

THE MEDIATING ROLE OF JOB SATISFACTION IN THE RELATIONSHIP BETWEEN SOCIAL SUPPORT AND THE CONSEQUENCES OF SECONDARY EXPOSURE TO TRAUMA AMONG MEDICAL PROVIDERS WORKING WITH TRAUMA VICTIMS

PIOTR JERZY GUROWIEC¹, NINA OGIŃSKA- BULIK², PAULINA MICHALSKA²

¹ Medical University of Silesia in Katowice, Katowice, Poland

Faculty of Health Sciences, Department of Electrophysiology, Department of Electrophysiology and Heart Failure

² University of Lodz, Łódź, Poland

Institute of Psychology, Department of Health Psychology

Abstract

Objectives: Medical providers working with trauma survivors are exposed to the negative and positive effects of secondary trauma, both of which are affected by social support and job satisfaction. The aim of this study was to determine the mediating role of job satisfaction in the relationship between social support and the negative and positive effects of secondary exposure to trauma among medical personnel. The negative indicator of such exposure was secondary traumatic stress (STS), while the positive indicator was secondary posttraumatic growth (SPTG).

Material and Methods: The analyses included 419 medical providers working with trauma victims (201 paramedics and 218 nurses). Data was collected with the *Secondary Traumatic Stress Inventory*, *Secondary Posttraumatic Growth Inventory*, *Social Support Scale*, *Work Satisfaction Scale*, and survey. Mediation analyses were applied to assess relationships between variables. **Results:** The mediation analyses indicated that job satisfaction mediates (mainly partly) the relationship between social support and STS and SPTG. This may indicate that both social support and job satisfaction act as significant predictors of the negative and positive effects of secondary exposure to trauma. **Conclusions:** As a friendly and mutually-supportive environment can increase job satisfaction, reducing the risk of secondary traumatic stress and promoting positive posttraumatic changes, it is important to increase social support and job satisfaction among medical providers exposed to secondary trauma. *Int J Occup Med Environ Health*. 2023;36(4)

Key words:

social support, job satisfaction, medical providers, medical providers working with trauma victims, secondary traumatic stress, secondary posttraumatic growth

Funding: this research was supported by Institute of Health Sciences, University of Opole grant No. WPBIN 1/19 entitled "Determinants of negative and positive consequences of exposure to secondary trauma in pre-trauma medical personnel," grant manager: Piotr Jerzy Gurowiec)

Received: September 10, 2022. Accepted: July 10, 2023.

Corresponding author: Piotr Jerzy Gurowiec, Medical University of Silesia in Katowice, Faculty of Health Sciences, Department of Electrophysiology, Department of Electrophysiology and Heart Failure, Ziołowa 45/47, 40-635 Katowice, Poland (e-mail: piotr73-1973@tlen.pl).

INTRODUCTION

The secondary traumatic stress (STS) also called secondary traumatic stress disorder (STSD) was a phenomenon described by Figley [1]. Figley defined STS as an emotional and behavioral outcome experienced by a person after gaining knowledge of other individual's traumatic events. The STS is perceived as a professional risk factor among health care professionals, as medical providers regularly have direct contact with those suffering injuries, accidents and illness [2]. While STS symptoms resemble post-traumatic stress disorder (PTSD) symptoms, they result from indirect exposure to the traumatic experiences of others, rather than from direct exposure to traumatic events. The symptoms of STS belong to 4 categories: avoidance, intrusion, negative changes in cognition and/or mood, and increased arousal and reactivity [3]. Also noteworthy is the term compassion fatigue, which also refers to the negative effects of trauma exposure [1].

Available studies indicate a wide prevalence of STS among nurses and other personnel working in emergency medical services, with individuals demonstrating high or severe levels [4]. Nonetheless, study conducted among nurses caring for patients after trauma suggests that secondary traumatic stress is present in only 7% of nurses [5]. The STS is also found in paramedics, with nearly 13% of American paramedic staff meeting the criteria of secondary traumatic stress disorder [6]. The studies from Poland confirm a high level of STS in nurses and paramedics; indeed, medical care providers have been found to display the greatest intensity of STS symptoms among 5 groups of professionals: nurses, paramedics, social workers, therapists and probation officers [7]. The high severity of STS among Polish medical staff exposed to secondary trauma has also been confirmed in subsequent studies [8,9].

