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ORIGINAL PAPER

Quality of Life and the Predictive Roles of Religiosity and Spiritual Coping Among Nursing Students: A Multi-country Study

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Abstract

There has been high interest in religious and spirituality practices among college students due to positive benefits to university life. However, no studies have been conducted examining nursing students' religiosity and use of spiritual coping and its impact on their QOL. This cross-sectional, descriptive study measured the QOL and examined the predictive roles of religiosity and spiritual coping among nursing students from four countries. Nursing students reported high overall QOL and health. Significant differences were revealed on the religiosity and spiritual coping of students in terms of demographic characteristics. Findings show frequent attendance to organized and non-organized religious activities lead to better physical and environmental domains, and using non-organized religious activities frequently lead to improved psychological health. More frequent use of non-religious coping strategies was associated with better physical, psychological, and environmental health, and improved social relationships.

Keywords Religiosity · Spirituality · Quality of life · Nursing students · Spiritual coping

Introduction

University life is one of the most challenging and exciting chapter of one's life. Every student encounters various experiences that prepare them for their future endeavor. However, these experiences are coupled with stressful events which could affect their overall well-being as well as their quality of life (QOL). It was well documented by various studies that students enrolled in college experience high levels

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of stress (Al-Dabal et al. 2010; Sharifirad et al. 2012). These stresses can be attributed to academic pressures, social or personal issues, and financial problems and can lead to other psychological problems such as depression and anxiety (Gomathi et al. 2012).

In the same nature, nursing students enter to a new phase of life that offers possibilities of changes and new expectations. While the students are completing their education, they are exposed to various situations, which require them to go through processes of adaptation. In turn, these adaptations can produce crisis, such as stress, depression, alcoholism, school dropout, learning difficulties, problems with personal relationships and social withdrawn (Eurich and Kluthcovsky 2008). These can affect the social and psychological aspect of their life, which can result to poor academic performance, reduced physical ability, and poor clinical performance (Suleiman et al. 2013). Furthermore, various studies have also presented stress have shown to negatively impact the QOL among nursing students (Alzayyat and Al-Gamal 2014; Kleiveland et al. 2015).

The importance of assessing the QOL of nursing students has been well documented and highlighted over the past years (Kleiveland et al. 2015; Yildirim et al. 2013). Some studies suggested student perceptions of their QOL are essentially related to attrition rates and academic achievements (Goldin et al. 2007). Research show stress, depression, poor social interactions and low self-esteem were major factors of poor QOL among nursing students (Eurich and Kluthcovsky 2008; Kleiveland et al. 2015). It is then essential that proper and effective coping strategies should be adopted by nursing students to combat stress. Past studies have reported the positive effect of various coping strategies to deal with stress (Abasimi et al. 2015; Kumar and Nancy 2011). However, studies on the effect of spiritual coping strategies among nursing students are scarce (Baldacchino and Buhagiar 2003; Cruz et al. 2017a). The majority of the studies dealing with spiritual coping focused on individuals with illnesses (Cruz et al. 2017c; Wachholtz and Sambamoorthi 2011).

The relationship of religiosity and spirituality with health among various population groups has been well established. Generally, religiosity and spirituality have been shown to assist people by providing strategies to cope with a wide range of illnesses or in a variety of stressful situations, as well as development of positive emotions, such well-being, happiness, hope, optimism, meaning and purpose, high self-esteem, and a sense of control over life (Fradelos et al. 2015; Koenig 2012). Also, numerous studies have reported high interest in spirituality among university students (Cruz et al. 2017b; Mooney 2010). The University of California Los Angeles (UCLA) Higher Education Research Institute (2005) found university students who reported participation in religious and spiritual practices had better satisfaction in their campus social life, more positive interactions, greater overall satisfaction with their college life, and higher GPAs. Furthermore, it was also reported religious students showed higher engagement in campus life, better leadership, self-esteem, and cognitive development (Kuh George and Gonyea Robert 2006; Gehrke 2008). Among nursing students, previous studies have reported those who had stronger religious beliefs were likely to have stronger spiritual connection, better meaning of life, feeling of wholeness and integration, better spiritual strength, inner peace, hope and optimism (Lopez et al. 2014).

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Despite the abundance of literature about this topic, most of which were conducted among other population groups. No studies investigating nursing students' religiosity and use of spiritual coping and its impact on their QOL had been conducted. In addition, religiosity and spirituality are complex, diverse, and changing concepts, which varies from one person to another (Lopez et al. 2014). The newer generation of students may have different worldviews, cultural beliefs, and value sets about spirituality, which necessitates further understanding (Tiew et al. 2013). Therefore, this study is very relevant to understand the religiosity and spiritual coping among nursing students with various perceptions and cultural backgrounds and examine its impact on their QOL.

