# Religiosity and Spirituality of Resident Physicians and Implications for Clinical Practice—the SBRAMER Multicenter Study



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**OBJECTIVES:** To assess the attitudes, knowledge, and experiences of Brazilian resident physicians regarding religiosity/spirituality (R/S), factors associated with addressing this issue, and its influence on clinical practice. **METHODS:** We report results of the multicenter "Spirituality in Brazilian Medical Residents" (SBRAMER) study involving 7 Brazilian university centers. The Network for Research Spirituality and Health (NERSH) scale (collecting sociodemographic data, opinions about the R/S-health interface, and respondents' R/S characteristics) and the Duke Religion Index were self-administered. Logistic regression models were constructed to determine those factors associated with residents' opinions on spirituality in clinical practice.

**RESULTS:** The sample comprised 879 resident physicians (53.5% of total) from all years of residency with 71.6% from clinical specialties. In general, the residents considered themselves spiritual and religious, despite not regularly attending religious services. Most participants believed R/S had an important influence on patient health (75.2%) and that it was appropriate to discuss these beliefs in clinical encounters with patients (77.1%), although this was not done in routine clinical practice (14.4%). The main barriers to discussing R/S were maintaining professional neutrality (31.4%), concern about offending patients (29.1%), and insufficient time (26.2%). Factors including female gender, clinical specialty (e.g., internal medicine, family medicine, psychiatry) as opposed to surgical specialty (e.g., surgery, obstetrics/gynecology, orthopedics), having had formal training on R/S,

**Electronic supplementary material** The online version of this article (https://doi.org/10.1007/s11606-020-06145-x) contains supplementary material, which is available to authorized users.

Received March 23, 2020 Accepted August 12, 2020 Published online August 19, 2020 and higher levels of R/S were associated with greater discussion of and more positive opinions about R/S. **CONCLUSION:** Brazilian resident physicians held that religious and spiritual beliefs can influence health, and deemed it appropriate for physicians to discuss this issue. However, lack of training was one of the main obstacles to addressing R/S issues in clinical practice. Educators should draw on these data to conduct interventions and

KEY WORDS: spirituality; religion and medicine; resident physicians; medical education; graduate students; medical residents.

produce content on the subject in residency programs.

J Gen Intern Med 35(12):3613–9 DOI: 10.1007/s11606-020-06145-x © Society of General Internal Medicine 2020

#### INTRODUCTION

The interface between religiosity/spirituality (R/S) and health has long been recognized and studies on the subject have grown steadily in recent years. 1, 2 Scientifically, the need to standardize R/S terms used in research has called for a conceptual analysis to clarify understanding and differences between spirituality and religion. According to Harold Koenig, 3 religion is an organized system of beliefs, practices, rituals, and symbols designated to aid access to the sacred and transcendent, while spirituality is defined as the personal search to understand issues involving end of life, its meaning, and relationships with the sacred or transcendent that may or may not lead to the development of religious practices or the formation of religious communities.

The growing number of studies in the area, together with ethical and professional guidelines based on patient-centered care, has promoted the introduction of programs on spirituality and health into the curricula of many universities. Currently, this content exists in the curriculum of 90% of North American, <sup>4</sup> 59% of British, <sup>5</sup> and 40% of Brazilian <sup>6</sup> medical schools. Similarly, a number of societies and organizations, such as the American College of Physicians, the American Medical Association, the American Nurses Association, and the Joint Commission on Accreditation of Healthcare Organizations, have recognized the importance of the issue and recommend integrating R/S into clinical practice. <sup>7</sup>

Despite this evidence, most health professionals do not discuss the issue as part of routine clinical practice. A systematic review including over 20,000 physicians found that 16–32% of physicians routinely inquired about their patients' beliefs, artes corroborated by other samples in which 10% of North American physicians, 4.4% of Canadian, 25% of Indian, and 11.1% of Brazilian doctors often or always discuss the matter. 40

This same pattern is observed in medical undergraduate training. Although 75% of trainees believed that spirituality had an important influence on patient health, they did not feel prepared to engage in this type of discussion, pointing to a lack of specific training during medical school. Likewise, faculty did not feel fully prepared to deal with the subject, leading to deficits in students' and residents' training. 12, 13

Within the ambit of medical training, students and teachers have a clearly defined role in the teachinglearning process. However, resident physicians face a more complex situation, in which they act as both trainee and primary physicians caring for patients.<sup>14</sup> Residency is an important step in the future clinical practice of the professional physician, during which training on sensitive issues should be expanded. Moreover, the R/S issue is not widely implemented in residency programs, evidenced by the fact that only 31% of family medicine residency programs in the USA<sup>15</sup> and 28.5% of psychiatric residency training in Canada<sup>16</sup> incorporate compulsory activities involving R/S. Although residents seem to have greater exposure to R/S during their training as compared with medical students, <sup>17</sup> several barriers to incorporating these issues into clinical practice remain, such as insufficient time, lack of training, and concerns about offending patients. Previous studies have shown that these barriers could be minimized by providing appropriate R/S training in residency programs. 18-20