Working with people after trauma might be also a source of positive post-traumatic changes, which are most often manifested as secondary post-traumatic (or vicarious)

growth (SPTG/VPTG). Secondary post-traumatic growth is a phenomenon similar to post-traumatic growth (PTG), described by Tedeschi and Calhoun [10] and is observed in individuals who indirectly experience traumatic events. The SPTG itself is described as positive changes that occur as a result of secondary trauma exposure. Just as in the case of PTG, those positive changes relate to the perception of oneself, the relations with others, and one's life philosophy [11]. It is also possible for other positive post-traumatic changes to emerge, such as an increase in practical wisdom and kindness among those working with trauma survivors, an increase in self-esteem, greater acceptance of others, belief in the effectiveness of the action taken, and an appreciation of one's work [12].

Positive post-traumatic changes have been recorded in medical staff, including paramedics and nurses, and those who worked with patients with injuries and illness [9,13]. In addition, a previous study reported higher SPTG scores in medical personnel and therapists than in probation officers and social workers [7].

The positive and negative outcomes of vicarious trauma exposure are influenced by a range of environmental factors, like workload and social support, and individual factors, such as cognitive trauma processing and personal resources. Among these, the factors related to work, and above all to social support and job satisfaction, merit particular attention for STS and SPTG.

Positive and negative consequences of vicarious trauma exposure

The role of social support

Social support can be defined as a certain type of social interaction undertaken by 1 or 2 parties in a problem situation, in which help is exchanged [7]. Analyzing the variable of social support, it should be mentioned that we can distinguish its types (obtained, perceived), forms (instrumental, informational, emotional) and sources (superiors, coworkers, family, friends outside work) [14].

The significance of social support in the process of adaptation to trauma is underlined by the authors of the concept of PTG [10,15]; however, the essential role in the PTG occurrence is played by cognitive trauma processing. Social support may directly, or indirectly, reduce the negative outcomes of vicarious trauma exposure, and promote positive ones, by facilitating the cognitive processing of trauma; this has been confirmed in a study of medical personnel [8,9,16].

Dutton and Rubinstein [17] in their ecological framework of trauma model, emphasize the role of social support as a factor preventing the negative consequences of vicarious trauma exposure. In turn, Tedeschi and Calhoun [10] highlight the value of social support in coping with experienced stress and finding the meaning of traumatic life events, thus potentially favoring the occurrence of post-traumatic growth.

Nonetheless, the accessible data do not give a clear picture of the associations between social support and the outcomes of secondary trauma exposure due to the uncertainty of the social support concept. However, in the event of professionals who worked with survivors of trauma, it seems that support, i.e., from superiors and coworkers, plays a particular role in the environment at work.

Research conducted among health care providers exposed to secondary trauma stressed that support from coworkers plays a key role in relieving symptoms of STS. The support from coworkers or colleagues was also found to be the main negative STS predictor in a group of surveyed nurses [11]. Other studies indicate that support provided by friends and relatives also plays a key role in relieving the negative outcomes of vicarious trauma exposure, mainly among nurses [18,19]. Likewise, Von Rueden et al. [5] also point out that nurses who receive social support from friends and relatives suffered less from STS symptoms than those who did not receive such support. Recent research in this area conducted among Polish medical personnel exposed to secondary trauma

showed that social support was negatively related to STS, but these relationships referred mainly to support from family and friends outside of work [8]. In addition, support from superiors correlated poorly with STS, and support from colleagues was not related to the negative consequences of secondary trauma exposure. Hence, the relationship between social support and the STS appears ambiguous.

