.5%)	
	Widower/divorced	48 (18.6%)	49 (12.7%)	97 (15%)	
Educational level	None	103 (40%)	128 (33.7%)	231 (36.2%)	0.18
	High school	114 (44.4%)	177 (46.6%)	291 (45.7%)	
	Graduation	40 (15.6%)	75 (19.7%)	115 (18.1%)	
Employment	Active	91 (35%)	212 (55.2%)	303 (47%)	**< 0.001**
	Inactive	160 (61.5%)	158 (41.1%)	318 (49.4%)	
	Student or informal work	9 (3.5%)	14 (3.6%)	23 (3.6%)	
Age	*N*	259	387	646	**0.001**
	Media	49.28	44.7		
	Standard deviation (SD)	18.15	15.16		
Income	*N*	141	262	403	0.15
	Media	3335.21	2744.22		
	Standard deviation (SD)	4156.17	3685.89		
Religion	Catholic	141 (54%)	254 (65.3%)	395 (60.8%)	0.057
	Protestant	67 (25.7%)	80 (20.6%)	147 (22.6%)	
	Spiritism	28 (10.7%)	27 (6.9%)	55 (8.5%)	
	Other	12 (4.6%)	11 (2.8%)	23 (3.5%)	
	Without religion	13 (5%)	17 (4.4%)	30 (4.6%)	
Religious practice	Yes	178 (68.7%)	272 (71.2%)	450 (70.2%)	0.50

Table 1 continued

Variable		Inpatients *n* (%)	Companions *n* (%)	Total *n* (%)	*p*
Interest in other religion	No	206 (78.6%)	309 (79.4%)	515 (79.1%)	**0.05**
	Spiritism	17 (6.5%)	41 (10.5%)	58 (8.9%)	
	Other	39 (14.9%)	39 (10%)	78 (12%)	
Believe in something beyond matter	Yes	185 (87.7%)	298 (88.7%)	483 (88.3%)	0.409
Believe after the death of the physical body, something of us remains	Yes	126 (74.1%)	211 (80.5%)	337 (78%)	0.07

Bold value indicates statistical significant $p \leq 0.05$

Chi-square tests for categorical variables and Mann–Whitney tests for continuous variables

Catholics (reference group), Protestants were less likely to believe. Private religious practices were marginally correlated with belief in life after death.

Regarding to believe in something beyond matter, only the self-report of spirituality (moderately in relation to very spiritual) kept statistical significance.

It is worth to note the strong correlations between both beliefs. Afterlife belief was stronger predictor of transcendence (OR = 11.4 [CI 3.4–32.9]) than vice versa (OR = 8.3 [CI 2.3–21.4]).

Discussion

To our knowledge, this is the first study to investigate the distribution of afterlife and transcendent beliefs in a sample of general medical patients and also of their companions, two groups under significant stress and who seem to particularly benefit from R/S involvement (Flannelly et al. 2008, 2012). In addition, we are not aware of other studies investigating the correlations of these two beliefs with a large set of R/S dimensions.

The high levels of beliefs in life after death (78.2%) and in transcendent (88.2%) found are even slightly higher than those findings in Brazil's general population (ranging from 60% to 70%) (Inglehart et al. 2014; Datafolha 2007). Perhaps the nature of our sample (related to hospital) and the higher educational level might explain this higher belief.

The beliefs in transcendent ("in something beyond matter") and in afterlife ("that after the death of physical body, something of us remains") were, as expected, very prevalent and highly correlated with each other. As the belief in the transcendent is a broader concept that may or not include afterlife, respondents, showing philosophical coherence, endorsed more transcendence than afterlife, and belief in afterlife was a stronger predictor of belief in transcendent, than vice versa. This is similar to a recent survey with Brazilian psychiatrists in which the belief in the transcendent was higher (72%) than mind independence of the brain (47%) (Moreira-Almeida and Araujo 2015).

It is worth to note the interesting correlations (and also the lack of) with socio-demographic variables. Despite some studies have found higher R/S levels among women, black and older people (Levin and Chatters 1998; Krause 2004), none of these factors correlated with belief in the present study. A study with Polish adults found higher levels of belief among women and marginally significant regarding higher age (Jakubczyk et al. 2016).