Methods

Study Aim

This study was conducted to assess the religiosity and spiritual coping utilization among nursing students from a multi-country perspective. It also examined the predictive roles of religiosity and spiritual coping on the QOL of the respondents.

Design

The researchers used a cross-sectional, descriptive study design to measure the QOL and examine the predictive roles of religiosity and spiritual coping among nursing students from four countries.

Samples and Settings

The study was conducted in four countries (Greece, India, Kenya, and United States of America). A convenience sample of 659 Bachelor of Science in Nursing (BSN) students was included in this study. Recruitment of participants was conducted in the nursing schools where the researchers are affiliated for convenience. Inclusion criteria were the following: (1) students officially enrolled in the BSN program of the participating schools, (2) full time student, (3) registered in the 1st–4th year of the nursing program, (4) self-identified Christian in any denomination and (5) can read, understand, and write in English. Students directly supervised by researchers were excluded in this study.

Ethical Consideration

The study protocol was reviewed and approved by the Missouri State University Institutional Review Board (IRB-FY2017-238). It was also approved by each participating university. Proper coordination with the management of each university was observed. Because the participants are students, measures to protect them from possible undue influence or coercion were employed (i.e., excluding students directly

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supervised by researchers, ensuring the absence of students' instructors during data collection time, explaining the rights of the students, ensuring students' confidentiality throughout the research process, explaining their grades will not be affected by their participation or non-participation, and ensuring data analyses will only be done in the semester break to ensure students' grades will not be affected). Informed consent was signed by each respondent before their participation. Confidentiality of the responses was assured to the respondents. No incentives were offered for participating in the study.

Instrument

A self-administered questionnaire was used to gather data from the respondents. It consisted of four parts, each measuring specific study variables. Part one asked about the socio-demographic characteristics of the respondents. It included questions that elicit information about students' country of residence, age, gender, academic year level, religious affiliation, type of community residence and family monthly income.

Duke University Religion Index (DUREL)

This scale was used to measure the degree of religiosity among respondents. It has five items measuring different aspects of religious beliefs and practices. The first and second parts of the scale consist of two items which measured organizational religious activity (ORA) and the non-organizational religious activity (NORA) of respondents. The third part has three items that measured intrinsic religiosity (IR). Parts 1 and 2 are responded using 6-level response option reflecting the frequency of activities, while part 3 has a 5-level response from 1 (definitely not true) to 5 (definitely true of me). IR score was obtained by adding the scores of items 3–5. ORA and NORA scores may range from 1 to 6, while for IR, scores may range from 3 to 15. Higher scores indicate higher religiosity. Previous studies have reported the validity and reliability of the tool (Cruz et al. 2017d; Koenig and Büssing 2010).

Spiritual Coping Strategy Scale (SCS)

The Spiritual Coping Strategy Scale (SCS), originally developed by Baldacchino and Buhagiar (2003), measures the spiritual coping of respondents with Judeo-Christian orientation. This 20-item scale measures the religious (RCS) and non-religious (NRCS) coping strategies utilized by respondents using a 4-point Likert scale (0 = never used to 3 = often used). The RCS subscale is a 9-items scale that assesses respondents' attitudes toward their relationship with God and their religious-related practices. The NRCS subscale is composed of 11 items measure non-religious coping strategies. Scores was obtained by summing the individual scores in each item. Scores of 0–27 and 0–33 can be obtained for RCS and NRCS, respectively. A higher subscale score denotes higher frequency in the usage of the RCS and NRCS. The SCS is a valid and reliable tool, which can accurately measure the spiritual coping of an individual (Baldacchino and Buhagiar 2003).

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WHO Quality of Life-BREF (WHOQOL-BREF)

The QOL of the respondents was measured using the WHOQOL-BREF. The WHOQOL-BREF comprises of 26 items, which measure the physical health (7 items), psychological health (6 items), social relationships (3 items), and environment domains (8 items). It also contains two items that measure respondents' overall QOL and health. The instrument uses a 5-point Likert response scale. Each item of the WHOQOL-BREF was scored from 1 to 5 on a response scale. Raw domain scores for the WHOQOL were transformed to a 4–20 score based on the guidelines. The scores of each item within each domain were summed to come up with the domain score. The scores were then transformed linearly to a 0–100 scale. Higher scores indicate better QOL. The WHOQOL-BREF has manifested its validity and reliability in various previous studies (Gholami et al. 2013; WHO 1998).

