Research Article

The Mediating Role of Religious Coping in Perceived Stress, Psychological Symptoms and Psychological Well-Being in a Sample of Puerto Rican Adults

Orlando M. Pagán-Torres[1] (ID)
Albizu University

Ernesto Rosario-Hernández[2] (ID)
Ponce Health Sciences University

Juan Aníbal González-Rivera[3] (ID)
Ponce Health Sciences University

Alfonso Martínez-Taboas[4] (ID)
Interamerican University of Puerto Rico

[1] Ph.D., Adjunct Professor at Albizu University, San Juan Campus, Puerto Rico. E-mail: orlando.m.pagan.torres@gmail.com
[2] Ph.D., Full Professor at Ponce Health Sciences University, Ponce, Puerto Rico. E-mail: erosario@psm.edu
[3] Psy.D., Assistant Professor at Ponce Health Sciences University, Ponce, Puerto Rico. E-mail: jagonzalez@psm.edu
[4] Ph.D., Adjunct Professor at Interamerican University of Puerto Rico, Metropolitan Campus. E-mail: amartinez@intermetro.edu

Corresponding author:
Orlando M. Pagán-Torres, Ph.D.
E-mail:
orlando.m.pagan.torres@gmail.com

Abstract

The impact of religious coping (RC) on health has been a subject of interest in recent years. Despite the increase in research on RC, in Puerto Rico there has not been identified studies aimed to examine the mediating role of positive (PRC) and negative (NRC) religious coping in mental health variables. Therefore, the objectives of the study are: (1) Examine the relationship between perceived stress (PS) with PRC/NRC, psychological symptoms (PSx; depression, anxiety & posttraumatic symptoms) and psychological well-being (PWB) in a sample of 302 Puerto Rican adults with several self-report measures associated with mental health outcomes. (2) Examine the relationship between PRC/NRC with PSx, PTSD, and PWB. (3) Examine the mediating role of PRC/NRC in the relationship between PS, PSx, PTSD and PWB. The results of the study revealed that the PRC did not mediate none of the mental health variables. However, NRC significantly related and mediated the relationship between PS with PWB and post-traumatic stress disorders symptoms. Implications are discussed.

Keywords:
Mediation, Psychological Symptoms, Psychological Well-being, Puerto Rico, Religion, Religious Coping

Since the 19th century, more than 3,300 studies have been conducted aimed to explore the impact of religion on health, showing that religion can positively and negatively impact people's well-being (Bonelli et al., 2013; Braam & Koenig, 2019; Green et al., 2010; Koenig, 2009; 2012; 2015). Findings revealed in more than 100 meta-analysis and systematic literature reviews strengthen the case that religious involvement is associated with better health (Oman & Syme, 2018) especially in those countries where religious beliefs are considered important to the majority of the population (Gundlach & Opfinger, 2011; Snoep, 2008). The findings documented on the impact of religiosity on health are closely associated with the use of positive (PRC) and negative (NRC) religious coping (RC) strategies (Anderson et al., 2015; Hook et al., 2010; Gerber, Boals & Schuettler, 2011; Gonçalves et al., 2015). RC is a management strategy that uses religious beliefs and practices to prevent and alleviate negative consequences of stressful events (Pargament, 1997). Furthermore, Pargament (1997) identifies in his model three types of RC: 1) Self-directed coping, when people trust themselves more than God to solve their problems; 2) Avoidance Coping, when the responsibility is left in the hands of God or the supernatural and 3) Collaborative Coping, when a shared dynamic is established between the human being and the divine in the coping process. NRC can manifest itself when people experience a sense of abandonment and punishment from God, doubts about God's love, power, faithfulness and/or existence. This RC strategy has been related to higher levels of stress and less psychological well-being (PWB) (Ano & Vasconcelles., 2005).

Additionally, recent literature holds that people can experience religious and spiritual struggles in the face of negative events. This concept is occur when negative experiences of emotion, tension or conflict on religious and spiritual issues (Exline, 2013) which is associated with greater symptoms of depression, anxiety, perceived stress (PS) and post-traumatic stress (PTSD) (Abu -Raiya et al., 2015; Ano & Pargament, 2013). Ano et al., (2005) conducted a meta-analysis of 49 relevant studies with a total of 105 effect sizes with the intervention to examine the relationship between RC and psychological adjustment to stress. The results of the study revealed that positive and negative forms of RC are related to positive and negative psychological adjustment to stress. Foch et al, (2017) carried out a systematic review of the studies published on RC from 2003 to 2013. From a total of 1,092 articles initially obtained, 31 met the inclusion criteria established by the authors. The results the impact of PRC on better outcomes in people with chronic diseases, particularly cancer and mental disorders such as depression. Despite the increasing empirical attention given on religion/spirituality and health, Park et al., (2017) recommend conducting studies in this field that involve the analysis of the religious and spiritual dimension as a mediating and moderator variables.

Religion in Puerto Rico is a very influential social institution, given around 89% of Puerto Rican claim to be Christians (Pew Research Center's Forum on Religion

& Public Life, 2012). This fact could be explained from a historical perspective taking into consideration that religion has played a fundamental role in the political, economic and sociocultural development of the country (Agosto-Cintrón, 1996; Scarano, 2008). Moreover, the scientific study of religion and spirituality in Puerto Rico has increased in recent years. In the review carried out by Pagán-Torres et al. (2017), it was found that in Puerto Rico there are a total of 17 publications on religion and health. Furthermore, González-Rivera et al. (2019) carried out a bibliometric analysis on the articles published in Puerto Rican journals about religion and spirituality from a mental health perspective. The results revealed that only 3% of the publications made among Puerto Rican journals have been associated with the field of religion and spirituality. In addition, there are around seven books published which are associated with the field of the psychology of religion and spirituality in the Puerto Rican context (Pagán-Torres, 2019). Among the implications that emerge from the documented literature, religion in Puerto Rico can have a positive and negative impact on health, which depend on the way in which religious individuals practice their religion and how the religious structure influences in religious people.