Table 2 Bivariate associations between transcendental and afterlife beliefs with socio-demographic and religious variables

To believe in something beyond matter	Yes (*n* (%))	No (*n* (%))	*p*	To believe that after the death of the physical body, something of us remains	Yes (*n* (%))	No (*n* (%))	*p*
Gender				Gender			
Female	349 (89.5)	41 (10.5)	0.235	Female	244 (80.0)	61 (20.0)	**0.197**
Male	132 (85.7)	22 (14.3)		Male	92 (74.2)	32 (25.8)	
Race				Race			
White	309 (89.8)	35 (10.2)	0.365	White	227 (79.1)	60 (20.9)	**0.062**
Black	69 (86.3)	11 (13.8)		Black	43 (68.3)	20 (31.7)	
Other	100 (85.5)	17 (14.5)		Other	65 (84.4)	12 (15.6)	
Educational level				Educational level			
None	136 (79.5)	35 (20.5)	**< 0.001**	None	76 (66.1)	39 (33.9)	**0.004**
Basic	102 (91.1)	10 (8.9)		Basic	69 (78.4)	19 (21.6)	
High school	142 (92.8)	11 (7.2)		High school	107 (84.3)	20 (15.7)	
Graduation	102 (94.4)	6 (5.6)		Graduation	87 (84.5)	16 (15.5)	
Do not know	5 (71.4)	2 (28.6)		Do not know	2 (100.0)	0 (0)	
Employment				Employment			
Active	168 (90.8)	17 (9.2)	0.377	Active	117 (76.5)	36 (23.5)	**0.030**
Inactive (retired, medical leave)	238 (86.5)	37 (13.5)		Inactive (retired, medical leave	163 (75.8)	52 (24.2)	
Student or informal working	77 (88.5)	10 (11.5)		Student, or informal working	59 (90.8)	6 (9.2)	
Self-reported health				Self-reported health			
Very good or good	127 (94.1)	8 (5.9)	**0.057**	Very good	91 (79.1)	24 (20.9)	**0.383**
Good	177 (88.1)	24 (11.9)		Good	114 (74.5)	39 (25.5)	
Regular	130 (83.9)	25 (16.1)		Regular	97 (82.2)	21 (17.8)	
Bad	27 (81.8)	6 (18.2)		Bad	23 (85.2)	4 (14.8)	
Very bad	26 (92.9)	2 (7.1)		Very bad	16 (69.6)	7 (30.4)	

Table 2 continued

To believe in something beyond matter	Yes (*n* (%))	No (*n* (%))	*p*	To believe that after the death of the physical body, something of us remains	Yes (*n* (%))	No (*n* (%))	*p*
Marital status				Marital status			
Not married	112 (83.6)	22 (16.4)	0.118	Not married	77 (74.8)	26 (25.2)	**0.479**
Married/amassed	299 (90.1)	33 (9.9)		Married/amassed	211 (80.2)	52 (19.8)	
Widower/divorced	75 (90.4)	8 (9.6)		Widower/divorced	52 (76.5)	16 (23.5)	
Patient/Companion				Patient/companion			
Inpatient	185 (87.7)	26 (12.3)	0.409	Inpatient	126 (74.1)	44 (25.9)	**0.074**
Companion	298 (88.7)	38 (11.3)		Companion	211 (80.5)	51 (19.5)	
Hospital				Hospital			
Public	256 (82.8)	53 (17.2)	**< 0.001**	Public	144 (74.2)	50 (25.8)	**0.046**
Private	231 (95.1)	12 (4.9)		Private	197 (81.4)	45 (18.6)	
Religion				Religion			
Catholic	274 (85.4)	47 (14.6)	**0.035**	Catholic	198 (77.0)	59 (23.0)	**0.004**
Protestant	111 (91.0)	11 (9.0)		Protestant	60 (71.4)	24 (28.6)	
Spiritism	50 (100.0)	0 (0)		Spiritism	44 (100.0)	0 (0)	
Other	19 (90.5)	2 (9.5)		Other	13 (72.2)	5 (27.8)	
Without religion	17 (89.5)	2 (10.5)		Without religion	13 (81.3)	3 (18.8)	
Religious practice				Religious practice			
Yes	349 (90.9)	35 (9.1)	**0.003**	Yes	237 (80.9)	56 (19.1)	**0.031**
No	131 (81.9)	29 (18.1)		No	99 (72.3)	38 (27.7)	
Religious syncretism				Religious syncretism			
Yes	41 (91.1)	4 (8.9)	0.357	Yes	32 (88.9)	4 (11.1)	**0.73**
No	440 (87.8)	61 (12.2)		No	305 (77.2)	90 (22.8)	
Are you a religious person?				Are you a religious person?			
Very religious	130 (83.3)	26 (16.7)	**0.006**	Very religious	93 (78.8)	25 (21.2)	**0.161**