Data Collection

Data were collected from October 2016 to February 2017. After participant recruitment, the researchers coordinated with the students' instructors to take a couple of minutes at the end of their classes to collect data. The instructors were asked to leave the room during data collection. After the researchers thoroughly explained the study and answered any questions, informed consent forms were distributed for signing and were collected prior to distribution of questionnaires. The questionnaire was distributed to the respondents together with a sealable white blank envelope. Students were instructed not to write anything on the paper that will identify them. Adequate time was provided for the students to answer the questionnaire. Thereafter, the students were instructed to put the filled-in questionnaire inside the envelope, and seal it themselves before returning to the researchers. Each researcher tallied the responses of the students in Excel and sent it to the principal investigator for analysis.

Statistical Analysis

All statistical analyses were done using the statistical software, SPSS version 22.0. Frequency count, percentages, and mean were used for the respondents' socio-demographic characteristics. Mean and standard deviation were computed for religiosity, spiritual coping strategies and QOL. A multivariate multiple regression analysis was conducted to examine the effects of respondents' demographic characteristics on the religiosity, spiritual coping and QOL (Religiosity and spiritual coping were included as predictor variables for QOL). Multiple linear regression analyses were performed to assess the independent relationship between the predictor variables (socio-demographic characteristics) and the outcome variables (religiosity, spiritual coping and QOL). A p value ≤ 0.05 was considered significant.

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Results

As reflected in Table 1, the mean age of the respondents was 21.14 (SD = 4.13). The highest frequency of respondents was from Greece (41.7%), followed by India (33.5%), while USA (12.4%) and Kenya (12.3%) had almost similar distributions. Majority of the respondents was male (83.0%) and had monthly family income of 1000 USD and below (61.5%). The respondents were distributed across the different year level in the BSN program, with 3rd year students (38.5%) contributing the highest percentage and 1st year students (14.6%) the lowest. More than a third of the respondents identified themselves as belonging to the Orthodox Church (40.2%) and Roman Catholic Church (34.3%). Nearly half of them were living in urban

Table 1 Socio-demographic characteristics of the respondents ($n = 659$)

Variable	Mean	SD
Age	21.14	4.13
	n	%
Country		
Greece	275	41.7
India	221	33.5
Kenya	81	12.3
USA	82	12.4
Gender		
Male	547	83.0
Female	112	17.0
Year of study		
1st year	96	14.6
2nd year	121	18.4
3rd year	254	38.5
4th year	188	28.5
Religion		
Roman Catholic	226	34.3
Protestant	88	13.4
Born-Again Christians	80	12.1
Orthodox	265	40.2
Living community		
Rural	228	34.6
Suburban	130	19.7
Urban	301	45.7
Family monthly income		
1000 USD and below	405	61.5
1001 USD–2000 USD	123	18.7
2001 USD and above	131	19.9

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communities (45.7%), while 34.6% and 19.7% where from rural and suburban areas, respectively.

Religiosity and Its Socio-demographic Predictors

The mean scores for ORA, NORA and IR were 3.80 (SD = 1.54), 3.09 (SD = 1.75), and 11.87 (SD = 3.16), respectively. The multivariate multiple regression analysis revealed country of residence [$F(3, 649) = 6.38$, $p < .001$; Wilk's $\Lambda = 0.971$], year of study [$F(3, 649) = 6.65$, $p < .001$; Wilk's $\Lambda = 0.970$], religion [$F(3, 649) = 58.44$, $p < .001$; Wilk's $\Lambda = 0.787$], living community [$F(3, 649) = 6.56$, $p < .001$; Wilk's $\Lambda = 0.971$], and family monthly income [$F(3, 649) = 4.54$, $p = .004$; Wilk's $\Lambda = 0.979$] had multivariate effects on ORA, NORA and IR.

The results of the multiple linear analyses to determine the independent relationship between the socio-demographic variables and the subscales of DUREL are summarized in Table 2. As indicated, nursing students from Kenya more often attended ORA than nursing students from Greece, while nursing students from the USA had lesser degree of IR than Greek students. Female students had higher IR than male students. Second year students more frequently attended ORA, while third year students were less frequent in attending ORA and NORA compared to fourth year students. Students who identified themselves as Roman Catholics had higher frequency of ORA attendance and higher degree of IR than students who were Protestants, Born-Again Christians, and Orthodox. Students living in rural areas had lesser attendance to ORA, but higher degree of IR than students living in urban communities.

Spiritual Coping Strategies Utilization and Its Socio-demographic Predictors

The mean score of the respondents in RCS was 17.19 (SD = 7.92), while for NRCS was 26.19 (SD = 4.72). The multivariate multiple regression analysis indicated that country of residence [$F(2, 650) = 9.42$, $p < .001$; Wilk's $\Lambda = 0.972$], age [$F(2, 650) = 3.73$, $p = .025$; Wilk's $\Lambda = 0.989$], year of study [$F(2, 650) = 4.09$, $p < .017$; Wilk's $\Lambda = 0.988$], religion [$F(2, 650) = 222.07$, $p < .001$; Wilk's $\Lambda = 0.594$], living community [$F(2, 650) = 6.82$, $p = .001$; Wilk's $\Lambda = 0.979$], and monthly family income [$F(2, 650) = 4.80$, $p = .009$; Wilk's $\Lambda = 0.985$] had a multivariate effect on the utilization of RCS and NRCS among the nursing students.

