

RESEARCH

Open Access



The effect of religious coping and prosocial behaviors on secondary traumatic stress in nurses

Yakup Sarpdağı¹ , Muhammet Faruk Yiğit¹ , Ebubekir Kaplan¹ , Özkan Sir¹ , Necmettin Çiftci² , Hakan Orakçı¹ and Metin Yıldız^{3*}

Abstract

Background Nurses are routinely exposed to traumatic events as part of their professional duties, placing them at risk of developing secondary traumatic stress (STS). This condition can negatively impact both their psychological well-being and job performance. Although religious coping strategies and prosocial behaviors are thought to play a protective role against STS, these effects remain understudied in the literature.

Methods This descriptive and cross-sectional study was conducted with the participation of 516 nurses. Data were collected between April and August 2024 using the 'Sociodemographic Data Form', Religious Coping Scale, 'Prosocial Behavior Scale' and 'Secondary Traumatic Stress Scale'. In the study, hierarchical regression analysis was applied to examine the effect of independent variables on the dependent variable.

Results 58.6% of the nurses were between the ages of 18–31, 58.4% were undergraduate graduates, and 82.6% had experienced a traumatic event. The mean score of prosocial behavior was 3.04 ± 0.63 and the mean score of secondary traumatic stress was 48.98 ± 13.52 . Positive religious coping (mean = 20.02 ± 4.31) showed a moderate negative correlation with secondary traumatic stress ($r = -0.563$, $p = 0.001$). Hierarchical regression revealed that religious coping strategies (positive and negative religious coping) alone explained 31.8% of the variance in secondary traumatic stress ($R^2 = 0.318$), and when prosocial behavior was added, this percentage increased to 33.9%.

Conclusions This study highlights the critical role of positive religious coping and prosocial behavior in reducing secondary traumatic stress among nurses frequently exposed to traumatic events. Positive religious coping emerged as the strongest protective factor, while prosocial behavior also contributed significantly to the reduction of stress levels. Strengthening positive coping mechanisms and promoting prosocial behaviors may be effective strategies to support nurses' mental health and resilience in trauma intensive care settings.

Clinical implications Positive religious coping and prosocial behaviors were found to be effective in reducing nurses' secondary traumatic stress. It is recommended that training and support programmes that support nurses' positive coping skills should be expanded in clinical practice.

Keywords Nursing, Secondary traumatic stress, Positive religious coping, Prosocial behavior

*Correspondence:
Metin Yıldız
metinyildiz@sakarya.edu.tr

¹Faculty of Health Sciences, Van Yüzüncü Yıl University, Van, Turkey

²Faculty of Health Sciences, Mus Alparslan University, Muş, Turkey

³Faculty of Health Sciences, Sakarya University, Sakarya, Turkey



© The Author(s) 2025. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

Introduction

Nurses are health professionals who spend the most time with patients, cover all areas of the health care network and experience significant work stress [1]. Stress is internationally recognised as a work hazard for nurses [2]. Especially nurses caring for traumatised patients face the risk of secondary traumatic stress (STS) [3–5].

STS is a naturally stressful behavior that results from indirect exposure to the trauma of those who are injured and suffering in the process of helping them [6]. Nurses may experience indirect trauma symptoms due to their frequent exposure to human suffering, including post-traumatic stress disorder, avoidance, arousal and re-experiencing [7]. Research shows that STS is highly prevalent among nurses [8, 9]. The prevalence varies between 39.0% and 77.9%, especially in departments such as emergency services, oncology, psychiatry and paediatrics where work is performed under intense stress [9–13]. Direct or indirect exposure to traumatic events is reported to have far-reaching psychological and physical consequences [14, 15]. In this context, it is of great importance for nurses to develop strategies to cope with STS. Effective coping methods with stress are very important for maintaining professional harmony and providing quality care [16]. Religious coping and prosocial behaviors stand out as promising approaches in this regard [2, 17, 18].

Religious coping is a process in which individuals use religious feelings, thoughts and behaviors to reduce psychological distress such as stress and anxiety [19, 20]. People can find refuge and solace in religious beliefs after sudden changes or traumatic events in their lives [21]. Pargament (1997) notes that religious coping is distinct from non-religious strategies and uniquely supports psychosocial well-being. It includes positive coping (trust in God and a positive worldview) and negative coping (spiritual struggles and distress) [22]. Religious coping is a widely used strategy for nurses to cope with stressful situations and has the potential to increase psychological resilience [2, 19]. Religious coping strategies have significant effects on stress resilience, emotion regulation and burnout in nurses [17].

In addition to religious coping strategies, prosocial behaviors also play a key role in managing stress. It has been suggested that these behaviors can strengthen individuals' self-confidence, social bonds, and emotional resources, thereby helping them to cope with stress [18, 23, 24]. It is also stated that the higher the level of prosocial behavior of an individual, the higher their tendency to use positive coping methods to solve problems [25]. Research shows that prosocial behaviors significantly affect individuals' coping strategies and psychological resilience levels [23, 26–28].

This study aims to fill an important gap in the literature by examining the effect of religious coping and prosocial

behaviors on STS in nurses. The main motivation of this study is that there is no study in which religious coping and prosocial behaviors are examined together and their relationship with STS is systematically examined. In the existing literature, it has been observed that the protective/nutritive role of religious and prosocial factors on STS in high-risk groups such as nurses has not been sufficiently investigated. This study aims to fill this gap and lay the groundwork for new psychological and spiritual intervention strategies to increase the occupational resilience of nurses.

Hypotheses

H1 There is a negative relationship between positive religious coping and STS in nurses.

H2 There is a negative relationship between prosocial behavior and STS in nurses.