The available data from medical personnel or those dealing with mental health highlights the importance of social support from colleagues or co-workers for SPTG development [11]. A Polish study conducted in a group of medical staff exposed to vicarious trauma found that SPTG was positively related with support from all 4 sources included in the study: superiors, co-workers, family and friends outside work [9,16].

The role of job satisfaction

Satisfaction with job means an assessment of the extent to which the experienced job is beneficial or detrimental to the individual. It can be described as a cognitive aspect that involves the formulation of value judgments based on conscious reflection and various comparisons (with others, with ideal, past, typical situations) [20].

Job satisfaction plays a significant role in the development of the effects of vicarious trauma exposure among professionals who worked with victims of trauma. In their Ecological Framework of Trauma model, Dutton and Rubinstein [17] emphasize the role satisfaction with job in averting the negative effects of secondary exposure to trauma. However, few studies have assessed the association between satisfaction with job and outcomes of secondary exposure to trauma, both negative and positive. Satisfaction from helping was found to negatively correlate with symptoms of secondary traumatic stress, burnout or compassion fatigue in a study of nurses [21]. Other studies have found job satisfaction to be negatively associated with STS, and the main pre-

dictor of its symptoms in Polish medical staff exposed to secondary trauma [9].

Job satisfaction is also regarded as a determinant promoting SPTG in professionals who worked with victims of trauma [22]. Nonetheless, it should be stressed that little research has been conducted in this area. A study by Ogińska-Bulik and Juczyński [7] among professionals worked with survivors of trauma found that satisfaction with job was positively associated with secondary post-traumatic growth, but only in the studied group of therapists: no such relation was observed in medical staff. Subsequent studies of medical personnel exposed to secondary trauma suggest that while job satisfaction is positively associated with SPTG, it only makes a small contribution as a predictor of the latter [9].

It hence seems that job satisfaction has a clear influence on the effects of secondary trauma exposure, with the effect being stronger for negative consequences and weaker for positive ones. Additionally, job satisfaction is positively related to social support [8,9]; as such, it may serve as an intermediary variable between social support and the negative and positive effects of secondary exposure to trauma.

Aim of the study

The purpose of the research was to check the intermediating role of satisfaction with job in the relationship between social support and the negative and positive effects of secondary trauma exposure in medical providers working with trauma victims. The study is based on Tedeschi and Calhoun's model of PTG, which highlights the essential role of social support in the process of adaptation to trauma. The study design also draws on the ecological framework of trauma model developed by Dutton and Rubinstein [17], which clarifies vicarious trauma in terms of the individual's coping strategies and workplace environment factors, including social support and satisfaction with job. The following research questions were posed:

- Is there a relationship between indicators of social support and job satisfaction and the consequences of secondary exposure to trauma in the studied group of professionals?
- Does job satisfaction play a mediating role in the relationship between social support and the positive and negative consequences of secondary trauma exposure in the study subjects?

The authors hypothesize that job satisfaction and social support would be negatively associated with symptoms of secondary traumatic stress and positively correlated with the severity of growth changes. As job satisfaction has been shown to be the significant determinant of secondary traumatic stress in this group of professionals [8], and to act as a predictor (albeit weaker) for SPTG [9], the authors hypothesize that job satisfaction will act as an intermediary variable in the relationship between social support and the positive and negative outcomes of secondary exposure to trauma. It may be assumed that job satisfaction will lower the strength of the relationship (i.e., satisfaction with job will be a mediator) between social support and effects of secondary exposure to trauma.