Within this context, relatively few papers have discussed resident attitudes on R/S, and those available involve only single centers and small, poorly representative samples. 18–23 The present study addresses this gap, assessing a large sample of Brazilian resident physicians from multiple institutions. Therefore, the objective of the present study was to assess the attitudes, knowledge, and experiences of Brazilian resident physicians regarding religiosity/spirituality (R/S), factors associated with addressing the issue, and its influence on clinical practice.

## **METHODS**

A cross-sectional, multicenter, observational study with a quantitative design was carried out between July 2017 and July 2018, coordinated by the Federal University of Juiz de Fora, Brazil, and involving 7 Brazilian university centers responsible for training resident physicians (Supplementary Table 1). The project was approved by the Ethics Committee of the Federal University of Juiz de Fora under permit number CAAE 57905716.4.1001.5133 and by the other participating centers. All study participants signed an informed consent form.

All physicians undertaking residency programs at the university centers listed were eligible to participate, giving an eligible study population of 1642 resident physicians. For inclusion, residents had to be officially registered on the residency program and had to be participating in the educational or medical activities of this program. Residents participating in out-of-town rotations, who were on vacation, or had suspended their training course due to medical leave or work absence were not included. The residents were approached by trained researchers (teachers, students, or other residents) at the workplace during the day, when not attending to patient care, and were invited to complete the survey.

The questionnaire was self-administrated and took around 20–30 min to complete and comprised the following:

- Network for Research Spirituality and Health (NERSH) scale: this is the updated version of the survey "Religion and Spirituality in Medicine: Physicians' Perspectives" (RSMPP) developed by Curlin et al. in 2002<sup>24</sup> and validated by a pool of experts in a previous study.<sup>25</sup> The NERSH questionnaire, which is available upon request, included 3 sections: A, (10 questions collecting demographic data including gender, age, marital status, religion, and data characterizing the residency such as specialty and year of residency program); B, (19 questions on views regarding the R/S-health interface); and C, (18 questions on respondents' R/S characteristics). The Portuguese version was translated by health professionals (researchers) involved in the present study (2 physicians and 1 psychologist) and back-translated into English by a native British translator. The original authors of the scale authorized its use and validated the back-translation. The original scale exhibited satisfactory psychometric properties, as did the Brazilian version.<sup>26</sup>
- Duke Religion (DUREL) Index: religiosity was also assessed by applying the DUREL index, a brief 5-item scale assessing 3 dimensions of religiosity: organizational religiosity (frequency of attending religious centers or meetings), non-organizational religiosity (frequency of spending time in private religious activities, such as prayer, scripture study, or religious meditation), and intrinsic religiosity (religion as an end). The DUREL scale was developed by Koenig<sup>27</sup> and has been validated for use in Brazil.<sup>28</sup>

## **Statistical Analysis**

Descriptive statistics were used to describe sociodemographic and R/S characteristics, and their influence on clinical practice of resident physicians. For the inferential analysis, logistic regression models were constructed to determine those factors associated with residents' opinions on spirituality in clinical practice. To this end, the following independent variables were selected: gender, age, year of residency, prior formal R/S training, having a religion, religiosity (divided into high or low) and spirituality (divided into low and high), and medical specialty of residency (clinical versus surgical). For the present study, the following specialties and subspecialties were considered surgical: general surgery (e.g., general surgery, plastic surgery, urology, cardiovascular surgery), orthopedics, gynecology, obstetrics, ENT/otolaryngology, and ophthalmology. Clinical specialties were internal medicine (e.g., general medicine, cardiology, dermatology, neurology, geriatrics), pediatrics, anesthesiology, ICU, family medicine, radiology, oncology, and emergency medicine.

The independent variables used were dichotomized, for example: "Overall, how much influence do you think religion/spirituality has on patients' health? (1, Very much/ Much; 0, Some/A little/Very little to none)".

All data were analyzed using the SPSS version 21 statistical package and a value of p < 0.05 was adopted as significant with a 95% confidence interval.

## **RESULTS**

A total of 879 resident physicians (53.5% of total) were included from seven universities (Supplementary Material). The sample consisted of individuals who were predominantly women (61%), married or cohabitating (29.6%), and had a mean age of 28.09 years (SD: 3.35, range 23–46 years). Participants were from all years of residency (47.3% 1st year, 25.1% 2nd year, 17.7% 3rd year, 7.0% 4th year, 2.5% 5th year, 0.5% 6th year) and 71.6% pursued clinical specialties. The most common medical specialties were pediatrics (12.9%), internal medicine (12.6%), gynecology/obstetrics (10.3%), family medicine (8.6%), general surgery (8.0%), and anesthesiology (8.0%).