Table 2 continued

To believe in something beyond matter	Yes (*n* (%))	No (*n* (%))	*p*	To believe that after the death of the physical body, something of us remains	Yes (*n* (%))	No (*n* (%))	*p*
Moderately religious	244 (93.5)	17 (6.5)		Moderately religious	167 (81.5)	38 (18.5)	
Slightly religious	79 (84.9)	14 (15.1)		Slightly religious	56 (74.7)	19 (25.3)	
Not religious at all	19 (82.6)	4 (17.4)		Not religious at all	13 (61.9)	8 (38.1)	
Are you a spiritual person?				Are you a spiritual person?			
Very spiritual	170 (88.5)	22 (11.5)	**< 0.001**	Very spiritual	127 (81.9)	28 (18.1)	**0.161**
Moderately spiritual	209 (93.7)	14 (6.3)		Moderately spiritual	139 (79.9)	35 (20.1)	
Slightly spiritual	64 (78.0)	18 (22.0)		Slightly spiritual	45 (71.4)	18 (28.6)	
Not spiritual at all	26 (78.8)	7 (21.2)		Not spiritual at all	16 (66.7)	8 (33.3)	
To Believe in something beyond matter	–	–	–	To Believe in something beyond matter			
–	–	–	–	Yes	333 (82.6)	70 (17.4)	**< 0.001**
–	–	–	–	No	8 (24.2)	25 (75.8)	
To Believe after the death of the physical body, something of us remains				To Believe after the death of the physical body, something of us remains	–	–	–
Yes	333 (97.7)	8 (2.3)	**< 0.001**	–	–	–	–
No	70 (73.7)	25 (26.3)		–	–	–	–
Age				Age			
N	484	65	0.38	*N*	339	94	**0.458**
Mean	47.46	45.18		Mean	48.93	47.45	
SD	16.93	16.84		SD	16.90	17.59	
How many children?				How many children?			
N	379	43	0.316	*N*	259	67	**0.117**
Mean	2.59	2.90		Mean	2.60	2.77	

Table 2 continued

To believe in something beyond matter	Yes (*n* (%))	No (*n* (%))	*p*	To believe that after the death of the physical body, something of us remains	Yes (*n* (%))	No (*n* (%))	*p*
SD	1.85	1.72		SD	1.47	1.75	
Organizational religiosity (DUREL)				Organizational religiosity (DUREL)			
N	470	63	0.402	N	327	91	**0.076**
Mean	3.95	3.74		Mean	3.85	3.42	
SD	1.81	1.84		SD	1.80	2.05	
Non-organizational religiosity (DUREL)				Non-organizational religiosity (DUREL)			
N	473	63	0.063	*N*	330	91	**0.304**
Mean	4.58	4.15		Mean	4.61	4.43	
SD	1.44	1.73		SD	1.43	1.55	
Intrinsic religiosity (DUREL)				Intrinsic religiosity (DUREL)			
N	469	61	0.264	*N*	327	89	**0.356**
Mean	13.04	12.54		Mean	12.98	12.62	
SD	2.56	3.36		SD	2.54	3.40	
BMMRS dimensions				BMMRS dimensions			
Daily spiritual experiences				Daily spiritual experiences			
N	476	63	**0.007**	*N*	333	93	**0.009**
Mean	29.22	26.65		Mean	29.43	27.27	
SD	5.30	7.12		SD	5.21	7.32	
Values and beliefs				Values and beliefs			
N	480	63	**0.011**	*N*	336	93	**0.056**
Mean	7.11	6.65		Mean	7.10	6.81	