MATERIAL AND METHODS

Procedure and sampling

The study included 430 participants who provide medical help as part of their duties to patients who are injured. Their participation was anonymous and voluntary. The study was conducted in provincial emergency stations and the emergency rooms of hospitals in Poland, as well as in intensive care, oncology and hospice units. The study project was approved by the Bioethics Committee of the Institute of Health Sciences, University of Opole, Poland (No. 81/P1/2019). The study was conducted in medical centers from which formal consent was obtained to distribute the questionnaire among medical personnel. Purposeful selection of the research sample was used. Subjects were recruited from volunteers based on established inclusion

criteria. Medical personnel were informed of the study by the researchers in accordance with the procedure established by the functional persons at the facilities. The inclusion criteria comprised practice as a paramedic or nurse and being in regular contact with individuals experiencing traumatic events, such as life or health threatening illness (cancer, heart attack, stroke) or an accident. The criterion of exclusion was work with people whose experience of illness, described as a critical life event, did not meet the criterion of a traumatic stressor, i.e., there was no exposure to death, exposure to the threat of death, or exposure to or threat of serious injury. Individuals were first asked to provide verbal consent; completion of the methods evidenced formal written consent. The tools were delivered to the participants' workplace by the authors.

Participants were completed the methods during the duty hours. The sample consisted of 430 subjects who consented to the study and provided questionnaires. As a result, data from 419 subjects, 282 (67.3%) women and 137 (32.7%) men, were included in the analysis. Eleven subjects were excluded due to lack of contact with the patient's traumatic experience (there was no exposure to death or injury or a threat of death or injury causing significant damage to health). The age in the group of men ranged 19–56 years ($M \pm SD$ 38.19 \pm 9.66 years), and in the group of women – 20–65 years ($M \pm SD$ 40.28 \pm 11.59 years). The analyzed group contained paramedics with an age $M \pm SD$ 38.30 \pm 10.42 years ($N = 201$), of whom 60.2% were men, and nurses with an age $M \pm SD$ 40.79 \pm 11.46 years ($N = 218$), the majority of whom were women (92.7%). Paramedics mainly reported helping people after accidents, especially car accidents (57.2%) and after injuries such as heart attacks and strokes (42.8%). The nursing staff included participants who worked with oncology patients (87.7%) and car accident victims (18.3%). Length of service for whole group of respondents ranged 1–43 years ($M \pm SD$ 12.18 \pm 9.74 years), the number working hours intended to helping patients ranged 2–90 h ($M \pm SD$ 38.64 \pm 15.64 h). Taking into account the division

into professional groups, the length of service for paramedics ranged 1–41 years ($M \pm SD$ 13.59 \pm 9.72 years), for nurses – 1–43 years ($M \pm SD$ 10.89 \pm 9.61 years). The number working hours intended to helping patients ranged 2–90 h for paramedics ($M \pm SD$ 43.70 \pm 15.71 h) and 2–70 h for nurses ($M \pm SD$ 33.21 \pm 13.84 h). The study is part of a larger project. Some of the results of this research were used in other articles.

Measures

The standardized methods were used in the study.

Secondary Traumatic Stress Inventory

The *Secondary Traumatic Stress Inventory* (STSI) is a Polish adaptation of the *Posttraumatic Stress Disorder Checklist* (PCL-5) modified for examining individuals who provide help for victims of trauma by Ogińska-Bulik and Juczyński [7]. Similar to the PCL-5, tool contains 20 items (e.g., “Repeated, disturbing, and unwanted memories of the stressful experience”) referring to symptoms included in the 4 PTSD criteria: intrusion, increased arousal and reactivity, negative changes in cognition and/or mood, avoidance. The Cronbach's α indicator for the STSI was 0.90, with the following values for particular criteria 0.71, 0.85, 0.89, 0.87. The Cronbach's α for the overall score obtained in the current study was 0.97.

Secondary Posttraumatic Growth Inventory

The *Secondary Posttraumatic Growth Inventory* (SPTGI) was developed by Ogińska-Bulik and Juczyński [23] for testing positive effects connected with indirect trauma exposure among specialists who worked with trauma survivors. The tool consists of 12 items assessed on a 6-degree scale, from “I have not experienced this change” (0) to “I have experienced this change to a very large degree” (5). It measures 4 factors: an increase in spiritual experiences and a sense of responsibility for others, new challenges and increased professional skills, an increase in accep-

tance and acting for the benefit of others and greater self-confidence and appreciation of life. Cronbach's α was 0.90 for the whole scale and 0.71, 0.85, 0.89, 0.87 for individual categories, respectively. Cronbach's α for the overall score obtained in the present study was 0.94.