Concerning the personal religious characteristics of the sample, most residents believed in a higher power (88.0%); looked to God for strength, support, and guidance (81.0%); believed in a life after death (62.8%); had a religious or spiritual experience that changed their life (56.4%); and considered themselves very or moderately spiritual (69.8%) and very or moderately religious (57.5%). Despite these characteristics, only 22.1% attended religious services once a week or more, and 38.7% spent time in religious activities (Supplementary Material).

Resident physicians' opinions concerning the influence of R/S on health are shown in Table 1. Most residents believed R/S had an important influence on patient's health (75.2%) and

Table 1 Resident Physicians' Opinions About the Spirituality/ Religiosity-Health Interface

Resident physicians' opinions			%
Overall, how much influence patients' health?	do you think religion/spiritua	ality ha	
Much/Very much			75.2
Some/A little/Very little to none			24.8
Overall, how much influence patients' healing process?	do you think religion/spiritua	ality ha	s on
Much/Very much		531	60.5
Some/A little/Very little to none			39.5
In general, is it appropriate fo issues when a patient/relative		gious/sp	iritual
Always appropriate/Usually appropriate			87.7
Usually inappropriate/Always inappropriate			12.3
In general, is it appropriate for relative's religion/spirituality?	r a physician to inquire abou	•	ient's/
Always appropriate/Usually	677	77.1	
Usually inappropriate/Alway		200	22.9
When, if ever, is it appropriat own religious beliefs or exper		?	
Never		141	16.1
Only when the patient/relative		480	54.7
Whenever the physician sens	256	. 29.2	
When, if ever, is it appropriat relative?	e for a physician to pray wit		
Never		128 548	14.7
Only when the patient/relative asks			62.8
Whenever the physician sens		197	22.5
I would feel comfortable discr spiritual concerns if the patier		Ü	
Strongly agree/Agree	688	78.5	
Disagree/Strongly Disagree		189	21.5
Is the influence of religion/spi generally positive or negative	?		42.0
(a) Psychiatric illnesses	Generally positive	376	42.9
	Generally negative	85	9.7
	Both positive and	393	44.8
	negative	22	2.6
4) 6	No influence	23	2.6
(b) Cancer	Generally positive	717	81.7
	Generally negative	5 141	0.6 16.1
	Both positive and	141	10.1
	negative No influence	14	1.6
(c) Chronic pain diseases	Generally positive	648	73.8
	Generally negative	12	1.4
	Both positive and	179	20.4
	negative		
(4) G = 4:1	No influence	39	4.4
(d) Cardiovascular	Generally positive	495	56.6
diseases	Generally negative Both positive and	11 207	1.3 23.7
	negative No influence	161	18.4

on the healing process (60.5%) and this influence was considered generally positive (ranging from 42.9 to 81.8% depending on disease presented). Most residents reported they would feel comfortable discussing R/S concerns (78.5%), believed it appropriate to inquire about the patient's R/S (77.1%) and appropriate to pray with them (62.8%), and talk about their own beliefs when the patient asked (54.7%).

Table 2 presents the participants' use of R/S in clinical practice. Although most residents inquired about patients'/relatives' religious/spiritual issues (72.2%), this was not done on a regular basis (85.6%). The clinical scenarios in which physicians addressed this issue more frequently (i.e., often or always) were when patients faced end-of-life issues (52.2%),

Table 2 Religiosity/Spirituality, Clinical Practice, and Main Barriers to Discussion