H3 Prosocial behavior moderates the relationship between religious coping and STS in nurses.

Methods

The aim of the study

The aim of this study was to examine the effect of nurses' religious coping methods and prosocial behaviors on their secondary traumatic stress levels.

Study design

This study was designed as a descriptive and cross-sectional study to examine the effect of religious coping and prosocial behaviors on secondary traumatic stress in nurses. The study was conducted in a university hospital located in the eastern region of Turkey. The data collection process was carried out between April and August 2024. The selected hospital is a tertiary healthcare institution providing comprehensive medical services across various specialised clinical units, including internal medicine, surgery, intensive care, emergency care, and psychiatry. As a major referral centre in the region, it serves a diverse patient population and employs a large number of nurses from different clinical backgrounds. The inclusion of this hospital was purposeful, as it offers exposure to high-stress healthcare environments and a multicultural workforce, enhancing the relevance and transferability of the findings to similar healthcare settings.

Setting and samples

The population of the study consisted of 645 nurses working in a university hospital. To maximise generalisability and avoid sampling bias, we aimed to include the entire nursing population without applying any sampling method. In the power analysis performed using G*Power 3.1.9.7 software, Cohen's low effect size ($d=0.2$) was

calculated as at least 327 participants considering $P = 95\%$ power and $\alpha = 0.05$ margin of error [29].

Recruitment was conducted through direct communication with nursing service management. Following institutional approval, nurses were invited to participate in the study during working hours. Participation was voluntary, and the nurses were informed of the study's purpose and assured of confidentiality. Data were collected based on self-reporting. Of the 645 eligible nurses, 516 agreed to participate, giving a response rate of 80%. The inclusion criteria were that the nurse was actively working in any clinic and voluntarily agreed to participate in the study. Individuals who did not meet these criteria or refused to participate in the study were excluded. The STROBE guidelines were used to report this research paper [30].

Data collection tools

The data of this study were collected by using the demographic information form prepared by the researchers by examining the relevant literature and the Religious Coping Scale, Prosocial Behavior Scale and Secondary Traumatic Stress Scale, whose Turkish validity and reliability studies were conducted.

Demographic characteristics form

The demographic characteristics form consists of a total of 9 items including gender, age, education level, monthly income, marital status, years of employment, unit of employment, traumatic event and frequency of traumatic event.

Religious coping scale

The scale was developed by Abu-Raiya and colleagues (2008) [31] and adapted to Turkish culture by Ekşi and Sayın (2016) [32]. The scale comprises 10 items in total and is structured around two subscales. Items 1 to 7 assess positive religious coping, while items 8 to 10 assess negative religious coping. The scale does not provide an overall total score; instead, the two subscales are scored and interpreted separately. For the positive religious coping subscale, scores range from 7 to 28, with higher scores indicating a greater reliance on positive religious coping strategies. Similarly, for the negative religious coping subscale, scores range from 3 to 12, with higher scores reflecting a greater reliance on negative religious coping strategies. In the original adaptation study, the internal consistency (Cronbach's alpha) was reported as 0.91 for the positive religious coping subscale and 0.86 for the negative religious coping subscale [32]. In the present study, Cronbach's alpha coefficients were found to be 0.82 and 0.86 for the positive and negative religious coping subscales, respectively, indicating good internal reliability.

Prosocial behavior scale

The original Prosocial Service Behavior Scale developed by Ackfeldt and Wong (2006) consists of 21 items measuring three dimensions: extra-role service behavior, in-role service behavior, and cooperation behavior [33]. In adapting this scale to Turkish, Öcal and Sarnıç (2017) reduced it to two dimensions through expert evaluation (in-role: 7 items; extra-role: 13 items) to better measure the hypothesized constructs, resulting in a 20-item version. The scale employs a 5-point Likert-type response format (1: strongly disagree – 5: strongly agree) and contains no reverse-coded items. Scoring is based on arithmetic mean (range 1–5), with higher scores indicating greater levels of prosocial behavior [34]. In the original adaptation study (conducted with marble and cement industry employees), factor loadings ranged between 0.158 and 0.828, and the Cronbach's alpha reliability coefficient was 0.87 [34]. Subsequent analysis by Sucu using the adapted version with healthcare professionals showed improved factor loadings (0.370–0.808) and a Cronbach's alpha of 0.73 [35]. The notable increase in factor loadings (particularly the minimum loading rising from 0.158 to 0.370) suggests the scale demonstrates a more robust factor structure among healthcare professionals. These findings indicate that while the scale maintains validity across different occupational groups, it exhibits particularly strong construct validity in healthcare populations. In the current study, the scale demonstrated good internal consistency with a Cronbach's alpha coefficient of 0.82.

Secondary traumatic stress scale

It was designed by Bride et al. to assess the occupational stress levels of social workers working in the field of child protection [36]. The 17-item scale, structured on a 5-point Likert scale (1: never – 5: very often), aims to measure the stress symptoms of professionals working with trauma victims. The adaptation of the scale to Turkish culture was carried out by Yıldırım et al. [37]. The range of scores that can be obtained from the scale is 17–85, and high scores indicate an increased level of secondary traumatic stress. Cronbach's alpha reliability coefficient for the whole scale, which structurally consists of three sub-dimensions as avoidance (7 items), arousal (5 items) and emotional violation (5 items), was determined as 0.91 [37]. In the study, Cronbach's alpha value of the scale was found to be 0.88.

Data collection procedure

The individuals who would participate in the study were given detailed information about the purpose, method and duration of participation; it was clearly stated that participation was completely voluntary and would not cause any risk or harm. Verbal consent was first obtained from the participants, and then the written

consent process was completed through informed consent forms. Participant confidentiality and privacy were strictly respected; no identifying personal information was collected. Data were collected through self-report. At the beginning of the interviews, the participants were given detailed explanations about the scope, content and duration of the study, and then the questionnaire forms were delivered to the participants. Each interview lasted 7–10 min on average during the data collection process.