Psychosocial Working Conditions Questionnaire:

Social Support Scale – Whose Support You Can Count On

Social Support Scale – Whose Support You Can Count On is part of the *Psychosocial Working Conditions Questionnaire* [14]. The scale makes it possible to measure support that is received from work-related sources, i.e., superiors and co-workers, as well as outside of work, i.e., friends and family (“To what extent can you count on someone helping you in a specific way?”). Each subscale contains 8 statements. Cronbach's α values were 0.94 for support from superiors, $\alpha = 0.92$ from coworkers, $\alpha = 0.89$ from friends, and $\alpha = 0.89$ from family. For present study, the Cronbach's α values obtained for each subscale were respectively: 0.94, 0.91, 0.91 and 0.90.

Satisfaction with Job Scale

The *Satisfaction with Job Scale* is a modified version of *Satisfaction with Life Scale* for work evaluation (e.g., “In many aspects my work is almost perfect”) by Zalewska [20]. Individuals point the degree of agreement with each statement. All statements are a part of a single dimension and were found to be internally highly consistent in a heterogeneous sample of employees and particular group of professionals. The Cronbach's α indicator was 0.86 for the tool, and 0.87 in the current study.

Statistical methods

The IBM SPSS was used for analyses. The examined variables are characterized by a distribution close to normal. Pearson's correlation coefficients were used to established relationships between variables. The Student's t-test were used to examine the differences between 2 occupational

groups and gender. Mediation analysis was performed by using the PROCESS approach to test whether the job satisfaction acts as an intermediary variable in the association between social support and effects of secondary trauma exposure, both negative and positive.

RESULTS

The descriptive statistics (M, SD, and correlation coefficients) for the variables included in the study (with sociodemographic variables and variables related to work) are presented elsewhere [8,9,16].

The mean STS score for individuals is 31.0 (SD = 19.59). Based on the percentage distribution of scores for the study sample, it was found that 182 (43.4%) revealed a high severity of STS symptoms. Regarding the severity of positive post-traumatic changes among medical personnel, 40.1% revealed high levels of SPTG. The mean score for positive changes in the whole group is 32.35 (SD = 13.92). There was no difference in the severity of STS symptoms or the intensity of posttraumatic growth taking into account gender (for men $M \pm SD$ 30.32 \pm 18.32, for women $M \pm SD$ 31.33 \pm 20.21; $t = -0.496$, $p > 0.05$) and occupational group (for paramedics $M \pm SD$ 29.67 \pm 18.28; for nurses $M \pm SD$ 32.23 \pm 20.69; $t = -1.336$, $p > 0.05$). Some relationships were found between age ($r = 0.12$, $p < 0.05$), workload ($r = -0.12$, $p < 0.05$), the number of working hours per week ($r = -0.21$, $p < 0.01$) and STS. None of the trauma exposure indicators are significantly associated with the overall SPTG score (for men $M \pm SD$ 31.34 \pm 13.10; for women $M \pm SD$ 32.84 \pm 14.30, $t = -1.033$, $p > 0.05$; for paramedics $M \pm SD$ 32.24 \pm 13.68; for nurses $M \pm SD$ 32.55 \pm 14.17, $t = -0.298$, $p > 0.05$).