Table 2 continued

To believe in something beyond matter	Yes (*n* (%))	No (*n* (%))	*p*	To believe that after the death of the physical body, something of us remains	Yes (*n* (%))	No (*n* (%))	*p*
SD	1.00	1.35		SD	1.01	1.35	
Forgiveness				Forgiveness			
N	474	63	0.587	*N*	332	92	**0.754**
Mean	10.09	9.95		Mean	10.00	10.07	
SD	1.91	2.03		SD	1.95	2.03	
Private religiosity				Private religiosity			
N	475	65	0.889	*N*	330	95	**0.003**
Mean	24.8	24.66		Mean	24.40	21.78	
SD	7.43	8.04		SD	7.36	8.30	
Positive religious coping				Positive religious coping			
N	472	63	**0.001**	*N*	329	93	**< 0.001**
Mean	13.95	12.46		Mean	14.09	12.73	
SD	2.26	3.26		SD	2.20	3.34	
Negative religious coping				Negative religious coping			
N	472	64	0.795	*N*	332	90	**0.205**
Mean	10.61	10.00		Mean	10.77	10.52	
SD	1.78	1.75		SD	1.66	1.70	
Religious support				Religious support			
N	476	64	0.262	*N*	331	94	**0.907**
Mean	12.39	11.96		Mean	12.26	12.30	
SD	2.81	2.85		SD	2.82	3.17	
Organizational religiosity				Organizational religiosity			
N	468	61	0.284	*N*	327	90	**0.016**
Mean	6.15	5.70		Mean	5.95	5.08	

Table 2 continued

To believe in something beyond matter	Yes (*n* (%))	No (*n* (%))	*p*	To believe that after the death of the physical body, something of us remains	Yes (*n* (%))	No (*n* (%))	*p*
SD	3.08	3.15		SD	3.02	2.90	
High religious + spiritual person				High religious + spiritual person			
N	468	60	0.215	*N*	327	88	**0.032**
Mean	6.15	5.86		Mean	6.18	5.81	
SD	1.39	1.69		SD	1.40	1.57	
High religious + spiritual person + 3 DUREL dimensions				High religious + spiritual person + 3 DUREL dimensions			
N	463	58	0.174	*N*	323	86	**0.067**
Mean	27.70	26.44		Mean	27.60	26.13	
SD	**5.38**	**6.69**		SD	**5.37**	**6.83**	

Bold value indicates statistical significant $p \leq 0.05$

Table 3 Multivariate analysis correlating the socio-demographic, health and R/S variables and transcendental and afterlife beliefs

"To believe that something of us remains after the death of physical body"	Odds ratio (95% CI)	"To believe in something beyond matter"	Odds ratio (95% CI)
To believe in something beyond matter	**8.3 (3.2–21.4)**	_	_
Educational level			
None		None[a]	
Elementary school	1.4 (0.6–3.05)	Elementary school	3.4 (0.7–16.2)
High school	**2.8 (1.2–6.5)**	High school	2.8 (0.7–11.7)
Graduation or more	**4.2 (1.6–11.2)**	Graduation or more	2.8 (0.5–16.7)
Employment			
Active[a]		_	_
Inactive (retired, medical leave)	1.5 (0.8–2.9)	_	_
Student or informal working	**5.4 (1.4–19.9)**	_	_
Do not practice religion[a]	12 (0.6-2.4)	_	_
Private hospital[a]	0.9 (0.5-1.8)	Private hospital[a]	1.4 (0.4-5.1)
Religion			
Catholic[a]		Catholic[a]	
Protestant	**0.42 (0.2–0.9)**	Protestant	1.8 (0.5–6.4)
Spiritism	**197,828,298.346[b]**	Spiritism	**20,072,061.214[b](1–1)**
Other religion	0.77 (0.2–3.0)	Other religion	1.7 (0.9–29.8)
Without religion	2.02 (0.4-9.8)	Without religion	3.2 (0.2-48.2)
Daily spiritual experiences[a]	1.02 (0.9-1.1)	Daily spiritual experiences[a]	1 (0.9–1.1)
Private practices[a]	**1.05 (1–1.1)**	_	_
Positive coping[a]	1.06 (0.9-1.2)	Positive coping[a]	1.1 (0.9–1.4)
Organizational religiosity[a]	1.05 (0.9-1.2)	_	_
Self-report of R/S[a]	1.02 (0.8-1.3)	_	_
_	_	Practice religion[a]	0.6 (0.2–1.9)
		Self-report of religiousness	
_	_	Very religious[a]	
_	_	Moderately religious	0.7 (0.2–3.1)
_	_	Slightly religious	0.9 (0.2–5.5)
_	_	Not religious at all	0.4 (0.3–7.0)
		Self-report of spirituality	
_	_	Very spiritual[a]	
_	_	Moderately spiritual	**5.4 (1.2–23.6)**
_	_	Slightly spiritual	1.0 (0.2–4.1)
_	_	Not spiritual at all	3.6 (0.3–39.2)
		Self-reported health	
_	_	Very good health[a]	
_	_	Good health	0.9 (0.2–4.5)