Data analysis

IBM SPSS Statistics 27.0 package programme was used to analyse the data and Skewness and Kurtosis coefficients were examined to evaluate the normality assumption of the distribution. Since these coefficients were in the range of -1.5 and +1.5, it was accepted that the data showed normal distribution [38]. Descriptive statistics (frequency distributions, percentage values, mean and standard deviation) were used to analyse the data collected in the study. Independent Student T-test and One-Way ANOVA test were used to compare sociodemographic data with scale total scores. Pearson correlation analysis was applied to measure the level of relationship between

variables. In addition, the assumptions required for parametric analyses were checked before proceeding to regression analyses. Normality of the residuals was confirmed through histogram plots and normal probability (P-P) plots. Multicollinearity was assessed using Variance Inflation Factor (VIF) values and all VIF scores were below the acceptable threshold of 10, indicating no multicollinearity problem. Homoscedasticity was assessed through scatter plots of the standardized residuals and showed no clear pattern. Autocorrelation was checked using the Durbin-Watson statistic and values close to 2 indicate that there is no significant autocorrelation problem [39]. In the study, hierarchical regression analysis was applied to examine the effect of independent variables on the dependent variable in a stepwise manner. This method offers an effective analysis technique for interpreting complex relationships between variables. The internal consistency levels of the scales were tested with Cronbach's alpha coefficient and the statistical significance level was determined as $p < 0.05$.

Ethical considerations

The study was approved by Muş Alparslan University Scientific Research and Publication Ethics Committee (Date, Number and Decision Number: 07.03.2024-5-53). After ethical approval, institutional permission (Date and Number: 31.03.2024-E-54355720-900-509636) was obtained from Van Yüzüncü Yıl Dursun Odabaş Medical Centre where the study will be conducted. The Helsinki Declaration of Human Rights was adhered to and the protection of individual rights was prioritised.

Results

Of the nurses who participated in the study, 53.1% were male, 58.6% were in the age range of 18–31 years, 58.4% were undergraduate graduates, 53.9% had income less than expenses, 54.3% were married, 30.4% had more than 11 years of professional experience, 37.4% worked in internal/surgical units, 82.6% had experienced a traumatic event and 39.5% had experienced a traumatic event very frequently (Table 1).

The mean score of the prosocial behavior scale was 3.04 ± 0.63 and the mean score of the STS scale was 48.98 ± 13.52 . In the Religious Coping Scale, the mean score of positive religious coping was 20.02 ± 4.31 and the mean score of negative religious coping was 6.08 ± 2.37 (Table 2).

In the analyses performed according to the socio-demographic characteristics of the nurses, the difference between the mean scores of the Prosocial Behavior Scale, STS, Positive and Negative Religious Coping Scale and the characteristics such as age, gender, income status, educational status, years of employment, and unit of employment was not statistically significant ($p > 0.05$). It

Table 1 Characteristics of individuals (N = 516)

		n	%
Gender	Male	274	53.1
	Female	242	46.9
Age	18–31	302	58.6
	32–45	203	39.3
	Aged 46 and above	11	2.1
Educational Status	High School	182	35.3
	Undergraduate	301	58.4
	Postgraduate	33	6.3
Monthly Income Level	Income is less than expenses	278	53.8
	Income equals expenses	119	23.1
	Income exceeds expenses	119	23.1
Marital Status	Married	280	54.3
	Single	236	45.7
Year of employment	2 year ≤	88	17.1
	3–5 year	125	24.2
	6–10 year	146	28.3
	≥ 11 year	157	30.4
Your department	Internal/Surgical Units	193	37.4
	Intensive Care Units	88	17.1
	Operating Rooms	108	20.9
	Other (Emergency, polyclinic etc.)	127	24.6
Coming across a traumatic event in the unit where he/she works	Yes	426	82.6
	No	90	17.4
Frequency of encountering a traumatic event in the unit where they work	Nothing	90	17.5
	Occasionally	222	43.0
	Frequently	204	39.5

Table 2 Total scale scores and Min-Max values of individuals with nurses ($N=516$)

	M ± SD	Min-Max	Skewness	Kurtosis
Prosocial Behavior Scale	3.04 ± 0.63	1.30–4.60	0.032	−0.656
Secondary Traumatic Stress Scale	48.98 ± 13.52	19–82	0.450	−0.508
Positive Religious Coping	20.02 ± 4.31	7–28	−0.682	−0.060
Negative Religious Coping	6.08 ± 2.37	3–12	0.206	−1.063

M: mean, SD: Standard deviation

was determined that the difference between the status of experiencing a traumatic event in the units where the nurses worked and the STS and Positive Religious Coping was statistically significant ($p < 0.05$). Positive Religious Coping scores of nurses who were married were statistically significant ($p < 0.005$) (Table 3).

A moderate negative correlation was found between the mean score of Prosocial Behavior and the mean score of STS ($r = -0.333$; $p = 0.001$). A moderate positive correlation was found between the mean score of Prosocial Behavior and the mean score of Positive Religious Coping ($r = 0.342$; $p = 0.001$); however, a weak negative correlation was found with the mean score of Negative Religious Coping ($r = -0.152$; $p = 0.001$). While a moderate negative correlation was found between the mean score of STS and the mean score of positive religious coping ($r = -0.563$; $p = 0.001$), a weak positive correlation was found with the mean score of negative religious coping ($r = 0.220$; $p = 0.001$) (Table 4).