According to the reviews and analyzes carried out about religion and spirituality in Puerto Rico, no studies directed to examine the impact of RC as a mediating variable was identified. However, it was found a cross-sectional study with Puerto Rican participants which examined the association between RC and depressive symptoms (Pagán-Torres & González-Rivera, 2019) and a psychometric study of a RC scale with Puerto Rican (González-Rivera & Pagán-Torres, 2018). This suggests that research on RC as a mediating variable is a non-existent topic in the scientific literature in Puerto Rico. The previous findings concerning the impact of religiosity and spirituality on mental health in Puerto Rican population are mixed (González-Rivera et al., 2019; Pagán et al. 2017). Therefore, studies based in mediation analysis could provide solid information about the protective and risk factors of RC strategies for mental health in Puerto Ricans. A mediating variable is a variable that explains the relation between a predictor and outcome variable (Baron & Kenny, 1986; Hayes, 2013). The aims of this study were the following: (1) examine the relationship between perceived stress (PS) with PRC, NRC, psychological symptoms (PSx; which involve depression & anxiety), posttraumatic stress disorder (PTSD) and psychological well-being (PWB), (2) examine the relationship between PRC/NRC with PSx, PWB and PTSD, and (3) examine the mediating role of PRC/NRC in the relationship between PS and PSx, PWB and PTSD. Figure 1 shows the research model hypotheses proposed.

Figure 1.
Research Model for Direct and Indirect Effects (IE) Hypotheses
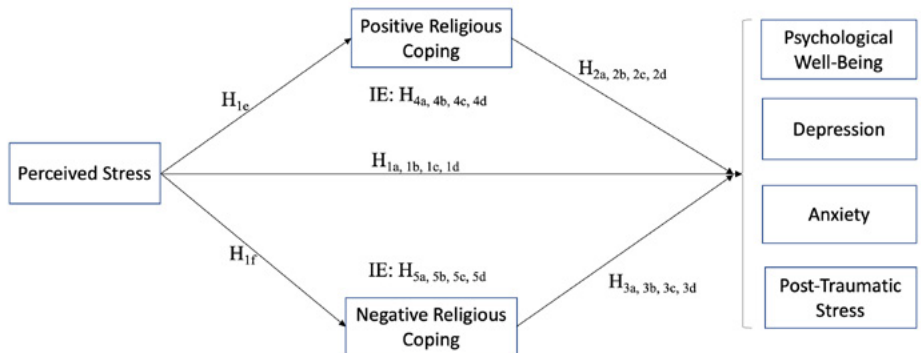
Method

Research Design and Procedures

This research has a non-experimental, cross-sectional, correlational descriptive design. Authorization to carry out the research was obtained through the Institutional Review Board (IRB) from Ponce Health Sciences University, Ponce, Puerto Rico (protocol #1902005352). Once the IRB authorization of the study was obtained, the recruitment of the participants began. For the recruitment of the sample, the digital platform *Psychdata* was used to begin online recruitment through social networks and emails. When the participants accessed the link, they proceeded to read the informed consent sheet which explained to all the information, the purpose, procedure, benefits and risks of the research. If the participants agreed to participate in the study, they proceeded to complete the consent form. To guarantee the protection of confidentiality, an identification code was assigned in the database to record the data of the participants. After completing the informed consent form, the participants proceeded to complete the sociodemographic data sheet, as well as the measures. The sample of the study was recruited from April 2019 to June 2019.

Participants

A non-probabilistic recruitment of the sample was used to recruit the participants of the study. The convenient sample of the current study consisted of 302 Puerto Rican adult participants. The sample average age was 35.79 (DE = 12.14). The inclusion criteria to participate in the study were: (1) be 21 years of age or older, (2) can read and understand Spanish, (3) be Puerto Rican and (4) be a resident in Puerto Rico. Table 1 shows the full sociodemographic characteristics of the subjects.

Table 1
Sociodemographic Characteristics of the Sample

Demographics	*f*	%
Sex		
Male	78	25.8
Female	224	74.2
Age		
21-29	134	44.2
30-39	66	21.9
40-49	48	15.9
50-59	41	13.8
60-69	11	3.6
70-71	2	0.6
Marital Status		
Single	148	49.0
Married	102	33.8
Widowed	3	1.0
Divorced	18	6.0
Cohabiting (free union)	31	10.3
Annual Income (USD)		
$0–20,000	150	49.7
$21,000–30,000	47	15.6
$31,000–40,000	34	11.3
$41,000–50,000	13	4.3
$51,000–60,000	18	6.0
$61,000 or more	40	13.2
Academic Preparation		
High school or less	14	4.6
Associate degree/technical	13	4.3
Bachelor's degree	84	27.8
Master's degree	102	33.8
Doctoral degree	89	29.5
Religious Affiliation		
Catholic	124	41.1
Protestant (Evangelical, Methodist, Baptists, Pentecostal*)*	116	38.4
Adventist	2	0.7
Islamism (Muslim)	1	0.3
Buddhism	5	1.7
Santeria	1	0.3
None	53	17.5
Importance of Religion		
Nothing	36	11.9
Somewhat	57	18.9
Important	80	26.5
Very important	129	42.7
Participation in religious activities		
Never	59	19.5
Once a year	79	26.2
Monthly	44	14.6
Weekly	107	35.4
Daily	13	4.3
Participation in private religious activities		
Never	60	19.9
Once a year	28	9.3
Monthly	25	8.3
Weekly	53	17.5
Daily	136	45.0

Note. n=302

Measures

Sociodemographic data sheet. This document included questions aimed to explore the profile of the study participants such as the age, marital status, gender, annual income, time working, religion to which they belong, importance of religion, frequency of participation in religious activities and number of hours dedicated to religious practices.

Brief Religious Coping Scale (Brief RCOPE). To measure this variable, we used the brief scale of religious strategies (Brief RCOPE) from Pargament, Feuille and Burdz, (2011). We used the Spanish version validated in the Puerto Rican population by Colón-Rivera (2014). The inventory measures PRC and NRC strategies based on Pargament (1997) theoretical model. The instructions invite the participant to think about the most stressful event they have experienced in the last year. Then, it presents a list of 14 RC strategies (e.g., *I looked for God's love and care, I looked for God's help to release my courage, I wondered if God had abandoned me, I doubted God's power*) and ask the participant to indicate on a four-point Likert-type response scale, the degree to which each one of them was performed: 1 (Not at all), 2 (Somewhat), 3 (Quite a bit) and 4 (Very much). The scale obtained a Cronbach's alpha internal consistency index of .88 in a sample of Puerto Rican adults (Colón-Rivera, 2014).