to Discussion					
Resident physicians' opinions and practice		n	%		
Do you ever inquire about patients'/s spiritual issues?	relative's religious/				
No Yes		243 632	27.8 72.2		
How often do you inquire? Never questioned/Rarely/Sometime	es s	749	85.6		
Often/Always How often have patients/relatives seemed uncomfortable			14.4		
when you inquire? Never questioned		243	27.8		
Never/Rarely Sometimes/Often/Always		574 83	62.7 9.5		
How often do you inquire about religious/spiritual issues? When a patient/relative:			,		
(a) presents with a minor illness or injury	Never/Rarely/ Sometimes	803	91.9		
(b) faces a frightening diagnosis or	Often/Always Never/Rarely/	71 614	8.1 70.3		
crisis	Sometimes Often/Always	261	29.7		
(c) faces the end of life	Never/Rarely/ Sometimes	416	47.8		
(d) suffers from anxiety or	Often/Always Never/Rarely/	455 649	52.2 74.2		
depression	Sometimes Often/Always	225	25.8		
(e) comes for a medical history, physical exam	Never/Rarely/ Sometimes	825	94.8		
(f) faces an ethical quandary	Often/Always Never/Rarely/	46 718	5.2 82.6		
(1) faces an enfect quantary	Sometimes Often/Always	151	17.4		
When religious/spiritual issues come with patients/relatives, how often do following ways?	up in discussions	101	27		
I listen carefully and empathetically	Never/Rarely/ Sometimes	89	10.3		
	Often/Always	785	89.7		
I try to change the subject in a tactful way	Never/Rarely/ Sometimes	781	89.5		
I encourage patients in their own	Often/Always Never/Rarely/	92 375	10.5 42.9		
R/S beliefs/practices	Sometimes	313	72.7		
•	Often/Always	498	57.1		
I respectfully share my own	Never/Rarely/	749	85.7		
religious ideas/experiences	Sometimes Often/Always	125	14.3		
I pray with the patient/relative	Never/Rarely/ Sometimes	833	95.3		
	Often/Always	41	4.7		
Does anything discourage you from spirituality with patients/patients' rela	discussing religion/				
No Yes		546 327	62.5 37.5		
Which of the following reasons disco		190			
General discomfort with discussing religious matters			21.7		
Insufficient knowledge/training			23.1		
Insufficient time			26.2		
Concern about offending patients/relatives			29.1		
Concern that my colleagues will disapprove Professional neutrality			6.0 31.4		
Not my task			8.6		
I refuse to speak of these matters in my work			1.9		
Overall, do you think the amount of t spiritual issues is		17 sing reli			
Too much		22	2.5		
Too little		558	64.3		
The right amount		288	33.2		

faced a frightening diagnosis or crisis (29.7%), and suffered from anxiety or depression (25.8%). Most residents listened

carefully and empathetically to R/S issues brought up by patients (89.7%) and encouraged patients/relatives in their own religious/spiritual beliefs and practices (57.1%). A total of 37.5% reported that some issues discouraged them from discussing religion/spirituality (R/S), where the most common reasons were to maintain professional neutrality (31.4%), concerns about offending patients/relatives (29.1%), insufficient time (26.2%), insufficient knowledge/training (23.1%), and general discomfort with discussing this issue (21.7%).

Table 3 shows the factors associated with residents' opinions and practices concerning the addressing of R/S issues. Regarding participants' opinions, female residents having a religious affiliation and with higher levels of spirituality tended to believe more in the influence of R/S on patients' health. Likewise, residents that were younger, from clinical specialties, in the later phase of training, who had formal R/S exposure, and higher levels of religiosity tended to feel it is appropriate to discuss R/S issues when a patient/relative brought them up. Concerning their clinical practice, residents from clinical specialties, who had formal R/S training and with higher levels of spirituality, inquired more about R/S issues. Finally, residents with formal R/S training and high spirituality tended to feel more comfortable discussing R/S with patients/ relatives. None of the variables was associated with having had formal training on addressing R/S in clinical practice.

## **DISCUSSION**

The results of the present study showed that, in general, the resident physicians considered themselves spiritual and religious, despite not regularly attending religious services. Most participants believed R/S had an important influence on patient health and that it was appropriate to discuss these beliefs, although this was not done regularly in routine clinical practice. The main barriers reported were maintaining professional neutrality, concern about offending patients, and insufficient time. Factors including female gender, clinical specialty as opposed to surgical, having formal R/S training, and higher levels of R/S were associated with greater discussion and more positive opinions about the subject. These findings can serve to develop future educational interventions for this population and be of value to educators and residency programs.

With regard to residents' R/S, most participants considered themselves religious and/or spiritual and reported looking to God or a higher power for support and guidance. These results reflect the religious/spiritual nature of the Brazilian population, in which over 90% have a religious affiliation and consider religion important in life. However, residents tended to attend fewer religious services than the general population, possibly due to lack of time available for this activity. This characteristic of higher religiosity and spirituality of Brazilian resident physicians differs from medical populations in European countries such as Germany and Denmark, but mirrors R/S profiles in the USA and India. The spiritual such as Germany and Denmark, but mirrors R/S profiles in the USA and India.