When the analysis results of the hierarchical regression models established to reveal the effects of religious coping and prosocial behavior levels on the level of STS are examined, 95.0% Confidence Interval for B.

The statistical estimates of Model 1 are statistically significant and explain a significant proportion of the variance in the outcome variable ($F(2, 513) = 119.344$;

Table 3 Comparison of total prosocial behavior scale, secondary traumatic stress scale and positive-negative religious coping scores according to Socio-demographic characteristics of nurses ($N=516$)

Characteristics		Prosocial Behavior Scale		Secondary Traumatic Stress Scale		Positive Religious Coping		Negative Religious Coping	
		M ± SD		M ± SD		M ± SD		M ± SD	
Gender ^a	Female	3.06 ± 0.64	$t = -0.825$	49.40 ± 13.28	$t = -0.666$	20.16 ± 4.21	$t = -0.703$	6.11 ± 2.41	$t = -0.293$
	Male	3.02 ± 0.62	$p = 0.410$	48.60 ± 13.74	$p = 0.505$	19.89 ± 4.39	$p = 0.483$	6.05 ± 2.34	$p = 0.770$
Age ^b	18–31	3.09 ± 0.64	$F = 2.257$	48.03 ± 13.39	$F = 1.991$	20.19 ± 4.33	$F = 0.737$	6.14 ± 2.42	$F = 0.457$
	32–45	2.97 ± 0.62	$p = 0.106$	50.17 ± 13.61	$p = 0.138$	19.74 ± 4.35	$p = 0.479$	6.02 ± 2.34	$p = 0.633$
	Aged 46 and above	2.98 ± 0.49		52.90 ± 14.09		20.54 ± 2.33		5.54 ± 1.69	
Marital Status ^a	Married	3.06 ± 0.61	$t = 0.885$	48.11 ± 13.27	$t = -1.598$	20.45 ± 3.97	$t = 2.428$	5.95 ± 2.41	$t = -1.355$
	Single	3.01 ± 0.65	$p = 0.376$	20.01 ± 13.77	$p = 0.111$	19.51 ± 4.63	$p = 0.016^*$	6.24 ± 2.33	$p = 0.176$
Educational Status ^b	High School	2.99 ± 0.67	$F = 1.350$	49.03 ± 13.27	$F = 0.053$	20.26 ± 4.34	$F = 1.931$	6.09 ± 2.47	$F = 0.341$
	Undergraduate	3.05 ± 0.60	$p = 0.260$	49.04 ± 13.65	$p = 0.949$	19.75 ± 4.26	$p = 0.146$	6.11 ± 2.36	$p = 0.711$
	Postgraduate	3.17 ± 0.66		48.24 ± 14.04		21.12 ± 4.47		5.75 ± 1.95	
Monthly Income Level ^b	Income is less than expenses	3.05 ± 0.62	$F = 2.274$	48.52 ± 12.73	$F = 3.100$	20.18 ± 4.21	$F = 1.121$	6.16 ± 1.79	$F = 0.677$
	Income equals expenses		$p = 0.104$		$p = 0.066$		$p = 0.327$		$p = 0.509$
	Income exceeds expenses	3.11 ± 0.58		47.46 ± 12.68		20.16 ± 4.18		5.86 ± 2.29	
Year of employment ^b	2 year ≤	3.02 ± 0.68	$F = 1.658$	48.47 ± 13.19	$F = 2.454$	20.11 ± 4.82	$F = 1.076$	6.39 ± 2.23	$F = 0.776$
	3–5 year	3.12 ± 0.63	$p = 0.175$	49.92 ± 14.45	$p = 0.062$	20.44 ± 4.42	$p = 0.359$	6.03 ± 2.38	$p = 0.508$
	6–10 year	3.06 ± 0.59		46.69 ± 12.09		20.12 ± 4.01		5.91 ± 2.40	
	≥ 11 year	2.96 ± 0.64		50.65 ± 14.00		19.54 ± 4.31		6.11 ± 2.42	
Your department ^b	Internal/Surgical Units	3.10 ± 0.59	$F = 1.471$	48.92 ± 13.53	$F = 0.670$	20.01 ± 4.02	$F = 0.140$	6.15 ± 2.46	$F = 0.142$
	Intensive Care Units	3.08 ± 0.64	$p = 0.222$	47.90 ± 14.92	$p = 0.571$	20.26 ± 4.54	$p = 0.936$	6.13 ± 2.23	$p = 0.935$
	Operating Rooms	2.95 ± 0.67		48.38 ± 12.53		19.86 ± 4.59		6.01 ± 2.32	
	Other (Emergency service, polyclinic etc.)	3.01 ± 0.65		50.32 ± 13.34		20.02 ± 4.36		6.02 ± 2.40	
Traumatic event experiences ^a	Yes	3.06 ± 0.63	$t = 1.441$	48.38 ± 13.18	$t = -2.209$	20.27 ± 4.21	$t = 2.874$	6.05 ± 2.38	$t = -0.739$
	No	2.95 ± 0.65	$p = 0.150$	51.83 ± 14.78	$p = 0.028^*$	18.84 ± 4.58	$p = 0.004^*$	6.25 ± 2.34	$p = 0.460$
Frequency of experiencing a traumatic event ^b	Nothing	3.01 ± 0.64	$F = 0.200$	50.55 ± 15.00	$F = 2.366$	19.39 ± 4.62	$F = 1.271$	6.22 ± 2.39	$F = 0.509$
	Occasionally	3.06 ± 0.60	$p = 0.819$	49.77 ± 13.66	$p = 0.095$	20.07 ± 4.02	$p = 0.281$	5.96 ± 2.42	$p = 0.602$
	Frequently	3.03 ± 0.66		47.42 ± 12.56		20.25 ± 4.46		6.15 ± 2.32	