Perceived Stress Scale (PSS). This is an instrument designed to know how stressful people perceive the events of daily life. Remor (2006) translated and validated the Spanish version of said instrument. This scale is a self-report instrument that assesses the level of perceived stress during the last month, it consists of 14 items with a response format of a five-point scale (0 = never, 1 = almost never, 2 = from time to time). when, 3 = often, 4 = very often). The total score of the PSS is obtained by inverting the scores of items 4, 5, 6, 7, 9, 10 and 13 (in the following sense: 0 = 4, 1 = 3, 2 = 2, 3 = 1 and 4 = 0) and then adding the 14 items. The direct score obtained indicates that a higher score corresponds to a higher level of perceived stress. The Cronbach alpha of the PSS in this study was .86.

Eight-Item Patient Health Questionnaire (PHQ-8). This instrument is an eight-item self-report measure that is used to assess depression severity and criteria for a major depressive episode (Kroenke et al., 2009). Each item is rated in frequency on a 4-point (0 = not at all, 3 = nearly every day) scale and total scores may range from 0 to 24. The authors (Kroenke & Spitzer, 2002) suggest five levels of severity: minimal (total score, 0–4); mild (total score, 5–9); moderate (total score, 10–14); moderately severe (total score, 15–19); and severe (total score, 20–24). A score of 10 or above is frequently used as a cut point to identify patients with major depression. In Puerto Rico, this scale obtained an internal consistency of .92 (Pagán-Torres, González-Rivera, & Rosario-Hernández, 2020a).

Generalized Anxiety Disorder-7 (GAD-7). The GAD-7 questionnaire is a one-dimensional self-administered scale designed to assess the presence of the symptoms of Generalized Anxiety Disorder, as listed in the DSM-IV (Spitzer et al., 2006). We used the Spanish version of the GAD-7 (García-Campayo et al., 2010). The total GAD-7 score is calculated by the simple addition of the answers to each item. Each item is rated in frequency on a 4-point (0 = not at all, 3 = nearly every day) scale and total scores may range from 0 to 21. According to the original authors (Spitzer et al., 2006), the total score may be categorized into four severity groups: minimal (0-4), mild (5-9), moderate (10-14), and serious (14-20). In Puerto Rico, this scale obtained an internal consistency of .88 (Pagán-Torres, González-Rivera, & Rosario-Hernández, 2020b).

Post-traumatic Stress Disorder Scale for DSM-5 (PCL-5): This is a self-report measure that evaluates the 20 symptoms of PTSD-DSM-5 (Blevins et al., 2015). PCL-5 has a variety of purposes, including monitoring of the change of symptoms during and after treatment, detection of people with PTSD, and making a provisional diagnosis of PTSD. It consists of 20 items organized on a Likert-type scale that ranges from 0 Nothing to 4 Extremely. The possible range is 0 to 80 points, where the higher the reported score, the higher the level of PTSD symptomatology. In our study, obtained an internal consistency of .95.

Ryff Psychological Well-being Brief Scale. This instrument was developed by Ryff and Keyes (1995) and adapted to the Puerto Rican population by González-Rivera, Quintero, Veray, and Rosario (2016). It is made up of 17 items organized on a six-point Likert-type scale that ranges from 1 Strongly disagree to 6 Agree (Table 3 shows all items in the instrument). The scale consists of four factors: 1) mastery of the environment, 2) life purpose, 3) self-acceptance, and 4) autonomy. The lowest score that can be obtained is 17 and the highest is 102, where high scores represent a person with many psychological strengths and resources. The scale obtained a Cronbach's alpha reliability index of .86 in this study.

Data Analyses

The IBM SPSS version 20 program was used to perform the statistical analyzes. Descriptive statistics were calculated through the measures of central tendency (mean, mode and median) in order to obtain the sociodemographic data of the sample. For data analysis, partial least squares structural equation modeling (PLS-SEM) was used following the two-step procedure suggested by Hair et al., (2017). First, the confirmatory factor analysis aimed at evaluating the measurement model. Second, the evaluation of the structural model. It is important to mention the three reasons for its use in the present study, as pointed out by Chin (2010). First, that PLS-SEM has a soft distributive assumption and since the Kolmogorok-Smirnov and Shapiro-Wilks

tests were significant, it is suggested that the scores were not normally distributed. Second, the exploratory nature of the current study (Hair et al., 2011; Henseler, et al., 2009; Henseler et al., 2013), aims to build and expand an existing theory such as the RC model, in the Puerto Rican context. Third, the complexity of the study justifies the use of PLS-SEM because the tested model has multiple moderating variables (Hair, et al., 2011; Henseler, et al., 2009; Henseler & Sarstedt, 2013).

Results

The research model of the study was analyzed using Smart-PLS 3.2.4, a PLS structural equation modeling tool (Ringle, Wende & Becker, 2015). This program evaluates the psychometric properties of the measurement model and estimates the parameters of the structural model. This tool allows simultaneous analysis of up to 200 indicator variables, allowing the examination of multiple mediating variables simultaneously between indicators of latent predictor variables.

The measurement models

The data indicate that the measures are robust in terms of their internal consistency reliability as indexed by Cronbach's alpha and composite reliability. All Cronbach's alphas and the composite reliabilities of the different measures range from .70 to .91, which fluctuates within the recommended threshold value of .70 (Hair et al., 2017). Regarding validity, all external loads reached the threshold of .70 as indicated by Hair et al. (2017). Furthermore, consistent with Fornell and Larcker (1981) guidelines, the average variance extracted (AVE) for each measure exceeds .50, which is an indication of the convergent validity of the measures (see table 2).