Table 3 continued

"To believe that something of us remains after the death of physical body"	Odds ratio (95% CI)	"To believe in something beyond matter"	Odds ratio (95% CI)
_	_	Regular health	0.3 (0.7–1.4)
_	_	Bad health	0.2 (0.3–1.7)
_	_	Very bad health	1.2 (0.9–18.0)
_	_	Something of us remains[a]	**11.43 (3.4–32.9)**
_	_	Values and beliefs[a]	1.3 (0.8–2.1)

Bold value indicates statistical significant $p \leq 0.05$

[a]Reference

[b]This OR value is because 100% of Spiritists said that they believe that something of us remains after the death of the physical body and that there is something beyond matter

The majority of the sample was composed by women, especially among companions. This probably may be explained by the usual predominance of women caregivers (Queiroz et al. 2018). For example, a recent Brazilian study with children and adolescents inpatients found that the mothers were the main caregiver in 56.9% ($N = 517$), followed by grandparents 7.8% ($N = 71$) and fathers 2. 5% ($N = 23$) (Muylaert et al. 2015). In addition, among the group of inpatients, it is known that women have a greater tendency to seek for health services than men (Levorato et al. 2014). Therefore, among both, inpatients and companions, it is presumed that the majority are female.

Some theories propose that transcendent and afterlife beliefs are more prevalent among illiterate and less educated groups, because they would not have access to "scientific views" (Malinowski 1948). However, studies in Japan, Poland, and the USA have found no correlation of afterlife belief with educational level (Flannelly et al. 2006; Imamura et al. 2015; Jakubczyk et al. 2016). Also contrary to that hypothesis, in the present study, higher educational level correlated positively with both beliefs in afterlife and in something beyond matter. The view that science leads to materialist (non-transcendent, non-afterlife) worldviews has been questioned by historical, philosophical, and empirical studies (Brooke 2009; Moreira-Almeida et al. 2018).

In bivariate analysis, we found a trend to statistical significance ($p = 0.057$) in the association between general self-rated health and transcendent belief, but not with afterlife. This was not kept in the multivariate analysis. Several studies have found associations between afterlife belief and better mental health and well-being (Flannelly et al. 2012; Bering 2006a, b; Gjersoe and Hood 2006). One explanation may be the fact of our sample is related to hospital. And another possibility may be a nonlinear correlation, since very bad health had a higher correlation with afterlife belief, contrary to the other categories that found a direct correlation between health and belief. It is important to highlight that transcendent and afterlife beliefs may be more "useful" among medical patients and their caregivers than to general people. There is evidence that the stress buffering effects of afterlife beliefs are higher among people under stressful situations (Bradshaw and Ellison 2010; Ellison et al. 2009).

The correlations (and the lack of) of both beliefs with R/S dimensions are also instructive. Although being religious correlated with belief in transcendent, a considerable minority of those considering themselves as "non-religious" or "non-spiritual" believe in

transcendent and afterlife. This shows that not all of those hold a materialistic cosmology. In part, it may reflect different understandings of what is meant by being "spiritual" or "religious" and stress the need of being careful about these definitions (Moreira-Almeida and Koenig 2006). Religious affiliation correlated with both beliefs. Belief in transcendent was more evenly distributed, being hold by around 90% by Catholics, Protestants and non-affiliated, and 100% by Spiritists. Differences were higher regarding belief in life after death, with a gradient from Protestants (71%), Catholics (77%), Non-affiliated (81%), and Spiritists (100%). These findings illustrate how similar religious affiliations may have different implications in different countries. In the USA, the distribution was: Protestants (85.5%), Catholics (81.5%), and non-affiliated (60.0%) (Greeley and Hout 1999).