Table 3 Factors Associated with Opinions on the Religiosity/ Spirituality-Health Interface

Spirit	шашту-нег	aith Interface				
	OR	95% CI OR	p			
Overall, how much influence do you think religion/spirituality has on patients' health? (1, Very much/Much; 0, Some/A little/Very little to						
none)	4 000	1 2 1 7 2 6 6 7				
Female gender	1.898	1.345–2.697	< 0.001			
Age Clinical enocialty	1.012 0.974	0.959-1.068 0.670-1.417	0.653 0.892			
Clinical specialty Year of residency	0.974	0.800-1.091	0.388			
Formal R/S training	0.784	0.483-1.272	0.325			
Have a religion	1.332	1.087–1.634	0.006			
High religiosity	1.114	0.713 - 1.740	0.636			
High spirituality	2.231	1.435–3.468	< 0.001			
In general, is it appropriate	for a phy	sician to inquire about	a patient's/			
relative's religion/spirituali			ly appropri-			
ate; 0, Usually inappropria Female gender	1.251	0.880–1.778	0.212			
Age	1.035	0.978-1.095	0.212			
Clinical specialty	2.336	1.643–3.321	< 0.001			
Year of residency	0.946	0.809 - 1.107	0.488			
Formal R/S training	1.311	0.766 - 2.245	0.323			
Have a religion	1.003	0.827-1.216	0.975			
High religiosity	1.567	1.012-2.425	0.044			
High spirituality	0.945	0.598–1.494	0.489			
In general, is it appropriate issues when a patient/relati	ivo bringe	them up? (1 Always a	ppropriate/			
Usually appropriate; 0, Us	ive briligs nally inanr	oronriate/Always inanni	opropriate)			
Female gender	0.843	0.543–1.331	0.464			
Age	0.919	0.867-0.974	0.005			
Clinical specialty	2.128	1.358-3.335	0.001			
Year of residency	1.299	1.048-1.612	0.017			
Formal R/S training	4.110	1.464-11.541	0.007			
Have a religion	1.088	0.849–1.394	0.504			
High religiosity	1.923	1.112–3.326	0.019			
High spirituality	0.951	0.542-1.669	0.861			
Do you ever inquire about (1, yes; 0, no)	patients /r	elative's religious/spirit	tuar issues?			
Female gender	1.054	0.755-1.470	0.759			
Age	1.020	0.969–1.073	0.445			
Clinical specialty	1.749	1.246-2.454	0.001			
Year of residency	1.086	0.933 - 1.263	0.287			
Formal R/S training	1.688	0.999–2.854	0.051			
Have a religion	1.069	0.889–1.284	0.479			
High religiosity	0.880	0.574–1.350	0.558			
High spirituality How often do you inquire	2.064	1.334–3.192	0.001			
issues? (1, Often/Always;			s/spirituai			
Female gender	1.320	0.843-2.068	0.225			
Age	1.019	0.959-1.083	0.541			
Clinical specialty	0.933	0.580 - 1.500	0.774			
Year of residency	1.055	0.877 - 1.269	0.568			
Formal R/S training	2.974	1.791–4.940	< 0.001			
Have a religion	1.056	0.837–1.333	0.647			
High religiosity	1.345	0.789–2.291	0.276			
High spirituality I would feel comfortable d	0.908 liscussing :	0.506–1.627 a natient's/relative's rel	0.745			
I would feel comfortable discussing a patient's/relative's religious/ spiritual concerns if the patient/relative brought them up (1, Strongly						
agree/Agree; 0, Disagree/S			Suongiy			
Female gender	0.971	0.671–1.407	0.877			
Age	1.016	0.960 - 1.076	0.580			
Clinical specialty	1.049	0.710 - 1.551	0.809			
Year of residency	1.119	0.941–1.330	0.203			
Formal R/S training	3.905	1.837–8.305	< 0.001			
Have a religion	1.164	0.946–1.431	0.151			
High religiosity	1.476 1.871	0.932-2.338	0.097			
High spirituality Have you had any formal		1.185–2.952 garding religion/spiritus	0.007 ality in			
medicine? (1, yes; 0, no)	training ic	garding rengion/spiritua	illy III			
Female gender	0.931	0.600-1.445	0.750			
Age	1.005	0.942–1.072	0.881			
Clinical specialty	1.183	0.732-1.911	0.493			
Year of residency	0.972	0.797 - 1.185	0.779			
Have a religion	0.977	0.768-1.243	0.850			
High religiosity	0.952	0.549–1.652	0.952			
High spirituality	0.893	0.504–1.580	0.697			

The current findings that most residents believed R/S influences health and that discussing this is appropriate in different clinical contexts are corroborated by studies of other populations involving physicians, 10, 24, 31 medical students, 11 residents, 18, 22 and other health professionals. 32 Despite this positive perception, few professionals discuss patients' R/S in clinical practice, 8, 23 where most residents reported not holding sufficient knowledge to take a spiritual history. 18 In the present study, although 72.2% had inquired about patients' beliefs, only 14.4% did so on a routine basis, a result consistent with previous studies reporting rates ranging from 10 to 32%. 8-10 The main barriers reported by the resident physicians encompassed those commonly cited by students, such as concern about offending patients and insufficient training, 11 and by practicing physicians, such as desire to maintain professional neutrality and insufficient time. 31