Table 2
Results of measurement models

Latent Variable	Item	CF	AVE	Alfa	CR
Perceived Stress	PS-1	.75	.59	.86	.90
	PS -2	.85			
	PS-3	.80			
	PS-8	.66			
	PS-11	.73			
	PS-14	.80			
Positive Religious Coping	PRC-2	.78	.73	.87	.89
	PRC-3	.80			
	PRC-6	.97			
Negative Religious Coping	NRC-8	.83	.57	.84	.89
	NRC-9	.84			
	NRC-10	.89			
	NRC-11	.77			
	NRC-12	.57			
	NRC-13	.58			

Table 2
Results of measurement models

Latent Variable	Item	CF	AVE	Alfa	CR
Psychological Well-Being	AA	.75	.62	.70	.83
	DE	.83			
	PV	.77			
Depression	PHQ8-1	.76	.58	.88	.91
	PHQ8-2	.84			
	PHQ8-3	.72			
	PHQ8-4	.72			
	PHQ8-5	.75			
	PHQ8-6	.78			
	PHQ8-7	.75			
Anxiety	GAD7-1	.82	.66	.91	.93
	GAD7-2	.89			
	GAD7-3	.87			
	GAD7-4	.85			
	GAD7-5	.72			
	GAD7-6	.77			
	GAD7-7	.76			
Posttraumatic Stress	Evit	.72	.74	.88	.92
	Int	.91			
	ANC	.92			
	ARE	.88			

On the other hand, there are two ways to check discriminant validity (Wong, 2019). One is the the Fornell-Larcker criterion and the second is the heterotrait-monotrait (HTMT) method. The classical approach proposed by Fornell-Larcker (1981) suggest that the square root of AVE in each latent variable can be used to establish discriminant validity, if this value is larger than other correlation values among the latent variables. Table 3 shows that all square root values of AVE of each latent variable are larger than correlation values between all other latent variables.

Table 3
Correlation Matrix Between Latent Variables

Latent Variable	PS	PRC	NRC	PWB	Dep	Anx	PTSD
Perceived Stress (PS)	(.77)						
Positive Religious Coping (PRC)	.12	(.85)					
Negative Religious Coping (NRC)	.43	.32	(.76)				
Psychological Well-Being (PWB)	-.44	-.02	-.39	(.79)			
Depression (Dep	.68	.06	.40	-.50	(.76)		
Anxiety (Anx)	.76	.09	.42	-.44	.73	(.81)	
Posttraumatic Stress Disorder (PTSD)	.73	.17	.42	-.45	.67	.74	(.86)

Note: n=302; elements in the matrix diagonals within parenthesis represent the square roots of the AVE.

Meanwhile, Henseler, Ringle and Sarstedt (2015) proposed to evaluate the heterotrait-monotrait (HTMT) relationship of the correlations to examine the discriminant validity. The HTMT approach is an estimate about what would be the correlation between two variables if they are perfectly measured. A correlation

between constructs close to one indicates a lack of discriminant validity. Therefore, Henseler et al. (2015) suggests a threshold value of .90 if the path model includes constructs that are conceptually very similar. In other words, an HTMT above .90 suggests a lack of discriminant validity. The correlations between constructs appear in Table 4, where all the correlations are below the threshold of .90, which suggests the discriminant validity of the measures. Furthermore, since the HTMT can serve as the basis for a statistical test of discriminant validity. Henseler et al. (2015) recommend the use of the bootstrapping technique to derive a boot with a 95% confidence interval with 5,000 random subsamples. Therefore, a confidence interval containing the value of one indicates a lack of discriminant validity. On the contrary, if the value of one fall outside the interval range, it suggests that the two constructs are empirically different. Since the HTMT-based evaluation uses the confidence interval, which is based on inferential statistics, this criterion should be relied upon primarily. In the present study, none of the correlations between the constructs in the 95% confidence interval of baseline included the value of one; therefore, this suggests that the constructs are empirically distinct.

Table 4
Correlation Matrix Hetero-rasgo/Mono-rasgo (HTMT)

Latent Variable	PS	PRC	NRC	PWB	Dep	Anx	PTSD
PS							
PRC	0.1 (.08 - .2)						
NRC	.49 (.39 - .60)	.33 (.24 - .43)					
PWB	.55 (.43 - .67)	.12 (.08 - .23)	.50 (.35 - .63)				
Dep	.77 (.71 - .84)	.09 (.08 - .17)	.45 (.33 - .57)	.61 (.48 - .73)			
Anx	.85 (.79 - .90)	.09 (.07 - .17)	.48 (.36 - .60)	.54 (.42 - .66)	.81 (.74 - .87)		
PTSD	.82 (.77 - .87)	.13 (.08 - .24)	.48 (.37 - .59)	.56 (.44 - .67)	.74 (.67 - .81)	.81 (.74 - .87)	

Note: n= 302; elements in the diagonals in parentheses are the .90 confidence intervals for the criterion of correlations of HTMT; PS=Perceived Stress, PRC= Positive Religious Coping, NRC=Negative Religious Coping, PWB=Psychological Wellbeing, Dep=Depression, Anx=Anxiety, PTSD=Posttraumatic Stress Disorder.

The structural model

After the validity of the instruments were tested, the structural model was examined, which represents the relationships between the constructs assumed in the theoretical model or latent variables. The elements in the diagonals of the matrix, which represent the square roots of the AVE, are greater in all cases than the elements outside the diagonal in their corresponding row and column, supporting the discriminant validity of the scales. To examine the structural model, as recommended by Hair et al. (2017), first, the structural

model was verified to detect collinearity problems by examining the value of the variance inflation factor (VIF) of all the sets of predictive constructions in the structural model. The values fluctuated between 1.01 and 2.04, so all the VIF values are clearly below the threshold of 5. Therefore, the collinearity between the predictor constructs is not a critical problem in the structural model. In addition, table 5 shows the R^2 values of PRC (.02), NRC (.19), depression (.48), anxiety (.60), PTSD (.60) and PWB (.25), explaining the .1%, 18%, 24%, 59%, 55%, and 24% of the variance, respectively. Falk and Miller (1992) suggest a value of .10 for an R squared at least satisfactory level. With the exclusion of PRC, all other endogenous latent variables possess the threshold level of R squared values. In addition, with the exclusion of PRC, all Q2 values such as NRC, depression, anxiety, PTSD and PWB are above zero (.10, .27, .39, .40 and .13, respectively), providing support of the predictive relevance of the model with respect to endogenous latent variables. The effect sizes for PS achieved f^2 values of .02, .21, .11, .57, .54 and .76 on PRC, NRC, depression, anxiety, PTSD and PWB, respectively, which exceed the minimum threshold of .02 (Chin, Marcolin & Newsted, 2003).