Indian and Kenyan nursing students reported more frequent use of RCS than students from Greece. Older age and being female were associated with higher frequency of using RCS. Nursing students who were Roman Catholics reported lower frequency of using RCS than Born-Again Christians, and lower RCS and NRCS utilization compared with students who were Orthodox members. Finally, students who were living in rural areas and who had family monthly income of 1000 USD and below used RCS more frequently than students living in urban areas and students who had family monthly income of 1001 USD–2000 USD, respectively (see Table 3).

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Table 2 Results of the multiple linear regression analyses to assess the independent relationship between the socio-demographic variables and religiosity ($n = 659$)

Predictor variables	ORA[a]			NORA[b]			IR[c]		
	β	SE	95% CI	β	SE	95% CI	β	SE	95% CI
Country (reference group: Greece)									
India	0.46	0.46	−0.45, 1.36	0.98	0.54	−0.08, 2.05	0.16	0.98	−1.76, 2.09
Kenya	0.92*	0.45	0.03, 1.81	0.13	0.53	−0.92, 1.17	0.70	0.96	−1.20, 2.59
USA	−0.42	0.44	−1.29, 0.46	−0.26	0.52	−1.28, 0.77	−1.89*	0.95	−3.75, −0.03
Age	0.01	0.01	−0.01, 0.04	0.01	0.02	−0.02, 0.04	0.06*	0.03	0.00, 0.11
Gender	−0.20	0.16	−0.51, 0.11	−0.22	0.19	−0.59, 0.14	−0.93**	0.34	−1.59, −0.27
Year of study (reference group: 4th year)									
1st year	0.26	0.19	0.16, −0.10	0.22	0.22	−0.21, 0.65	0.36	0.40	−0.41, 1.14
2nd year	0.36*	0.17	0.03, 0.03	−0.06	0.20	− 0.45, 0.33	0.33	0.36	−0.37, 1.02
3rd year	−0.45**	0.13	0.00, −0.71	−0.34*	0.16	−0.64, −0.03	−0.30	0.28	−0.86, 0.25
Religion (reference group: Roman Catholic)									
Protestant	−0.12	0.20	−0.51, 0.26	0.15	0.23	−0.31, 0.61	−1.01*	0.42	−1.83, −0.18
Born-Again Christian	−0.56*	0.24	−1.02, −0.09	−0.10	0.28	−0.65, 0.45	−1.86**	0.51	−2.85, −0.86
Orthodox	−1.34**	0.46	−2.25, −0.43	−1.13*	0.54	−2.20, −0.06	−3.03**	0.98	−4.96, −1.10
Living community (reference group: Urban)									
Rural	−0.37**	0.12	−0.61, −0.13	−0.07	0.14	−0.35, 0.21	0.59*	0.26	0.08, 1.09
Suburban	−0.26	0.15	−0.55, 0.02	−0.30	0.17	−0.64, 0.04	−0.32	0.31	−0.93, 0.29
Monthly family income (reference group: 1000 USD and below)									
1001 USD–2000 USD	−0.16	0.15	−0.45, 0.14	−0.06	0.18	−0.40, 0.29	0.08	0.32	−0.54, 0.71
2001 USD and above	−0.23	0.15	−0.52, 0.07	0.17	0.18	−0.18, 0.52	0.45	0.32	−0.18, 1.08
R^2 (adjusted R^2)	0.311 (0.295)			0.263 (0.246)			0.260 (0.242)		

[a]Organizational religious activities, [b]non-organizational religious activities, [c]intrinsic religiosity

*Significant at 0.05 level; **significant at 0.01 level; ***significant at 0.001 level

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Table 3 Results of the multiple linear regression analyses to assess the independent relationship between the socio-demographic variables and spiritual coping utilization ($n=659$)