^at: Independent Sample T-test, ^bF: One-way ANOVA, M: Mean, SD: Standard Deviation, * $p < 0.05$

Table 4 Correlation analysis results among prosocial behavior, secondary traumatic stress, positive religious coping and negative religious coping in nurses ($N=516$)

	1	2	3	4
1-Prosocial Behavior Scale	1			
2-Secondary Traumatic Stress Scale	$r=-0.371$ $p=0.001^{**}$	1		
3-Positive Religious Coping	$r=0.424$ $p=0.001^{**}$	$r=-0.563$ $p=0.001^{**}$	1	
4-Negative Religious Coping	$r=-0.112$ $p=0.011^{**}$	$r=0.220$ $p=0.001^{**}$	$r=-0.354$ $p=0.001^{**}$	1

r: Pearson correlation

$p<0.001$). Positive religious coping and negative religious coping together explained 31.8% of the total variance in secondary traumatic stress ($R^2 = 0.318$). When the t-test results of the regression coefficients were analyzed, it was found that positive religious coping significantly predicted the decrease in STS ($\beta = -0.555$; $t = -14.223$; $p<0.001$). On the other hand, negative religious coping was not a significant predictor of STS ($\beta = 0.024$; $t=0.610$; $p=0.542$) (Table 5).

In Model 2, where prosocial behavior was added to the model, the regression model remained significant ($F(3, 512)=87.614$; $p<0.001$). The explained variance increased to 33.9% ($R^2 = 0.339$), indicating a 2.2% increase in the variance explained ($\Delta R^2 = 0.022$) compared to Model 1. In this model, positive religious coping ($\beta = -0.483$; $t = -11.452$; $p<0.001$) and prosocial behavior ($\beta = -0.163$; $t = -4.099$; $p<0.001$) were significant negative predictors of STS, while negative religious coping remained non-significant ($\beta = 0.031$; $t=0.801$; $p=0.423$). These findings suggest that the combination of positive religious coping and prosocial behavior provides a better prediction of lower STS levels in nurses (Table 5).

Discussion

In this section, the effects of religious coping strategies and prosocial behaviors on STS among nurses are discussed in comparison with the existing literature.

This study found that higher prosocial behavior among nurses was associated with significantly lower levels of STS. Nurses, due to their constant exposure to traumatised individuals, face a heightened risk of indirect trauma, which can lead to negative psychological outcomes like STS [40]. In the literature, it has been shown that traumatic life events, work-related stress and personal distress are positively associated with STS in healthcare workers, whereas perceived social support decreases STS [40]. Studies have shown that perceived social support is a predictor of prosocial behaviors exhibited by individuals [41, 42]. Although there is no study directly investigating the relationship between prosocial behavior and STS in nurses, studies examining similar psychological constructs indirectly support this relationship. For example, in a study conducted with paediatric nurses, a negative relationship was found between post-traumatic growth and STS [43], and in other studies, prosocial behavior was shown to predict posttraumatic growth [44]. In addition, it was determined that psychological resilience was negatively related to STS in nurses [45], and there was a positive relationship between psychological resilience and prosocial behavior [25]. In light of these findings, it can be concluded that prosocial behavior may reduce STS by enhancing resilience and posttraumatic growth. The negative correlation between prosocial behavior and STS observed in this study is consistent with previous literature. Adopting a helpful attitude towards patients and colleagues, offering support

Table 5 The effects of positive religious coping and prosocial behavior on secondary traumatic stress

Predictive Variables	Secondary Traumatic Stress (Dependent variable)					95,0% Confidence Interval for B	
	B	SD	β	t	p*		
Model 1							
(Constant)	82.980	3.225		25.734	0.001	Lower Bound	Upper Bound
Positive Religious Coping	-1.739	0.122	− 0.555	-14.223	0.001	-1.979	-1.499
Negative Religious Coping	0.135	0.222	0.024	0.610	0.542	− 0.300	0.571
Model 2							
(Constant)	88.814	3.480		25.519	0.001	81.976	95.651
Positive Religious Coping	-1.515	0.132	− 0.483	-11.452	0.001	-1.775	-1.255
Negative Religious Coping	0.175	0.219	0.031	0.801	0.423	− 0.254	0.605
Prosocial Behavior	-3.471	0.847	− 0.163	-4.099	0.001	-5.135	-1.807
R	Model 1: 0.564			Model 2: 0.582			
R ² /Adjusted R ²	Model 1: 0.318/ 0.315			Model 2: 0.339 / 0.335			
R ² Change	Model 1: 0.318			Model 2: 0.022			
F	Model 1: 119,344			Model 2: 87.614			
Durbin- Watson	Model 1: 1.988			Model 2: 2.028			
VIF	Model 1: 1.143			Model 2: 1.222			

Hierarchical Regression Analysis*. $*p<0.001$

and solidarity, may ease the psychological burden and strengthen well-being at individual and team levels.

This study found that higher positive religious coping was linked to lower STS in nurses, consistent with literature showing its protective effect against occupational stress [46, 47]. In addition, in studies that indirectly shed light on this relationship, Lee et al. (2021) reported a positive relationship between perceived stress, burnout and STS in nurses, while Nopa et al. (2023) and Mahamid and Bdier (2021) found that positive religious coping significantly reduced perceived stress [48–50]. These findings support the existence of a negative relationship between positive religious coping and STS. However, in a study conducted in Serbia, no significant relationship was found between religious coping and STS, and this was attributed by the researchers to the fact that religious coping was associated more with passive strategies (e.g., avoidance, submission) [51]. On the other hand, this study found a significant and negative relationship between positive religious coping and STS. These findings suggest that the effect of religious coping may vary according to the cultural context. This is because the teachings and practices of religious systems shape individuals' internal (spiritual) or external (ritual) orientations in different ways and thus affect coping mechanisms [17]. Religion can provide psychological support by facilitating the search for meaning in challenging situations that exceed individuals' coping capacities [17]. These findings highlight cultural differences in the effectiveness of religious coping. The predominance of Muslim participants may have enhanced the protective role of faith-based attitudes, suggesting that they serve as both individual and cultural resources in reducing STS.