Table 5
Structural model results

Variable	R^2	R^2 Adj	f^2						Q^2	VIF
			PRC	NRC	PWB	Dep	Anx	PTSD		
PS			.02	.21	.11	.57	.54	.76		1.01
PRC	.02	.01				.01	.00	.00	.01	.00	1.16
NRC	.19	.18				.05	.01	.01	.02	.10	2.04
PWB	.25	.24							.13	
Dep	.48	.47							.27	
Anx	.60	.59							.39	
PTSD	.56	.55							.40	

Note: n= 302; PS=Perceived Stress, PRC= Positive Religious Coping, NRC=Negative Religious Coping, PWB=Psychological Wellbeing, Dep=Depression, Anx=Anxiety, PTSD=Posttraumatic Stress.

Table 6 shows the results of the structural model and the beta values of all the path coefficients also shown. Exposure to PS had a significant positive relationship with RNC (beta = .32, p <.001), depression (beta = .62, p <.001), anxiety (beta = .70, p <.001) and PTSD (beta = .66, p <.001). In addition, it was significantly negatively correlated with PWB (beta = -.33, p <.001). While it did not obtain a significant relationship with PRC (beta = .13, p> .05). On the other hand, PRC did not significantly correlate with depression (beta = -.05, p> .05), anxiety (beta = -.02, p> .05), PTSD (beta = .06, p> .05) and PWB (beta = -. 11, p> .05). However, NRC correlated significantly negatively with PWB (beta = -. 28, p <.001) and positively significant with PS (beta = .13, p <.05). We found that NRC significantly mediated the relationship between PS and PWB (t = 2.96, p <.001) and the relationship between PS and PTSD only (t = 2.96, p <.05) (see table 7). Finally, our study revealed an inverse, low and statistically significant relationship between participation in religious activities with depression (r = -.186, p = .001) and anxiety (r = -.176, p = .001) reported by the participants in the sociodemographic data sheet.

Table 6
Results of the direct effects hypothesis

	Hypothesis	Beta	SE	t value	Sig.	BCCI 2.50%	97.50%	Conclusion
	Hypothesis 1							
H₁ₐ:	PS → PWB	-.33	.06	5.81	.001	-.45	-.22	Accepted
H₁ᵦ:	PS → Dep	.62	.05	12.55	.001	.52	.71	Accepted
H₁c:	PS → Anx	.70	.04	18.27	.001	.62	.77	Accepted
H₁d:	PS → PTSD	.66	.04	17.37	.001	.58	.73	Accepted
H₁ₑ:	PS → PRC	.13	.10	1.27	.200	-.15	.24	Rejected
H₁f:	PS → NRC	.42	.05	8.61	.001	.32	.51	Accepted
	Hypothesis 2							
H₂ₐ:	PRC → PWB	-.11	.12	1.25	.210	-.14	.23	Rejected
H₂ᵦ:	PRC → Dep	-.05	.06	0.77	.440	-.16	.10	Rejected
H₂c:	PRC → Anx	-.02	.05	0.48	.630	-.11	.08	Rejected
H₂d:	PRC → PTSD	.06	.06	1.02	.310	-.06	.18	Rejected
	Hypothesis 3							
H₃ₐ:	NRC → PWB	-.28	.09	3.20	.001	-.46	-.11	Accepted
H₃ᵦ:	NRC → Dep	.10	.07	1.53	.130	-.03	.23	Rejected
H₃c:	NRC → Anx	.11	.06	1.90	.060	-.01	.22	Rejected
H₃d:	NRC → PTSD	.13	.05	2.46	.010	.02	.23	Accepted

Note: n= 302; SE=Standard Error; CIBC= Confidence Interval Bias Corrected.

Table 7
Results of the hypotheses about indirect effects, types of mediation and conclusions

	Hypothesis	Indirect Effect	SE	t value	Sig.	CIBC 2.5%	97.5%	Mediation (Type)	Conclusion
	Hypothesis 4								
H₄ₐ:	EP → PRC → PWB	.01	.01	0.83	.410	-.02	.04	No	Rejected
H₄ᵦ:	EP → PRC → Dep	-.01	.01	0.60	.550	-.03	.01	No	Rejected
H₄c:	EP → PRC → Anx	.00	.01	0.41	.680	-.02	.01	No	Rejected
H₄d:	EP → PRC → PTSD	.01	.01	0.95	.340	.00	.03	No	Rejected
	Hypothesis 5								
H₅ₐ:	EP → NRC → PWB	-.12	.04	2.96	.001	-.21	-.05	Yes (Complementary)	Accepted
H₅ᵦ:	EP → NRC → Dep	.04	.03	1.48	.140	-.03	.00	No	Rejected
H₅c:	EP → NRC → Anx	.04	.02	1.86	.060	.00	.09	No	Rejected
H₅d:	EP → NRC → PTSD	.05	.02	2.20	.030	.01	.11	Yes (Complementary)	Accepted

Note: n= 302; SE=Standard Error; CIBC= Confidence Interval Bias Corrected.

Discussion

The first aim of the study was to examine the relationship between PS with depression, anxiety, PTSD, and PWB. According to the results of the study, PS obtained positive and statistically significant relationship with depression, anxiety and PTSD symptoms. Furthermore, it was inversely and significantly related to PWB. These findings are

consistent with current literature about the significant relationship between PS and the mentioned variables (Keinan, Shrira, & Shmotkin, 2012; Richmond, et al., 2009). Also, our study revealed that PS was positively and significantly related with NRC strategies, which is consistent with the findings of Gardner et al., (2014) and Lee, Nezu & Nezu (2014). Interestingly, PS was not significantly related to PRC. These findings suggest that PS may be a risk factor to increase NRC strategies and symptoms associated with depression, anxiety and PTSD.