Predictor variables	RCS[a]			NRCS[b]		
	β	SE	95% CI	β	SE	95% CI
Country (reference group: Greece)						
India	6.18***	1.76	2.72, 9.63	0.76	1.56	−2.31, 3.83
Kenya	5.38**	1.73	1.99, 8.77	1.06	1.53	−1.95, 4.07
USA	−2.30	1.70	−5.63, 1.03	0.02	1.51	−2.94, 2.98
Age	0.14**	0.05	0.05, 0.24	0.07	0.04	−0.01, 0.16
Gender	−1.61**	0.60	−2.79, −0.43	−0.46	0.54	−1.51, 0.59
Year of study (reference group: 4th year)						
1st year	1.22	0.71	−0.17, 2.62	0.80	0.63	−0.44, 2.04
2nd year	0.04	0.64	−1.21, 1.29	0.70	0.57	−0.41, 1.81
3rd year	−0.26	0.51	−1.26, 0.74	−0.09	0.45	−0.98, 0.79
Religion (reference group: Roman Catholic)						
Protestant	−1.22	0.75	−2.70, 0.26	−1.22	0.67	−2.53, 0.09
Born-Again Christian	−3.60***	0.91	−5.39, −1.82	−1.24	0.81	−2.82, 0.35
Orthodox	−6.91***	1.76	−10.37, −3.45	−3.44*	1.57	−6.52, −0.37
Living community (reference group: Urban)						
Rural	1.15*	0.46	0.24, 2.07	0.30	0.41	−0.51, 1.11
Suburban	−0.76	0.56	−1.85, 0.33	−0.33	0.49	−1.30, 0.64
Monthly family income (reference group: 1000 USD and below)						
1001 USD–2000 USD	−1.18*	0.57	−2.30, −0.07	−0.26	0.51	−1.25, 0.73
2001 USD and above	−0.17	0.58	−1.30, 0.97	−0.41	0.51	−1.41, 0.60
R^2 (adjusted R^2)	0.621 (0.612)			0.160 (0.140)		

[a]Religious coping strategies, [b]non-religious coping strategies

*Significant at 0.05 level; **significant at 0.01 level; ***significant at 0.001 level

Quality of Life and the Predictive Roles of the Socio-demographics, Religiosity and Spiritual Coping Strategies Utilization

The mean overall QOL and health as reported by the nursing students were 4.05 (SD = 0.68) and 4.02 (SD = 0.71), respectively. Regarding the dimensions of the WHOQOL-BREF, the physical health received the highest overall mean ($M=70.97$, SD = 12.67), followed by psychological health ($M=68.73$, SD = 13.85), environmental domain ($M=65.32$, SD = 14.25), and social relationship ($M=61.39$, SD = 21.68). The multivariate regression analysis revealed country of residence [$F(4, 643)=35.65$, $p<.001$; Wilk's $\Lambda=0.818$], gender [$F(4, 643)=5.08$, $p<.001$; Wilk's $\Lambda=0.969$], year of study [$F(4, 643)=7.49$, $p<.001$; Wilk's $\Lambda=0.955$], religion [$F(4, 643)=30.80$, $p<.001$; Wilk's $\Lambda=0.839$], monthly family income [$F(4, 643)=8.32$, $p<.001$; Wilk's $\Lambda=0.951$], attendance to ORA [$F(4, 643)=10.88$, $p<.001$; Wilk's $\Lambda=0.937$] and NORA [$F(4, 643)=4.89$, $p=.001$; Wilk's $\Lambda=0.970$], and utilization of RCS [$F(4, 643)=11.55$, $p<.001$; Wilk's $\Lambda=0.933$]

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and NRCS [$F(4, 643) = 17.48$, $p < .001$; Wilk's $\Lambda = 0.902$] had multivariate effects on the four dimensions of QOL.

As reflected in Table 4, nursing students from India had significantly poorer social relationships, while students from the USA had better environmental domain than students from Greece. Male students manifested better physical, psychological and environmental health compared with female nursing students. Fourth year nursing students had better physical health than the students who were in the 1st, 2nd, and 3rd year, as well as better environmental domain scores than 3rd year students. Nursing students who identified themselves as Roman Catholics reported higher scores in the physical health than students who were Born-Again Christians, as well as higher psychological health and environmental domain than students who were Protestants and Born-Again Christians. Furthermore, nursing students who had monthly family income of 2001 USD and above reported significantly better physical health, psychological health, and environmental domain than students with monthly family income of 1000 USD and below. Also, students who had family monthly income between 1001 USD and 2000 USD had higher environmental domain scores than students with family income of 1000 USD and below.

In terms of religiosity, more frequent attendance to ORA and NORA exhibited a positive influence on the physical and environmental domains, while increased attendance to NORA seemed to result in better psychological health. No associations were found between IR and QOL domains. For spiritual coping utilization, more frequent use of RCS negatively impacted social relationships and environmental domain of the nursing students. However, more frequent use of NRCS was associated with better physical, psychological, social relationships, and environmental health.

Discussion

This study provided insight regarding nursing students' religiosity, spiritual coping styles, and quality of life in four countries with affiliations in Judeo-Christian religions. Regarding nursing students' religiosity, they reported moderate levels of ORA attendance (a few times a year) and use of NORA (at least once a week). However, they indicated they were moderately intrinsically religious. Kenyan nursing students indicated they attended church and other religious meetings more frequently compared to nursing students from other countries. This may be attributed to religious practices being a central part of the social life among African countries (Gyima et al. 2012). The study also showed American nursing students reported lower IR scores compared to other countries. In recent years, American younger generation has indicated they are spiritual, but not religious (Rainer and Rainer 2011). American youth do not equate religious activities with spirituality, which could be attributed to their disenchantment with organized religious activities and changing social lifestyle and social roles (Astin et al. 2010; Putnam and Campbell 2010).