This study revealed that positive religious coping and prosocial behavior together reduce secondary traumatic stress (STS) in nurses, accounting for 33.9% of its variance. These results suggest that such psychological resources play a significant role in mitigating stress. Furthermore, the literature highlights that religious coping, with its cognitive, emotional, behavioral and relational dimensions, is a key yet frequently overlooked mechanism for coping with stress and trauma [52–54]. In particular, religious beliefs and practices are negatively associated with secondary traumatic stress [55] and are also reported to have protective effects on physical and mental health [56, 57]. Similarly, prosocial behaviors have been reported to reduce post-traumatic stress symptoms and support psychological growth [58]. In a study conducted on nurses, a significant negative relationship was found between perceived stress and prosocial behavior [59]. In addition, it was reported that a significant positive relationship was found between perceived stress and secondary traumatic stress in nurses [48]. These findings suggest that positive religious coping

strategies and prosocial behaviors are important psychological resources for nurses in managing STS. This may be related to the cultural context, in which religious beliefs provide psychological support and benevolence is a valued social norm. Religious coping strategies, such as prayer, patience and helping, foster inner meaning and resilience, and supportive interactions with colleagues further strengthen this effect, helping to reduce the impact of STS.

Clinical implications

The findings of this study show that nurses' use of positive religious coping strategies and increasing their prosocial behavior levels play an important role in reducing their secondary traumatic stress levels. In order to support the psychological resilience of nurses in health institutions, it is recommended to create programmes that strengthen religious coping skills and work environments that encourage prosocial behavior. In particular, strengthening spiritual support mechanisms and solidarity-based professional culture for nurses who frequently encounter traumatic events may increase job satisfaction, mental health and professional commitment by reducing the negative effects of stress. In addition, the use of religious and cultural values as psychological resources in coping with occupational stress may contribute to the creation of a more resilient and sustainable structure at both individual and organisational levels.

Limitations

The data of this study were collected solely on the basis of participants' self-reports, which may limit the reliability of the results as it may be open to biases such as social desirability bias or recall bias. Since the sample consisted of nurses working in a university hospital in only one province, the generalisability of the findings to nurses or other health professionals working in health institutions in different provinces is limited. The results obtained reflect a specific sociocultural context and may differ in different cultural, institutional and regional conditions. Therefore, it is recommended that future studies should collect data from different geographical regions, various types of hospitals and sociocultural environments and examine the relationships between religious coping, prosocial behavior and secondary traumatic stress in a more comprehensive manner in the light of contextual factors.

Conclusion and recommendations

In this study, significant relationships were found between nurses' positive religious coping strategies and prosocial behavior levels and STS levels. The findings indicate that positive religious coping and prosocial behaviors together have a protective effect on STS. Regression analyses revealed that these two variables

together explained 33.9% of the STS variance and that positive religious coping in particular led to a significant reduction in STS levels. These results suggest that supportive religious coping mechanisms and prosocial behavioral attitudes may be important for nurses to cope with STS. Future research is recommended to evaluate the effectiveness of programs designed to strengthen religious coping and prosocial behaviors, ideally intervention studies using experimental or longitudinal designs to better determine causality and long-term effects.

Acknowledgements

We would like to express our sincere thanks to everyone who supported and contributed to this research.

Author contributions

Conceptualization: Y.S., M.F.Y., E.K., Ö.S., H.O., N.Ç., M.Y.; Methodology: Y.S., E.K., Ö.S., M.Y.; Software: Y.S., E.K., M.F.Y., M.Y.; Validation: Y.S., Ö.S.; Investigation: Y.S., E.K., Ö.S.; Resources: M.F.Y., M.Y.; Data curation: Y.S., M.F.Y., H.O.; Writing – original draft preparation: Y.S., E.K., Ö.S., M.Y., N.Ç.; Writing – review and editing: Y.S., E.K., Ö.S., M.Y., M.F.Y., H.O., N.Ç.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Data availability

No datasets were generated or analysed during the current study.

Declarations

Consent for publication

All authors have given their consent for publication.

Competing interests

The authors declare no competing interests.