As part of the second hypothesis of the study, the relationship between PRC with the depression, anxiety, PTSD, and PWB was examined. Interestingly, PRC did not relate significantly to any of the study mentioned variables. All relations were low and not significant. These findings contrast with the literature reported on the impact of PRC strategies on variables relevant to mental health (Ano & et al., 2005; Foch, et al., 2017; Pargament et al., 2013). These findings suggest that the use of PRC strategies was not a protective factor for adaptive management of stressful events and PWB among participants from this study. Consequently, the entire set of hypotheses belonging to hypothesis 2 postulated in our study were rejected.

In the third hypothesis, the relationship between NRC with the variables of depression, anxiety, PTSD and PWB was examined. The results revealed that NRC was inversely and significantly related to PWB (beta = -.28, p <.001) and positively and significantly related to PTSD symptoms (beta = .13, p <.05). These results are consistent with the current literature which suggests that NRC is a risk factor for PWB and increasing of PTSD symptoms (García, et al., 2014). The literature suggests the presence of spiritual struggles and RNC in stressful events (Pargament, 1997; Pargament et al., 2013). Moreover, RNC did not significantly correlate with depression and anxiety. Therefore, according to the results of the study, only the hypotheses H_{3a} and H_{3d} were accepted which postulated a significant relationship between RNC with PWB and PTSD. However, these results contrast with the findings of the meta-analysis by Ano et al., (2005) and the findings of Pargament et al., (1998) given RNC was not significantly related to depression and anxiety in this study.

In the fourth hypothesis, it was examined whether PRC significantly mediated the relationship between PS with depression, anxiety, PTSD, and PWB. Therefore, all the hypotheses 4 postulated in our study were rejected. These findings contrast with those reported by other studies. In the fifth hypothesis, it was examined whether RNC significantly mediated the relationship between PS and depression, anxiety, PTSD, and PWB. However, NRC did not significantly mediate the relationship between PS with depression and anxiety. A possible explanation for all the discussed results, particularly with the PRC variable (which did not significantly relate, mediate and model with any of the variables) is that the degree to which RC can mediate the relationship between

variables, it will depend on the religious commitment of the individual (Carpenter et al., 2012). Individuals with a high level of religious commitment can significantly influence the impact of RC in their lives (Carpenter et al., 2012).

The present study also is the first that has measured the construct of NRC in Puerto Rico. NRC is relevant to mental health professionals, as there in extensive empirical data that spiritual struggles generate in some individuals painful and distressing conflicts with their prior religious beliefs. Those conflicts should be assessed and attended in psychotherapy, as they may be important targets to discuss and alleviate with the clinician. Obviating those conflicts may compromise the effectiveness of the conceptualization and the treatment outcome. According to the findings of the study, NRC may represent a risk factor for PSW and PTSD symptoms among Puerto Ricans, which is consistent with previous findings in other countries (Ano et al. 2005; 2013). Moreover, PRC did not represent a protective factor to mental health outcomes in the sample of the study. These results suggest that religious and spiritual domains could be directly associated with the search of psychological services and psychological symptoms.

Limitations and Future Research

This study has several limitations. First, the recruitment of the sample was not randomly selected, instead, was a convenient sample. Therefore, the results cannot be generalized to the entire Puerto Rican population. However, digital recruitment allowed us to widely broaden the diversity of the sample in terms of sociodemographic characteristics and sample size. Second, the electronic compilation of data was carried out through self-report measures. Quantitative empirical research has the risk of being affected by social demand or subjective reaction to the instruments used. However, this research offers knowledge and preliminary findings of the mediating role of the RC in mental health outcomes in Puerto Rican. Third, this is a cross-sectional and descriptive research design, which limits causal inferences and it is unknown whether the results achieved will be sustained over time. However, the purpose of our study was to perform a mediation analysis. Fourth, our study did not consider the community of non-believers (atheists and agnostics). Despite this, we believe that this research provides relevant information that will be useful for both the scientific community and mental health professionals in Puerto Rico. In addition, advanced statistical techniques with structural equation modeling in PLS and an adequate sample size were used to provide empirical strength to our results. Despite the importance of religion within the sociocultural context in Puerto Rico, no studies were found that measured RC as a mediating variable. Therefore, this study constitutes the first empirical research in Puerto Rico which explore the mediating role of RC on mental health variables with Puerto Rican adults. Consequently, this study serves as a preview for future studies aimed to examine the mediating role of the RC in a variety of mental and physical disorders.

Conclusion

This work constitutes the first empirical research in Puerto Rico focused to explore the mediating role of RC on mental health variables with Puerto Rican adults. This research contributes to the advancement of the scientific study of the religion and spirituality within Caribbean context to consider the importance of the spiritual and religious dimension as an integral part of the human being.

Funding

Declaration of conflict interest

No potential conflict of interest was reported by the authors.

References

Agosto-Cintrón, N. (1996). *Religión y cambio social en Puerto Rico [Religion and social change in Puerto Rico].* Ediciones Huracán.

Abu-Raiya, H., Pargament K.I., Krause N., Ironson, G. (2015). Robust links between religious/spiritual struggles, psychological distress, and well-being in a national sample of American adults. *American Journal of Orthopsychiatry, 85*(6), 565–575. https://doi.org/10.1037/ort0000084

Anderson, N., Heywood-Everett, S., Siddiqi, N., Wright, J., Meredith, J., & McMillan, D. (2015). Faith-adapted psychological therapies for depression and anxiety: Systematic review and meta-analysis. *Journal of Affective Disorders, 176*, 183-196. https://doi.org/10.1016/j.jad.2015.01.019

Ano, G. G., & Pargament, K. I. (2013). Predictors of spiritual struggles: An exploratory study. *Mental Health, Religion & Culture, 16*, 419 – 434. http://dx.doi.org/10.1080/13674676.2012.680434

Ano, G. G., & Vasconcelles, E. B. (2005). Religious coping and psychological adjustment to stress: A meta-analysis. *Journal of Clinical Psychology, 61*, 461–480. https://doi.org/10.1002/jclp.20049

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediating variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173

Blevins, C. A., Weathers, F. W., Davis, M. T., Witte, T. K., & Domino, J. L. (2015). The Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5): Development and initial psychometric evaluation. *Journal of Traumatic Stress, 28*, 489–498. https://doi.org/10.1002/jts.22059

Bonelli, R.M. & Koenig, H.G. (2013). Mental disorders, religion and spirituality 1990 to 2010: A systematic evidence-based review. *Journal of Religion and Health, 52*(2), 657673. https://doi.org/10.1007/s10943-013-9691-4

Braam, A., & Koenig, H.G. (2019). Religion, spirituality and depression in prospective studies: A systematic review. *Journal of Affective Disorders, 257*,428-438,

Carpenter, T. P., Laney, T., & Mezulis, A. (2012). Religious coping, stress, and depressive symptoms among adolescents: A Prospective Study. *Psychology of Religion and Spirituality*. https://doi.org/10.1037/a0023155

Chin, W.W. (2010). How to write up and report PLS analyses. In W. Esposito Vinzi, W.W. Chin, J. Henseler, & H. Wang (Eds.), *Handbook of partial least squares: Concepts, methods and applications* (pp. 655-690). Springer.