Female students also showed higher IR than male students. Our findings are similar to Gyima et al. (2012) wherein females were more likely to attend church than their male counterparts and reported religion to be an important of their lives.

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Table 4 Results of the multiple linear regression analyses to assess the independent relationship between the socio-demographic variables and quality of life ($n = 659$)

Predictor variables	Physical health			Psychological health			Environmental domain			Social relationships		
	β	SE	95% CI	β	SE	95% CI	β	SE	95% CI	β	SE	95% CI
Country (reference group: Greece)												
India	−5.25	4.29	−13.68, 3.17	3.93	4.69	−5.28, 13.13	−21.79***	5.79	−33.15, −10.43	2.87	4.56	−6.09, 11.82
Kenya	−2.81	4.19	−11.03, 5.41	7.26	4.57	−1.73, 16.24	10.35	5.64	−0.73, 21.43	−2.18	4.45	−10.92, 6.55
USA	−3.11	4.07	−11.10, 4.88	1.19	4.45	−7.54, 9.93	8.14	5.49	−2.63, 18.91	9.31*	4.32	0.82, 17.79
Age	−0.05	0.12	−0.29, 0.18	0.189	0.13	−0.06, 0.44	0.12	0.16	−0.19, 0.43	−0.21	0.13	−0.45, 0.04
Gender	4.18**	1.45	1.34, 7.02	5.43**	1.58	2.32, 8.53	−0.99	1.95	−4.82, 2.84	5.96***	1.54	2.94, 8.98
Year of study (reference group: 4th year)												
1st year	−4.87**	1.70	−8.21, −1.53	−2.38	1.86	−6.04, 1.27	1.74	2.30	−2.77, 6.25	−2.92	1.81	−6.47, 0.64
2nd year	−4.16**	1.53	−7.17, −1.15	−1.76	1.68	−5.06, 1.53	3.36	2.07	−0.70, 7.42	−2.16	1.63	−5.36, 1.05
3rd year	−6.49***	1.23	−8.89, −4.08	−2.55	1.34	−5.18, 0.08	1.13	1.65	−2.11, 4.38	−4.50**	1.30	−7.06, −1.94
Religion (reference group: Roman Catholic)												
Protestant	−3.34	1.81	−6.90, 0.22	−4.04*	1.98	−7.93, −0.15	−1.58	2.44	−6.38, 3.22	−5.74**	1.93	−9.52, −1.96
Born-Again Christian	−4.52*	2.21	−8.85, −0.18	−5.22*	2.41	−9.96, −0.49	−4.30	2.98	−10.15, 1.54	−7.45**	2.35	−12.06, −2.84
Orthodox	−0.94	4.27	−9.32, 7.44	6.72	4.66	−2.44, 15.88	3.79	5.75	−7.51, 15.09	1.01	4.54	−7.90, 9.91
Living community (reference group: Urban)												
Rural	−0.34	1.13	−2.56, 1.88	1.45	1.24	−0.98, 3.88	−0.12	1.53	−3.11, 2.88	−0.31	1.20	−2.67, 2.05
Suburban	−0.48	1.33	−3.09, 2.13	−1.02	1.45	−3.87, 1.84	0.69	1.79	−2.84, 4.21	0.07	1.41	−2.71, 2.84
Monthly family income (reference group: 1000 USD and below)												
1001 USD–2000 USD	2.38	1.37	−0.31, 5.07	1.77	1.50	−1.18, 4.71	2.21	1.85	−1.42, 5.84	3.80**	1.46	0.94, 6.66

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Table 4 (continued)

Predictor variables	Physical health			Psychological health			Environmental domain			Social relationships		
	β	SE	95% CI	β	SE	95% CI	β	SE	95% CI	β	SE	95% CI
2001 USD and above	3.59*	1.39	0.86, 6.32	4.08**	1.52	1.10, 7.06	2.28	1.87	−1.39, 5.96	7.45***	1.48	4.55, 10.35
ORA[a]	0.98*	0.44	0.12, 1.84	−0.04	0.48	−0.98, 0.89	1.07	0.59	−0.08, 2.23	2.56***	0.46	1.65, 3.47
NORA[b]	0.99**	0.38	0.24, 1.73	1.14**	0.41	0.32, 1.95	0.83	0.51	−0.18, 1.83	1.42***	0.40	0.63, 2.21
IR[c]	−0.44	0.25	−0.94, 0.05	−0.11	0.28	−0.65, 0.43	−0.16	0.34	−0.82, 0.51	−0.18	0.27	−0.70, 0.35
RCS[d]	−0.18	0.16	−0.49, 0.14	−0.12	0.17	−0.46, 0.23	−0.63**	0.22	−1.05, −0.21	−0.46**	0.17	−0.79, −0.13
NRCS[e]	0.56***	0.12	0.34, 0.79	0.89***	0.13	0.64, 1.14	1.10***	0.16	0.79, 1.40	0.68***	0.12	0.43, 0.92
R^2 (adjusted R^2)	0.162 (0.135)			0.163 (0.136)			0.480 (0.463)			0.252 (0.229)		