Received: 29 April 2025 / Accepted: 25 July 2025

Published online: 07 August 2025

References

1. Aberhe W, Mariye T, Bahrey D, Hailay A, Mebrahtom G, Zereabruk K, et al. Job stress among nurses in ethiopia: A systematic review and meta-analysis. *Int J Afr Nurs Sci*. 2024;20:100661.
2. Nopa I, Kurniawidjaja LM, Erwandi D. Religious coping strategies for nurses' work related stress: a scoping review. *Contag Sci Period J Public Heal Coast Heal*. 2023;5:435.
3. Ratrout HF, Hamdan-Mansour AM. Secondary traumatic stress among emergency nurses: prevalence, predictors, and consequences. *Int J Nurs Pract*. 2020;26.
4. Shoji K, Noguchi N, Waki F, Saito T, Kitano M, Edo N, et al. Empathy and coping strategies predict quality of life in Japanese healthcare professionals. *Behav Sci (Basel)*. 2024;14:400.
5. Xu Z, Zhao B, Zhang Z, Wang X, Jiang Y, Zhang M et al. Prevalence and associated factors of secondary traumatic stress in emergency nurses: a systematic review and meta-analysis. *Eur J Psychotraumatol*. 2024;15.
6. Lin M, Wang JL, He HJ, Li JW, Zhuang LL. Study on the current status and influencing factors of clinical nurses' posttraumatic growth. *Med Soc (Berkeley)*. 2020;33:82–5.
7. Civljak M, Stivic I, Puljak L. Secondary traumatic stress in working nurses studying part time in a bachelor or master's nursing program in croatia: a cross-sectional study. *BMC Nurs*. 2024;23:22.
8. Zhang Y-Y, Han W-L, Qin W, Yin H-X, Zhang C-F, Kong C, et al. Extent of compassion satisfaction, compassion fatigue and burnout in nursing: A meta-analysis. *J Nurs Manag*. 2018;26:810–9.
9. Wang J, Okoli CTC, He H, Feng F, Li J, Zhuang L, et al. Factors associated with compassion satisfaction, burnout, and secondary traumatic stress among Chinese nurses in tertiary hospitals: a cross-sectional study. *Int J Nurs Stud*. 2020;102:103472.
10. Duffy E, Avalos G, Dowling M. Secondary traumatic stress among emergency nurses: a cross-sectional study. *Int Emerg Nurs*. 2015;23:53–8.
11. Kellogg MB, Knight M, Dowling JS, Crawford SL. Secondary traumatic stress in pediatric nurses. *J Pediatr Nurs*. 2018;43:97–103.
12. Mangoulia P, Koukia E, Alevizopoulos G, Fildissis G, Katostaras T. Prevalence of secondary traumatic stress among psychiatric nurses in Greece. *Arch Psychiatr Nurs*. 2015;29:333–8.
13. Morrison LE, Joy JP. Secondary traumatic stress in the emergency department. *J Adv Nurs*. 2016;72:2894–906.
14. Anjum G, Aziz M, Hamid HK. Life and mental health in limbo of the Ukraine war: how can helpers assist civilians, asylum seekers and refugees affected by the war? *Front Psychol*. 2023;14:1129299.
15. Segev R. Learning from critical care nurses' wartime experiences and their long-term impacts. *Nurs Crit Care*. 2023;28:253–60.
16. Kelle Dikbaş Ş, Okanlı A. Hemşirelerde İkincil travmatik Stres ve stresle Başa Çıkma Tarzları Arasındaki İlişki. *Sağlık Bilim Üniversitesi Hemşirelik Derg*. 2022;4:7–14.
17. Perera CK, Pandey R, Srivastava AK. Role of religion and spirituality in stress management among nurses. *Psychol Stud (Mysore)*. 2018;63:187–99.
18. Raposa EB, Laws HB, Ansell EB. Prosocial behavior mitigates the negative effects of stress in everyday life. *Clin Psychol Sci*. 2016;4:691–8.
19. Demir OB, Yılmaz FT. Religious coping and fatalism on perception of care burden in caregivers of patients with cerebral palsy in turkey: A Cross-Sectional and correlational study. *J Relig Health*. 2024;63:2745–59.
20. Altıntaş S. Is it possible religious coping with depression? *J Acad Soc Sci Stud*. 2015;6:36:403–403.
21. Karaca A, Konuk Şener D. Spirituality as a coping method for mothers of children with developmental disabilities. *Int J Dev Disabil*. 2021;67:112–20.
22. Pargament KI. The psychology of religion and coping: theory, research, Practice. 1st edition. New York: The Guilford Press; 1997.
23. Moore QL, Kulesza C, Kimbro R, Flores D, Jackson F. The role of prosocial behavior in promoting physical activity, as an indicator of resilience, in a Low-Income neighborhood. *Behav Med*. 2020;46:353–65.
24. Neufeld A, Malin G. Need fulfillment and resilience mediate the relationship between mindfulness and coping in medical students. *Teach Learn Med*. 2022;34:78–88.
25. Wan X, Huang H, Zhang Y, Peng Q, Guo X, Wu S, et al. The effect of prosocial behaviours on Chinese undergraduate nursing students' subjective well-being: the mediating role of psychological resilience and coping styles. *Int J Ment Health Nurs*. 2023;32:277–89.
26. Xie W, Liang C, Xiang D, Chen F, Wang J. Resilience, anxiety and depression, coping style, social support and their correlation in parents of premature infants undergoing outpatient fundus examination for retinopathy of prematurity. *Psychol Health Med*. 2021;26:1091–9.
27. Trigueros R, Mercader I, González-Bernal JJ, Aguilar-Parra JM, González-Santos J, Navarro-Gómez N, et al. The influence of the trainer's social behaviors on the resilience, anxiety, stress, depression and eating habits of athletes. *Nutrients*. 2020;12:2405.
28. Thompson G, McBride RB, Hosford CC, Halaas G. Resilience among medical students: the role of coping style and social support. *Teach Learn Med*. 2016;28:174–82.
29. Cohen J. Statistical power analysis current directions. *Psychol Sci*. 1992;1:98–101.
30. Vandembroucke JP, von Elm E, Altman DG, Gøtzsche PC, Mulrow CD, Pocock SJ, et al. Strengthening the reporting of observational studies in epidemiology (STROBE). *Epidemiology*. 2007;18:805–35.
31. Abu Raiya H, Pargament KI, Mahoney A, Stein C. A psychological measure of Islamic religiousness: development and evidence for reliability and validity. *Int J Psychol Relig*. 2008;18:291–315.
32. Ekşi H, Sayın M. The adaptation of Religious Coping Scale into Turkish language: A study of bilingual equivalence, validity and reliability. In: AGP Humanities and Social Sciences Conference. 2016. pp. 19–22.
33. Ackfeldt A-L, Wong V. The antecedents of prosocial service behaviours: an empirical investigation. *Serv Ind J*. 2006;26:727–45.
34. Öcal H, Sarınc A. The effects of transformative leadership on prosocial organizational behavior: a research in the manufacturing industry. *J Econ Adm Sci*. 2017;19:107–25.