Chin, W.W., Marcolin, B.L., & Newsted, P.R. (2003). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and voice mail emotion/adoption study. *Information System Research, 14*, 189-217.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Erlbaum.

Colón-Rivera, Y. (2014). *Traducción, adaptación cultural y validación del Brief Religious Coping Scale en una muestra de puertorriqueños/as*. [Translation, cultural adaptation and validation of the Brief Religious Coping Scale in a sample of Puerto Rican.] (Disertación doctoral). Ponce Health Sciences University, Ponce, Puerto Rico.

Exline, J. J. (2013). Religious and spiritual struggles. En K. I. Pargament, J. J. Exline, & J. W. Jones (Eds.), *APA handbook of psychology, religion, and spirituality (Vol. 1: Context, theory, and research) (pp. 459–475)*. American Psychological Association.

Falk, R. F., & Miller, N. B. (1992). *A primer for soft modeling*. University of Akron Press.

Foch, Gisele & Silva, A., & Enumo, S. (2017). Spiritual/Religious Coping: A systematic literature review (2003-2013). *Arquivos Brasileiros de Psicologia, 69*, 53-71.

Fornell, C. & Larker, D.F. (1981). Evaluating structural equation models with unobserved variables and measurement error. *Journal of Marketing Research, 18(1)*, 39-50.

García-Campayo, J., Zamorano, E., Ruiz, M. A., Pardo, A., Pérez-Páramo, M., López-Gómez, V., Freire, O., & Rejas, J. (2010). Cultural adaptation into Spanish of the generalized anxiety disorder-7 (GAD-7) scale as a screening tool. *Health and quality of life outcomes*, *8*, 8. https://doi.org/10.1186/1477-7525-8-8

García, F.E., Páez-Rovira, D., Cartes-Zurtia, G., Neira-Martel, H. & Reyes-Reyes, A. (2014). Religious coping, social support and subjective severity as predictors of posttraumatic growth in people affected by the earthquake in Chile on 27/2/2010. *Religions, 5*, 1132–1145. https://doi.org/10.3390/rel5041132

Gardner, T. M., Krägeloh, C. U., & Henning, M. A. (2014). Religious coping, stress, and quality of life of Muslim university students in New Zealand. *Mental Health, Religion & Culture, 17*, 327–338. http://dx.doi .org/10.1080/13674676.2013.804044

Gerber, M. M., Boals, A., & Schuettler, D. (2011). The unique contributions of positive and negative religious coping to posttraumatic growth and PTSD. *Psychology of Religion and Spirituality, 3*, 298–307. https://doi.org/10.1037/a0023016

Gonçalves, J. P. B., Lucchetti, G., Menezes, P. R., & Vallada, H. (2015). Religious and spiritual interventions in mental health care: A systematic review and meta-analysis of randomized controlled clinical trials. *Psychological Medicine, 45*(14), 2937-2949.

González-Rivera, J. A., & Pagán-Torres, O. M. (2018). Desarrollo y validación de un instrumento para medir afrontamiento religioso [Development and validation of an instrument for measure religious coping]. *Revista Evaluar, 18*(1), 70-86. https://revistas.unc.edu.ar/index.php/revaluar

González-Rivera, J.A., Pagán-Torres, O.M., Soto-Rodríguez, N.E., Rodríguez-Torres, E., Maymí-Guadalupe, L.G. & Rodríguez-Rivera, N.N. (2019). Espiritualidad y religiosidad en revistas puertorriqueñas de psicología: Un análisis bibliométrico [Spirituality and religiosity in Puerto Rican journals of psychology: A bibliometric analysis]. *Ciencias de la Conducta 34*(1), 1-38.

González Rivera, J.A., Quintero-Jiménez, N., Veray-Alicea, J., & Rosario-Rodríguez, A. (2016). Adaptación y validación de la escala de bienestar psicológico de Ryff en una muestra de adultos puertorriqueños [Adaptation and validation of the Ryff psychological well-being scale in a sample of Puerto Rican adults]. *Salud y Conducta Humana, 3*(1), 1-14.

Green, M. & Elliott, M. (2010). Religion, health and psychological well-being. *Journal of Religion and Health, 49*(2),149-163. https://doi.org/10.1007/s10943-009-9242-1

Gundlach, E., & Opfinger, M. (2011). Religiosity as a determinant of happiness. *Directions for Student Services, 25*, 55-63.

Hair, J.F., Hult, G.T.M., Ringle, C.M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)*. SAGE Publications.

Hair, J.F., Ringle, C.M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice, 19*(2), 139-151.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.

Henseler, J., Ringle, C.M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43(1)*, 115-135.

Henseler, J., Ringle, C.M., Sinkovics, R.R. (2009) The use of partial least squares path modeling in international marketing. In R.R. Sinkovics & P.N. Ghaauri (Eds.), *New Challenges to International Marketing* (Advances in International Marketing, Volume 20, p. 277-319). Emerald Group Publishing Limited

Henseler, J. & Sarstedt, M. (2013). Goodness-of-fit indices for partial least squares path modeling. *Computational Statistics, 28*, 565-580. https://doi.org/10.1007/s00180-012-0317-1

Hook, J. N., Worthington, E. L., Davis, D. E., Jennings, D. J., Gartner, A. L., & Hook, J. P. (2010). Empirically supported religious and spiritual therapies. *Journal of Clinical Psychology, 66*(1), 46-72. https://doi.org/10.1002/jclp.20626

Keinan, G., Shrira, A., & Shmotkin, D. (2012). The association between cumulative adversity and mental health: Considering dose and primary focus of adversity. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care & Rehabilitation, 21*(7), 1149–1158. https://doi.org/10.1007/s11136-011-0035-0

Koenig, H.G. (2009). Research on religion, spirituality, and mental health: A review. *The Canadian Journal of Psychiatry, 54* (5), 283-291.