A variety of factors were associated with more positive opinions on the issue. Women perceived greater influence of R/S on clinical practice, perhaps explained by the fact that women have more religious beliefs than men and a tendency to provide more holistic patient-centered care.<sup>33</sup> Residents that had higher religiosity and/or spirituality also tended to hold stronger beliefs that R/ S influenced health, felt it was more appropriate to discuss the issue, and were more comfortable addressing it and inquiring about patients' R/S. These results suggest that having a belief helped residents discuss R/S because they were more familiar with the issue and willing to address it. However, physicians' beliefs can act positively or negatively on treatment and patient management, depending on the approach adopted.<sup>34</sup> Thus, students should be trained to refrain from imposing their own beliefs and learn how and when these values support professional and patient-centered care, and when they do not.<sup>30</sup>

Another factor associated with residents' views was type of specialty undertaken. The present findings showed that residents pursuing clinical specialties, as opposed to surgical specialties, believed it more appropriate to discuss and inquire about the matter. Similar results were found in a survey of 1144 North American physicians, 35 which revealed that surgeons tended to discuss this issue less in clinical practice. 36 This difference can be partially explained by the fact that surgeons receive less training compared with other specialties. Another possible reason for this result is that the decision to pursue a clinical specialty is generally influenced by an individual's higher religiosity. However, a previous study found no differences between clinical and surgical specialties on this matter. 37

Lastly, previous formal R/S training was associated with believing it more appropriate to discuss, inquire about, and feel comfortable with addressing the issue. Educational interventions have proven effective not only in improving knowledge, attitudes, skills, and professional practice but also for reducing the barriers to discussing this issue. <sup>18–20, 38, 39</sup> Previous studies have shown that incorporation of an R/S curriculum improved knowledge concerning the role of chaplains (but not attitudes and skills) in internal medicine residents, <sup>18</sup> reduced worries related to spiritual care, was associated with

better attitudes and skills in family medicine residents, <sup>19</sup> and also increased the competency and incorporation of R/S in clinical practice among psychiatry residents. <sup>20</sup>

Given the fact that only 16–32% of health professionals address R/S issues in clinical practice, that most patients (70%) believe it appropriate for doctors to enquire about spiritual needs, and that most residency programs do not yet incorporate formal compulsory training on the subject, agreater priority should be placed on R/S training in residency programs, both in training preceptors and educating residents, toward providing more integrative, holistic, and patient-centered care.

The present study has some limitations which should be considered when interpreting results. First, the study involved Brazilian resident physicians, a group with highly specific cultural aspects. Thus, this study should be replicated in other countries and settings. Secondly, although our sample is larger than those of other studies investigating the issue in resident physicians and the response rate was deemed satisfactory, the study population comprised predominantly women (61%), corroborating recent data showing a trend toward the "feminization" of medicine in Brazil. However, women may have been more willing to answer the questionnaire owing to the subject of R/S. Thirdly, the NERSH scale, although widely used around the world, measures only respondents' perceptions, attitudes, and opinions. These aspects are subject to social desirability, as noted in a previous study that found social desirability bias may influence religious orientations, religious coping, and daily spiritual experiences. 42 Therefore, it is not possible to verify whether these attitudes translate to clinical practice during medical visits.

In conclusion, Brazilian resident physicians believe that religious and spiritual beliefs can influence health and deem it appropriate for physicians to discuss the issue. However, lack of training remains one of the main obstacles to addressing R/S issues in clinical practice. Educators should draw on this data to conduct interventions and produce compulsory content on the subject in residency programs.

Acknowledgments: We thank the following SBRAMER collaborators: Alana Ripardo Rodrigues; Ana Helena Ferreira da Silva; Barbara Leni Troncoso Justo; Bernardo Gomes Muffato; Bianca Penner Oliveira de Paula; Bianca Veloso Vitalino; Brysa Paiva Cruz; Carlos Roberto Figueiredo Coelho; Clariana Contarini Souza; Edimilson José Correia Júnior; Emilio Hideyuki Moriguchi; Glauber Artur Amaral Diniz; Guilherme Gomide Almeida; Ivo Bittecourt Ferreira; João Victor de Andrade Águas; Julia Azevedo da Silva; Loyná Euá Flores E Paez; Lucas Henrique Rodrigues da Silva; Maria Laura Alcântara; Maria Lua Marques de Mendonça; Mayara de Lima Moreira; Ramiro Cavedon Nunes; and Thais Stephanie.