Satisfaction with job is negatively linked to both overall STS score ($r = -0.40$, $p < 0.001$) and individual symptoms of secondary traumatic stress ($r = -0.32$ – 0.40). Three of the 4 sources of social support (superiors $r = -0.10$, $p < 0.05$; friends $r = -0.28$, $p < 0.001$; family $r = -0.24$, $p < 0.01$;) were found to be linked to total score of secondary traumatic stress. In addition, support from friends

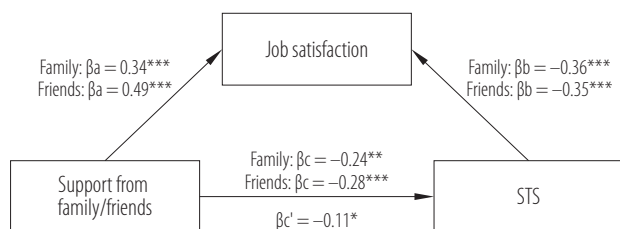


Figure 1. Model of relations between social support in the form of support from family, friends, job satisfaction and secondary traumatic stress (STS) among group of professionals (nurses and paramedics) from provincial emergency stations, emergency rooms intensive care, oncology and hospice units, Poland

and from family correlated negatively with all symptoms of STS ($r = -0.16-0.31$).

Similar to secondary traumatic stress, job satisfaction correlates positively with both overall secondary post-traumatic growth ($r = 0.35, p < 0.001$) and with individual areas of growth ($r = 0.29-0.35$). Significant associations can be seen between all sources of social support (superiors $r = 0.20, p < 0.01$; coworkers $r = 0.22, p < 0.01$; family $r = 0.26, p < 0.001$; friends $r = 0.30, p < 0.001$) and the overall SPTG score and all factors of secondary growth after trauma ($r = 0.12-0.31$).

An analysis of mediation was conducted to verify if job satisfaction plays a role of mediator for relationship between individual sources of social support and the positive and negative effects of vicarious trauma. A total of 6 statistically significant models were obtained: 2 models for STS and 4 models for SPTG. The mediation model was built without dividing by occupational group and gender; occupational group and gender did not differentiate the severity of the dependent variables.

Social support from friends and family was found to be predictors of job satisfaction and STS symptoms (Figure 1). Satisfaction with job also was found to play a predictive role for STS. The effect of both social support from friends and from family social support from friends on STS was reduced after implementing the mediator, which indicates partial mediation. Hence, the relationships between

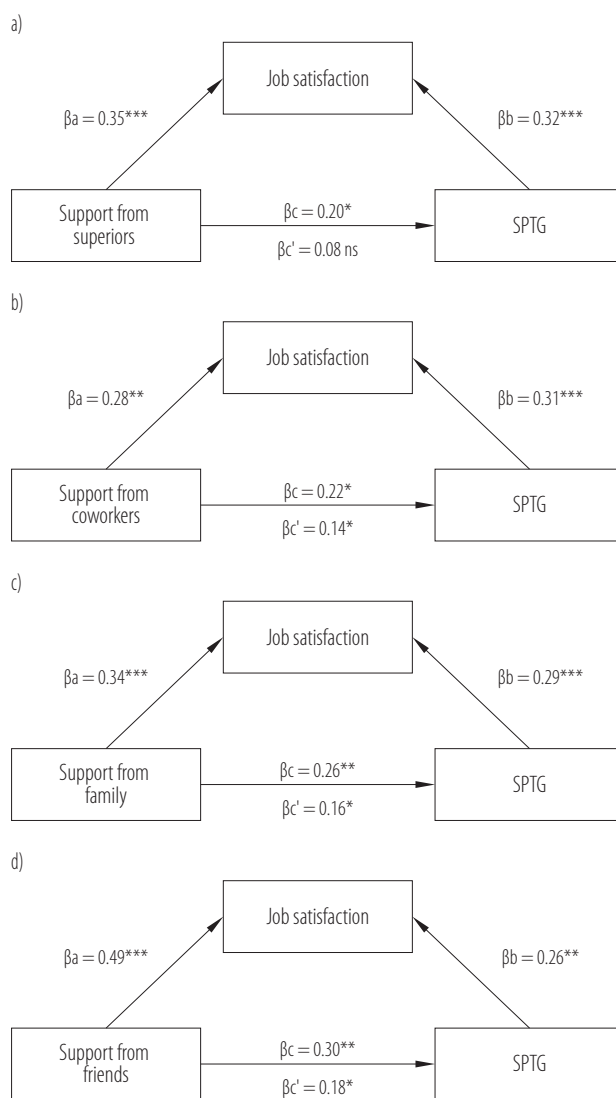


Figure 2. Model of relations between social support in the form of support from: a) superiors, b) co-workers, c) family, d) friends, job satisfaction and secondary posttraumatic growth (SPTG) among group of professionals (nurses and paramedics) from provincial emergency stations, emergency rooms, intensive care, oncology and hospice units, Poland