Koenig, H.G. (2012). Religion, spirituality, and health: The research and clinical implications. *International Scholarly Research Network, 1*, 1-33. https://doi.org/10.5402/2012/278730

Koenig, H.G. (2015). Religion, spirituality, and health: A review and update. *Advances in Mind-Body Medicine, 29*(3), 19-26.

Kroenke, K., & Spitzer, R. L. (2002). The PHQ-9: A new depression diagnostic and severity measure. *Psychiatric Annals, 32*(9), 509–515. https://doi.org/10.3928/0048-5713-20020901-06

Kroenke, K., Strine, T. W., Spitzer, R. L., Williams, J. B., Berry, J. T., & Mokdad, A. H. (2009). The PHQ-8 as a measure of current depression in the general population. *Journal of Affective Disorders, 114*, 163–173. http://dx.doi.org/10.1016/j.jad.2008.06.026

Lee, M., Nezu, A. M., & Nezu, C. M. (2014). Positive and negative religious coping, depressive symptoms, and quality of life in people with HIV. *Journal of Behavioral Medicine, 37*, 921–930. http://dx.doi.org/ 10.1007/s10865-014-9552-y

Oman D., Syme S.L. (2018). Weighing the evidence: What is revealed by 100+ meta-analyses and systematic reviews of religion/spirituality and health? In: Oman D. (Ed.) *Why religion and spirituality matter for public health. religion, spirituality and health: A social scientific approach*, (vol. 2, pp. 261-281). Springer, Cham.

Pagán-Torres, O.M. (2019). Una mirada breve a las obras puertorriqueñas dedicadas al estudio de la psicología de la religión y la espiritualidad [A brief look at Puerto Rican books dedicated to the study of the psychology of religion and spirituality]. *Ciencias de la Conducta, 34*(1), 39-48.

Pagán-Torres, O.M. & González-Rivera, J.A. (2019). The association between religious coping and depressive symptomatology in Puerto Rico: A cross-sectional study. *Journal of Religion and Theology, 3*(1), 1-19.

Pagán-Torres, O.M., González-Rivera, J.A., & Rosario-Hernández, E. (2020a). Psychometric analysis and factor structure of the spanish version of the Eight-Item Patient Health Questionnaire in a general sample of Puerto Rican adults. *Hispanic Journal of Behavioral Sciences*. https://doi.org/10.1177/0739986320926524

Pagán-Torres, O.M., González-Rivera, J.A., & Rosario-Hernández, E. (2020b). Reviewing the psychometric properties and factor structure of the Generalized Anxiety Disorder-7 (GAD-7) in a sample of Puerto Rican adults. *International Journal of Recent Scientific Research, 1*(1), 36885-36888. http://dx.doi.org/10.24327/ijrsr.2020.1101.5017

Pagán-Torres, O.M. Sánchez-Galarza, A., Tollinchi-Natali, N., & González-Rivera, J.A. (2017). Evaluando la relación entre la religiosidad y la salud mental en Puerto Rico: Una revisión sistemática [Evaluating the relationship between religiosity and mental health in Puerto Rico: A systematic review]. *Ciencias de la Conducta, 32*(1), 128-152.

Pargament (1997). *The psychology of religion and coping. Theory, research and practice*. The Guilford Press.

Pargament, K. I., Falb, M. D., Ano, G. G., & Wachholtz, A. B. (2013). The religious dimension of coping: Advances in theory, research, and practice. In R. F. Paloutzian & C. L. Park (Eds.), *Handbook of the psychology of religion and spirituality* (p. 560–579). The Guilford Press.

Pargament, K. I., Feuille, M., & Burdzy, D. (2011). The brief RCOPE: Current psychometric status of a short measure of religious coping. *Religions, 2*(1), 51–76.

Park, C.L., Masters, K.S., Salsman, J.M., Wachholtz, A., Clements, A.D., Salmoirago-Blotcher, E…Wischenka, D.M. (2017). Advancing our understanding of religion and spirituality in the context of behavioral medicine. *Journal of Behavioral Medicine, 40*, 39-51.

Pew Research Center (2014). *Religion in Latin America widespread change in a historically catholic region*. Recuperado de: https://www.pewforum.org/2014/11/13/religion-in-latin-america/#religious-affiliations-of-latin-americans-and-u-s-hispanics

Remor E. (2006). Psychometric properties of a European Spanish version of the Perceived Stress Scale (PSS). *The Spanish Journal of Psychology, 9*(1), 86-93.

Richmond, J. M., Elliott, A. N., Pierce, T. W., Aspelmeier, J. E., & Alexander, A. A. (2009). Polyvictimization, childhood victimization, and psychological distress in college women. *Child Maltreatment*, *14*(2), 127–147. https://doi.org/10.1177/1077559508326357

Ringle, C. M., Wende, S., & Becker, J.M. (2015). *SmartPLS 3*. SmartPLS.

Ryff, C., & Keyes, C. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69*(4), 719-727. DOI: 10.1037/0022-3514.69.4.719

Scarano, F.A. (2008). *Puerto Rico: Cinco siglos de historia [Puerto Rico: Five centuries of history]*. McGraw-Hill Interamericana Editores.

Snoep, L. (2008). Religiousness and happiness in three nations: A research not. *Journal of Happiness Studies, 9*, 207-2121.

Spitzer, R. L., Kroenke, K., Williams, J. B. W., Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine, 166*(10), 1092–1097. https://doi.org/10.1001/archinte.166.10.1092

Wong, K.K. (2019). *Mastering Partial Least Squares Structural Equation Modeling (PLS-SEM) with SMART-PLS in 38 Hours* Universe.