The two extreme groups in Brazil were Protestants and Spiritists. Spiritism is a spiritualist philosophy developed in France by Allan Kardec that became the third leading religion in Brazil (Moreira-Almeida and Neto 2005). It emphasizes the soul survival after death and reincarnation, so it is expected endorsement of both beliefs. Regarding Protestants in Brazil, the evangelicals are a fastly growing group (IBGE 2010) and they often have a very negative view of Spiritism, so this might partially explain the denial of survival, an idea closely associated to Spiritism in Brazil. Brazilian studies about the category "without religion" point out that these people are not necessarily atheists; this identification would be more in the sense of a de-institutionalization, of a non-participation in a specific religion, than of a person who does not believe in the transcendent or God (Mariz and Machado 1998; Jacob et al. 2003; Rodrigues 2007).

The majority of the R/S dimensions most used in health research (church attendance, private and intrinsic religiosity) were not associated with any belief. However, "daily spiritual experiences" were directly related to both beliefs. This subscale measures particularly feelings of presence, union, and connection with God. Since the classical studies of Tyler (1871), many authors point out that spiritual experiences are the foundation sources of R/S beliefs, in which the core ones are the transcendent and the afterlife (James 1902; Thalbourne 1996; Wallach 2015).

Despite some authors have claimed that transcendental and afterlife beliefs would foster negative coping strategies such as passive deferral and anxiety regarding a punitive God, this is not support by our data. Negative religious coping was not related to any belief, and the positive coping was directly associated with both beliefs in bivariate analysis. (The significance was lost in multivariate analysis.) To our knowledge, this is the first study investigating the association between these beliefs and religious coping. But other studies have found that belief in afterlife was negatively correlated to death anxiety (Silton et al. 2011). Bering's theory (2006a, b) says that belief in life after death is an element of a neuro-cognitive system that monitors human–social exchanges. Thus, the association between beliefs in life after death might be mediated by beliefs about the world, with positive beliefs having a salubrious association with psychiatric symptoms and negative beliefs. He says that individuals who believe in afterlife, life after death, generally also believe in a supernatural agent (or agents) who monitor social relations. In addition, to belief in an afterlife makes the problems and stresses of life, and the world in general, less threatening because it provides an eternal perspective and gives the perception that all the problems are temporary or ephemeral. Something similar is proposed by Flannelly et al. (2007) who claim that R/S beliefs such as in the afterlife "may buffer stress and decrease anxiety influencing our evolutionary threat assessment systems, which detect and assess potential threats of harm. Particularly by pre-frontal cortex modulating limbic reaction."

Other authors also talk about the influence of afterlife belief to the mental health and well-being proposing that the belief in a transcend world helps to cope with health,

financial, and relationship problems. Moreover, the promise of future rewards in the afterlife may make difficulties easier to bear (Flannelly et al. 2012; Bering 2006a, b; Gjersoe and Hood 2006).

In the present study, we can consider that believing in afterlife and in something beyond matter among general medical inpatients and their companions may be a frequent coping strategy, and a buffer against fear of death, anxiety, and depression, perhaps even more frequent than among general population. To believe that the death is not the end may help to cope with the possibility of our own death and/or with the death of somebody who we love.

The present study has some limitations regarding only two questions about these beliefs (although this is the usual in studies in this topic), the study was not a longitudinal one, so we need to be careful in causal inferences; and our sample is limited to a hospital context, so these findings may not apply to other populations. One needs to be careful in extrapolating these findings inpatients and companions in hospitals in Brazil or elsewhere. On the other side, the large and diversified sample (clinical and non-clinical, people from different socioeconomic backgrounds) adds external validity and the use of widely used and validated religious scales (DUREL-p and BMMRS-p) strengths the internal validity and comparisons with future studies.

As we can see, the beliefs in life after death and in the transcendent are very prevalent and seem to be important components of R/S. These beliefs have complex but still poorly explored correlations with socio-demographic features and R/S dimensions. Beliefs in transcendence and in afterlife, as potentially relevant mechanism for the impact of R/S on health, need to be better integrated in epidemiological studies of R/S. Particularly, our studies should be performed on the impact of these beliefs in well-being, mental and physical health, and how these beliefs influence coping with suffering and approaching to death.

Compliance with Ethical Standards

Conflict of interest The authors declare that there is no conflict of interest.

Ethical Approval All data collections were initiated after approval of the research protocol (Nos. 2122.182.2010 and 52745115.5.0000.5147) by the Research Ethics Committee (CEP) of the University of Juiz de Fora (UFJF).

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