social support from family and STS severity, and between social support from friends and STS severity, are partially explained by the role of job satisfaction. Both social support, in the form of support from friends and family, and job satisfaction act as predictors for STS.

Figure 2 shows the relationships between some sources of social support, job satisfaction, and SPTG. Model 2a

indicates that initially there was a direct association between social support from superiors and SPTG; however, the introduction of the mediator, in the form of job satisfaction, caused the β value to drop to insignificant, indicating full mediation. Job satisfaction in this case proved to be the only predictor of SPTG. The remaining models (2b–2d) show that the effects of social support from coworkers, family and friends are reduced by the introduction of job satisfaction as a mediator, indicating partial mediation. In this case, both social support and job satisfaction play a predictive role for SPTG.

DISCUSSION

Authors' findings confirm previous observations that medical personnel, nurses and paramedics in this case, experience both the negative and positive consequences of exposure to secondary trauma [4,6–9,13]. Medical personnel demonstrate present a fairly high intensity of STS symptoms, which may mean that both nurses and paramedics experience a heavy burden as a consequence of helping people who have experienced traumatic events. Their exposure to patients, combined with the nature of their work, characterized by multiple stressors including workload and interpersonal conflicts and a multitude of organizational stressors related to workplace politics [24] can exacerbate resource depletion and increase vulnerability to the secondary traumatic stress symptoms.

Together with the negative outcomes of such vicarious trauma exposure, the studied medical personnel also demonstrated a relatively high level of positive consequences. Despite displaying the secondary traumatic stress symptoms, both paramedics and nurses achieve a medium level of job satisfaction and are willing to receive social support, especially from family. Both of these variables were found to be positively related to SPTG, suggesting that their high levels may help cope with the negative effects of trauma and promote the appearance of growth changes.

Job satisfaction has been shown to be associated with both secondary traumatic stress symptoms and secondary growth after trauma. These findings are compatible with earlier studies. The nature of the relationship indicates that employees with high level of job satisfaction may experience fewer STS symptoms compared to those who are less satisfied. Similarly, higher levels of satisfaction with work may favor the appearance of growth changes. As Gulavani and Shinde [25] stress, job satisfaction is an important factor affecting the well-being and psychosocial functioning of medical personnel. Studies show that medical personnel who are not satisfied with their jobs experience greater exhaustion from helping patients and more severe stress at work [26]. This depletion of resources can lead to the emergence of a greater likelihood of acquiring the trauma experienced by the patient. A high level of job satisfaction, on the other hand, might play a role in protecting staff from the transmission of trauma, and may even be a factor in perceiving certain benefits. The obtained results are consistent with the ecological framework of trauma model [17], which indicates that job satisfaction acts as a factor preventing the negative consequences of vicarious trauma exposure. It is important to note that association between satisfaction with job and the effects of secondary trauma may be inverse. It is possible that the experience of traumatic stress symptoms, or certain benefits in the form of growth changes, affect the perception of job satisfaction.

As noted previously, in addition to SPTG, social support was also found to be associated with STS. This finding indicates that subjects receiving higher social support may experience fewer symptoms of STS than those who report lower levels of social support. In addition, higher levels of social support may favor the appearance of SPTG. Social support is a very important resource for inducing positive emotions and supporting adaptive coping with stress, including traumatic stress [27]. Lepore [28] indicates

that supportive social responses may facilitate the fusion of trauma-related memories by providing information about new ways of coping, or by helping people accept what has happened; either way would support the cognitive processing of the trauma and build emotional adjustment. Cognitive models of trauma, including secondary trauma, indicate that integrating information and memories of the traumatic event into cognitive structures and working through them is a prerequisite for both coping with the negative effects of the trauma and achieving positive growth [7,10,28,29]; thus, social support can be helpful in giving meaning to traumatic events [10]. Almost all sources of support were associated with the effects of secondary trauma, with stronger correlations being associated with support received outside the work environment, which may mean that support obtained from family and friends plays a more important role in coping with secondary trauma.