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# Compliance with Ethical Standards:

The project was approved by the Ethics Committee of the Federal University of Juiz de Fora under permit number CAAE 57905716.4.1001.5133 and by the other participating centers. All study participants signed an informed consent form.

**Conflict of Interest:** The authors declare that they do not have a conflict of interest.

#### **REFERENCES**

- Lucchetti G, Lucchetti AL. Spirituality, religion, and health: over the last 15 years of field research (1999-2013). International journal of psychiatry in medicine. 2014;48(3):199-215.
- Koenig HG. Religion, spirituality, and health: the research and clinical implications. ISRN psychiatry, 2012;2012:278730.
- Koenig HG, McCullough ME, Larson DB. Handbook of religion and health. 2001.
- Koenig HG, Hooten EG, Lindsay-Calkins E, Meador KG. Spirituality in medical school curricula: findings from a national survey. *International* journal of psychiatry in medicine. 2010;40(4):391-398.
- Neely D, Minford EJ. Current status of teaching on spirituality in UK medical schools. Medical education. Feb 2008;42(2):176-182.
- Lucchetti G, Lucchetti AL, Espinha DC, de Oliveira LR, Leite JR, Koenig HG. Spirituality and health in the curricula of medical schools in Brazil. BMC medical education. Aug 18 2012;12:78.
- Moreira-Almeida A, Koenig HG, Lucchetti G. Clinical implications of spirituality to mental health: review of evidence and practical guidelines. Revista brasileira de psiquiatria (Sao Paulo, Brazil: 1999). Apr-Jun 2014;36(2):176-182.
- Best M, Butow P, Olver I. Doctors discussing religion and spirituality: A systematic literature review. *Palliative medicine*. Apr 2016;30(4):327-337.
- Curlin FA, Chin MH, Sellergren SA, Roach CJ, Lantos JD. The association of physicians' religious characteristics with their attitudes and self-reported behaviors regarding religion and spirituality in the clinical encounter. *Medical care*. May 2006;44(5):446-453.
- Lucchetti G, Ramakrishnan P, Karimah A, et al. Spirituality, Religiosity, and Health: a Comparison of Physicians' Attitudes in Brazil, India, and Indonesia. International journal of behavioral medicine. Feb 2016;23(1):63-70.
- Lucchetti G, de Oliveira LR, Koenig HG, Leite JR, Lucchetti AL. Medical students, spirituality and religiosity–results from the multicenter study SBRAME. BMC medical education. Dec 7 2013;13:162.
- Banin LB, Suzart NB, Banin VB, Guimaraes FG, Mariotti LL, Lucchetti G. Spirituality: do teachers and students hold the same opinion? The clinical teacher. Feb 2013;10(1):3-8.
- Mariotti LG, Lucchetti G, Dantas MF, Banin VB, Fumelli F, Padula NA. Spirituality and medicine: views and opinions of teachers in a Brazilian medical school. Medical teacher. 2011;33(4):339-340.
- 14. van Rensburg BJ, Szabo CP, Poggenpoel M, Myburgh C. Competence of medical students and residents in psychiatry regarding spirituality, at a South African school of clinical medicine. *International journal of* psychiatry in medicine. 2013;45(2):175-188.
- King DE, Crisp J. Spirituality and health care education in family medicine residency programs. Family medicine. Jun 2005;37(6):399-403.
- Grabovac AD, Ganesan S. Spirituality and religion in Canadian psychiatric residency training. The Canadian Journal of Psychiatry. 2003;48(3):171-175.
- Gattari T, Arfken C, Morreale M. Perspectives of Religion and Spirituality in Psychiatry: a Comparison of Students, Residents, and Attending Physicians. Academic Psychiatry. Feb 2018;42(1):176-178.
- Piscitello GM, Martin S. Spirituality, Religion, and Medicine Education for Internal Medicine Residents. The American journal of hospice & palliative care. Aug 28 2019:1049909119872752.
- Anandarajah G, Roseman J, Lee D, Dhandhania N. A 10-Year Longitudinal Study of Effects of a Multifaceted Residency Spiritual Care Curriculum: Clinical Ability, Professional Formation, End of Life, and Culture. Journal of pain and symptom management. Dec 2016;52(6):859-872.e851.
- Awaad R, Ali S, Salvador M, Bandstra B. A Process-Oriented Approach to Teaching Religion and Spirituality in Psychiatry Residency Training. Academic psychiatry: the journal of the American Association of Directors of Psychiatric Residency Training and the Association for Academic Psychiatry. Dec 2015;39(6):654-660.
- Woods JL, Hensel DJ. Religious Affiliation, Religiosity, and Spirituality in Pediatric Residents: Effects on Communication and Self-Efficacy with Adolescents in a Clinical Setting. *Journal of religion and health*. Apr 2018;57(2):636-648.