[a]Organizational religious activities, [b]non-organizational religious activities, [c]intrinsic religiosity, [d]religious coping strategies, [e]non-religious coping strategies

*Significant at 0.05 level; **significant at 0.01 level; ***significant at 0.001 level

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Schnabel (2015) also reported on gender differences among those affiliated in Christian-based religions, specifically use of prayer as the main difference between genders. An interesting finding regarding religiosity among respondents was that rural dwellers attended ORAs less frequently. Churches are usually an integral part of a community, whether large or small. This finding could be related to nursing students not finding a denomination they are affiliated with in rural areas. The other finding regarding religiosity among urban versus rural living showed rural dwellers had higher IR compared to their counterparts. Our finding is similar to Krauss et al.'s (2006) result, wherein rural young adults were religious compared to their urban counterparts. In contrast, Canadian young adults who attended university did not have any difference of religious beliefs based on rural or urban dwelling (Cheah et al. 2010). The researchers posited young adults decreased their religious activity participation upon start of college life and meeting people from different religious backgrounds (Cheah et al. 2010).

Nursing students affiliated with the Roman Catholic denomination also had higher attendance in ORA and higher IR compared to other students affiliated with other Christian denominations. In an older study, researchers presented how university students affiliated with the Roman Catholic religion were more likely to continue attending church (Dillon 1996). The researchers posit the high ORA and IRA scores among nursing students affiliated with Roman Catholicism may be correlated. Their higher attendance at church may allow them to feel more deeply connected to their beliefs, or their deep intrinsic religiosity may propel them to consistently attend formal religious activities. Additional studies need to be conducted to support this hypothesis. Another finding regarding religiosity requiring further research exploration is the difference in religiosity based on students' year levels. The differences may be related to their socialization in college, busyness in studies, or changes in beliefs and values upon start of university life.

On nursing students' SCS, respondents reported moderate use of RCS but high use of NRCS. Indian and Kenyan nursing students reported the highest use of RCS among the four countries. As stated earlier, religion plays an important part of social life in African countries, which may explain Kenyan students' frequent use of RCS. Puffer et al. (2012) presented Kenyan young adults used RCS to cope with poverty, illness, anxiety over their future, grief, academic performance, and moral conflicts. There has not been much research regarding religious coping skills of Christian-affiliated Asian Indians. A previous study conducted among Indian youths reported strong positive correlation between self-perceived "Indianness" and religiosity. This supports the current finding of the study (Suchday et al. 2018). However, among those practicing Hinduism, "God-focused" coping was found to be used frequently and is tied with better life satisfaction (Abu-Raiya and Pargament 2015). Regarding female nursing students using more RCS compared to their counterparts, this finding may be related to their increased participation in religious activities as stated in the previous section on ORA. Regarding students' age, a landmark study by Argue et al. (2000) showed a significant, nonlinear increase in religiosity among adults between ages 18–30. The researchers could hypothesize if religiosity increases with age, nursing students who are older will increase their use of religious coping skills, too. Additional research is needed to test this hypothesis.

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An interesting finding regarding nursing students' use of SCS in this study was that those affiliated with Roman Catholicism used RCS less compared to those affiliated with other Judeo-Christian religions. This is interesting as students with Roman Catholic affiliations reported attending ORA activities more so than other religions, and attending church is one of the major religious coping skills. Furthermore, they also used NRCS less frequently, which involves strengthening relationships and appreciating nature and arts. Further research may be needed to extrapolate reasons for lower use of RCS and NRCS among Catholic nursing students. On the other hand, the connection between rural dwellers and high use of RCS may be attributed to their high levels of IR. Also, as stated in the Puffer et al. (2012) study, RCS is used by Kenyan young adults to cope with poverty. Thus, this could be the reason why nursing students with a family monthly income of less than 1000 USD use RCS more frequently.