35. Sucu M. A research to explore the relationship between the emotional intelligence and prosocial behaviors of healthcare employees during the pandemic Period. *J Adm Sci*. 2020;19:665–98.
36. Bride BE. Prevalence of secondary traumatic stress among social workers. *Soc Work*. 2007;52:63–70.
37. Yildirim G, Kidak L, Yurdabakan I. Secondary traumatic stress scale: an adaptation study. *Anatol J Psychiatry*. 2018;19:45–51.
38. Tabachnick BG, Fidell LS, Ullman JB. Using multivariate statistics. 6th edition. Boston, MA: Pearson; 2013.
39. Flatt C, Jacobs RL. Principle assumptions of regression analysis: testing, techniques, and statistical reporting of imperfect data sets. *Adv Dev Hum Resour*. 2019;21:484–502.
40. Kitano M, Shoji K, Nakaita I, Sano S, Tachibana S, Shigemura J, et al. Japanese public health nurses classified based on empathy and secondary traumatic stress: variable-centered and person-centered approaches. *BMC Psychiatry*. 2023;23:710.
41. Esparza-Reig J, Martí-Vilar M, González-Sala F, Merino-Soto C, Toledano-Toledano F. Social support and resilience as predictors of prosocial behaviors before and during COVID-19. *Healthcare*. 2022;10:1669.
42. Simpson B, Harrell A, Melamed D, Heiserman N, Negraia DV. The roots of reciprocity: gratitude and reputation in generalized exchange systems. *Am Sociol Rev*. 2018;83:88–110.
43. Hamama-Raz Y, Hamama L, Pat-Horenczyk R, Stokar YN, Zilberstein T, Bron-Harlev E. Posttraumatic growth and burnout in pediatric nurses: the mediating role of secondary traumatization and the moderating role of meaning in work. *Stress Heal*. 2021;37:442–53.
44. El-Gabalawy R, Mackenzie CS, Starzyk KB, Sommer JL. Understanding the relationship between traumatic suffering, posttraumatic growth, and prosocial variables. *J Am Coll Heal*. 2021;69:710–8.
45. Ogińska-Bulik N, Michalska P. Psychological resilience and secondary traumatic stress in nurses working with terminally ill patients—The mediating role of job burnout. *Psychol Serv*. 2021;18:398–405.
46. Mirzaei A, Mozaffari N, Habibi Soola A. Occupational stress and its relationship with spiritual coping among emergency department nurses and emergency medical services staff. *Int Emerg Nurs*. 2022;62:101170.
47. Charzyńska E. Multidimensional approach toward spiritual coping: construction and validation of the spiritual coping questionnaire (SCQ). *J Relig Health*. 2015;54:1629–46.
48. Lee H, Baek W, Lim A, Lee D, Pang Y, Kim O. Secondary traumatic stress and compassion satisfaction mediate the association between stress and burnout among Korean hospital nurses: a cross-sectional study. *BMC Nurs*. 2021;20:115.
49. Nopa I, Kurniawidjaja LM, Erwandi D. Religious coping strategies for nurses' work related stress: A scoping review. *Contagion Sci Period J Public Heal Coast Heal*. 2023;5:435–50.
50. Mahamid FA, Bdier D. The association between positive religious coping, perceived stress, and depressive symptoms during the spread of coronavirus (COVID-19) among a sample of adults in palestine: across sectional study. *J Relig Health*. 2021;60:34–49.
51. Vukčević Marković M, Živanović M. Coping with secondary traumatic stress. *Int J Environ Res Public Health*. 2022;19:12881.
52. Ozcan O, Hoelterhoff M, Wylie E. Faith and spirituality as psychological coping mechanism among female aid workers: a qualitative study. *J Int Humanit Action*. 2021;6:15.
53. Dolcos F, Hohl K, Hu Y, Dolcos S. Religiosity and resilience: cognitive reappraisal and coping self-efficacy mediate the link between religious coping and Well-Being. *J Relig Health*. 2021;60:2892–905.
54. O'Connell-Persaud S, Isaacson MJ. Undergraduate nursing students' spirituality and perceived ability to provide spiritual care: A Mixed-Method study. *J Holist Nurs*. 2022;40:36–45.
55. Roy M, Naik AR. The influence of religion and belief on mental healthcare professionals' compassion satisfaction, resilience and coping styles. *J Relig Spiritual Soc Work Soc Thought*. 2025;44:17–26.
56. Cruz JP, Colet PC, Alquwez N, Inocian EP, Al-Otaibi RS, Islam SMS. Influence of religiosity and spiritual coping on health-related quality of life in Saudi haemodialysis patients. *Hemodial Int*. 2017;21:125–32.
57. Cruz JP, Alshammari F, Alotaibi KA, Colet PC. Spirituality and spiritual care perspectives among baccalaureate nursing students in Saudi arabia: A cross-sectional study. *Nurse Educ Today*. 2017;49:156–62.
58. Xu D, Li Y, Ye Y. Turning pain into strength: prosocial behaviours in coping with trauma. *Eur J Psychotraumatol*. 2024;15.
59. Meng L, Peng L, Dai T, Li P. An analysis of the mediating effect of self-compassion on perceived stress and prosocial behavior among intensive care unit nurses. In: 2020 International Conference on Public Health and Data Science (ICPHDS). IEEE; 2020. pp. 389–93.

Publisher's note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.