- Kattan W, Talwar V. Psychiatry residents' attitudes toward spirituality in psychiatry. Academic psychiatry: the journal of the American Association of Directors of Psychiatric Residency Training and the Association for Academic Psychiatry. Sep 2013;37(5):360-362.
- 23. Luckhaupt SE, Yi MS, Mueller CV, et al. Beliefs of primary care residents regarding spirituality and religion in clinical encounters with patients: a study at a midwestern U.S. teaching institution. Academic medicine: journal of the Association of American Medical Colleges. Jun 2005;80(6):560-570.
- Curlin FA, Lantos JD, Roach CJ, Sellergren SA, Chin MH. Religious characteristics of U.S. physicians: a national survey. *Journal of general* internal medicine. Jul 2005;20(7):629-634.
- Hvidt NC, Kappel Kørup A, Curlin FA, et al. The NERSH international collaboration on values, spirituality and religion in medicine: development of questionnaire, description of data pool, and overview of pool publications. Religions. 2016;7(8):107.
- Kørup AK, Christensen Rd, Nielsen CT, et al. The International NERSH
  Data Pool—A methodological description of a data pool of religious and
  spiritual values of health professionals from six continents. *Religions*.
  2017;8(2):24.
- Koenig H, Parkerson GR, Jr., Meador KG. Religion index for psychiatric research. The American journal of psychiatry. Jun 1997;154(6):885-886.
- Lucchetti G, Granero Lucchetti AL, Peres MF, Leao FC, Moreira-Almeida A, Koenig HG. Validation of the Duke Religion Index: DUREL (Portuguese version). Journal of religion and health. Jun 2012;51(2):579-586
- Peres MFP, de Oliveira AB, Leao FC, Vallada H, Moreira-Almeida A, Lucchetti G. Religious landscape in Brazil: Comparing different representative nationwide approaches to obtain sensitive information in healthcare research. SSM - population health. Dec 2018;6:85-90.
- Korup AK, Sondergaard J, Lucchetti G, et al. Religious values of physicians affect their clinical practice: A meta-analysis of individual participant data from 7 countries. Medicine. Sep 2019;98(38):e17265.
- Lee E, Baumann K. German psychiatrists' observation and interpretation of religiosity/spirituality. Evidence-based complementary and alternative medicine: eCAM. 2013:2013:280168.
- Cordero RD, Romero BB, de Matos FA, et al. Opinions and attitudes on the relationship between spirituality, religiosity and health: A comparison between nursing students from Brazil and Portugal. Jul 2018;27(13-14):2804-2813.

- 33. Hardeman RR, Burgess D, Phelan S, Yeazel M, Nelson D, van Ryn M. Medical student socio-demographic characteristics and attitudes toward patient centered care: Do race, socioeconomic status and gender matter? A report from the Medical Student CHANGES study. Patient education and counseling, 2015;98(3):350-355.
- Lawrence RE, Curlin FA. Autonomy, religion and clinical decisions: findings from a national physician survey. *Journal of medical ethics*. Apr 2009;35(4):214-218.
- Rasinski KA, Kalad YG, Yoon JD, Curlin FA. An assessment of US physicians' training in religion, spirituality, and medicine. *Medical teacher*, 2011;33(11):944-945.
- Taylor D, Mulekar MS, Luterman A, Meyer FN, Richards WO, Rodning CB. Spirituality within the patient-surgeon relationship. *Journal of Surgical Education*. 2011;68(1):36-43.
- Robinson KA, Cheng MR, Hansen PD, Gray RJ. Religious and Spiritual Beliefs of Physicians. *Journal of religion and health*. Feb 2017;56(1):205-225
- Osorio IHS, Goncalves LM, Pozzobon PM, et al. Effect of an educational intervention in "spirituality and health" on knowledge, attitudes, and skills of students in health-related areas: A controlled randomized trial. Medical teacher. Oct 2017:39(10):1057-1064
- Smothers ZPW, Tu JY, Grochowski C, Koenig HG. Efficacy of an educational intervention on students' attitudes regarding spirituality in healthcare: a cohort study in the USA. BMJ open. Apr 4 2019:9(4):e026358.
- Best M, Butow P, Olver I. Do patients want doctors to talk about spirituality? A systematic literature review. Patient Education and Counseling, 2015;98(11):1320-1328.
- Mainardi GM, Cassenote AJF, Guilloux AGA, Miotto BA, Scheffer MC.
   What explains wage differences between male and female Brazilian physicians? A cross-sectional nationwide study. BMJ open. 2019;9(4):e023811.
- Jones AE, Elliott M. Examining social desirability in measures of religion and spirituality using the bogus pipeline. Review of Religious Research. 2017;59(1):47-64.

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