For QOL and overall health, nursing students reported very good quality of life and overall health. Respondents indicated their highest level of satisfaction for QOL was in the physical domain, followed by psychological, environmental, and social. Indian nursing students may find lower satisfaction in the social domain due to the unique cultural and social structural influences in the country brought about by the Hindu religion, caste system, and gender socialization (Seiter and Nelson 2010), whereas the nursing students from the USA may have reported higher satisfaction in the environmental domain due to the location of the university they are attending, which is in a small suburban city with major amenities available, lower crime rates, and less pollution. It is, however, not understood much by the researchers why fourth year nursing students would report better satisfaction with the physical domain compared to other levels. This may be because they have already adjusted to the rigors of nursing school and have more time to attend to their physical fitness and health. Additional research is needed to fully explain this finding.

Another finding the researchers cannot fully explain is how nursing students with affiliations to the Roman Catholic Church find more satisfaction in the physical, psychological, and environmental domains compared to students from other religious groups. Psychologists are now finding religious affiliation and religiosity contribute to one's own physical and mental health (Hill and Pargament 2006); furthermore, Mueller et al. (2001) presented a literature review on how religious people live longer, have less risk to cardiovascular disease and depression, recover faster from depression, and cope better with illness. However, these findings do not fully explain the differences in domain QOL satisfaction between Christian religious groups. Lastly, in the comparisons of QOL among nursing students, those who come from families with higher monthly income show better satisfaction in most QOL domains, except social. Several studies have presented having a higher income was related to better QOL (Brennan and Spencer 2014; Lemos et al. 2015; Wyshak 2016) in all domains. Families with higher incomes have ready access to healthcare and live healthier lives (Braveman et al. 2010), have less stress regarding finances and improved mental health (Allen et al. 2014), can afford nutritious food (Kirkpatrick et al. 2012), and build a home in safe environments (Robert Wood Johnson Foundation 2008). A possible explanation to why social quality of life is not affected by a higher income is due to a potential ceiling effect on how socioeconomic status improves one's emotional well-being as related to personal

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relationships and feelings of loneliness (Kahneman and Deaton 2010). The results of the Kahneman and Deaton study were conducted among the American public; thus, further studies may need to be conducted specifically on nursing students and the Greek, Indian, and Kenyan populations.

This is the first study linking nursing students' religiosity, spiritual coping, and quality of life. Our findings show frequent attendance to ORA and NORA lead to better physical and environmental domains, and using NORA frequently lead to improved psychological health. Our findings for the physical and psychological domains may be similar to Koenig's (2012) results wherein religiosity helps in improving one's coping with illness and stressful situations; however, more research is needed to explain why ORA and NORA positively contributes to satisfaction in the environmental domain. It was interesting to find how frequent use of RCS could impact social relationships of nursing students. This may be due to differing worldviews, cultural beliefs, and values of each student and the people they encounter and engage in relationships with (Tiew et al. 2013). Different values and beliefs system could cause conflicts in people's social relationships. This finding is also contradictory to the results of the UCLA Higher Education Research Institute (2005) wherein college students who are engage in religious and spiritual activities found more positive interactions with others. Additionally, our finding of more frequent RCS use negatively impacting nursing students' environmental domain seemed contradictory to the previous finding of frequent attendance to ORA and NORA positively impacting the environmental domain. More research is needed to explain this finding. Finally, nursing students' frequent use of NCRS was associated with improved satisfaction in all four domains of QOL could be attributed to spirituality, even those not affiliated with religion, is an essential factor in one's subjective determination of well-being and satisfaction (van Dierendonck 2012). This finding could imply nursing students' use of coping strategies related to personal relationships, positivism, reflection, and appreciation of nature and art, could help in achieving optimal QOL.

Limitations

The researchers collected from nursing students in one university from each country. Student samples from each university may not be representative of all nursing students from each country. Generalizability may be enhanced by conducting surveys among nursing students from multiple universities representing different regions in each country. Future studies may include other countries in other parts of the world to capture a better understanding of the influence of religiosity and SCS on the QOL of nursing students. Furthermore, due to the use of convenience method in sample selection, there was a non-equivalence in gender; hence, future studies should use random sampling to enhance the generalizability of the findings.

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Conclusions and Implication

This study provided multi-country perspective of religiosity, spiritual coping utilization and QOL among nursing students. It also supported the impact of the nursing students' religiosity and spiritual coping on their QOL. Ensuring that nursing students have excellent levels of QOL should be one of the priorities of nursing education. The students' QOL may be threatened due to the challenges they face, such as the various stressors that they encounter in their classroom and clinical learning environment. Having positive spirituality or religiosity and utilizing spiritual or religious coping strategies can benefit the students by influencing their QOL. Hence, nursing schools should create a learning environment, both in the classrooms and clinical areas that embrace spirituality by promoting and encouraging a climate that respects and accepts varying spiritual views. Nursing educators should also be trained to provide spiritual support to students with different spiritual beliefs.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interests.

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