The controlling variables of age, workload, and the number of hours per week devoted to working with trauma were found to be associated with STS. Data shows that the likelihood of developing STS increases with age. On the other hand, a higher workload and more number of working hours per week may reduce this probability. The results seem to differ from those presented in the literature [7]. Possibly, the routine resulting from everyday contact with patients constitute a barrier against STS symptoms for the medical staff. Perhaps older age is not conducive to working through the trauma due to the greater rigidity of cognitive schemas. According to some research findings [30], the impact of occupational load and age on the consequences of secondary trauma exposure is overestimated. Due to weak correlations, these variables were not included in further analysis.

The analysis of mediation indicated that satisfaction with work plays a role of mediator for association between social support and STS and SPTG. For the most, this is partial mediation. This may indicate that both social

support and job satisfaction act as significant predictors of the positive and negative consequences of vicarious trauma. Support from others may increase SPTG directly and indirectly through job satisfaction. It is possible that medical personnel may experience less severe STS symptoms if they receive social support from friends and family and feel satisfied with their work.

The study has some limitations. It has a cross-sectional design, which does not allow to establish the cause-and-effect relationship of the variables. In addition, it did not take into account any subjective indexes of trauma exposure and the experience of self-trauma. The effect of factors related with workplace, such as workload and the number working hours intended to helping patients on STS severity was not analyzed. In addition, the group of subjects was not homogeneous: women predominated among the nurses and men among the paramedics. The large range of respondents' ages may be a problem in extrapolating the results to the general population. Due to the non-random selection of the sample, the representativeness of the obtained results may be difficult to determine. Moreover, results should be interpreted with care due to the slightly small sample size.

Nevertheless, the study has provided new content on the potential predictors of both the negative and positive consequences of vicarious trauma in healthcare professionals. This is especially important in the light of the recent COVID-19 pandemic; the pandemic has entailed high levels of stress and heavy workloads for medical personnel, which can increase susceptibility to STS. Authors' findings reinforce the importance of building good, warm and understanding relationships with people, both outside and inside the work environment. Social support can reduce stress symptoms, thereby promoting the experience of positive emotions and reducing the experience of negative emotions, which can ultimately influence the correction of maladaptive cognitive patterns. A friendly and mutually supportive environment

can increase job satisfaction, reducing the risk of secondary traumatic stress and encouraging positive posttraumatic changes.

Implications for practice

Authors' findings can contribute to the design of preventive programmes, training courses or other measures aimed at reducing or preventing the occurrence of STS symptoms and promoting SPTG. Such programmes should emphasize factors that increase job satisfaction, such as good interpersonal relationships between employees, a good reward system for work done, respect from superiors, a sense of efficiency and decision-making in matters relevant to the establishment, access to training, good communication and personal health [31]. It therefore seems appropriate, and necessary, to highlight job satisfaction and social support in psychoeducational, supportive and preventive measures for medical staff.

CONCLUSIONS

There are significant relationships between social support and job satisfaction and the consequences of secondary exposure to trauma in the studied group of professionals. Job satisfaction serve as a mediator between social support and effects of secondary trauma. Nurses and paramedics, by helping and working with people who have experienced serious somatic illness or accidents, i.e., traumatic events, may be at risk of negative consequences in the form of secondary traumatic stress symptoms. Functioning in a safe environment where psychological resources in the form of social support are available and interpreting one's work as one that brings satisfaction may reduce the risk of trauma transmission from patient to helper and even promote the occurrence of positive trauma consequences in the form of secondary growth after trauma. Job satisfaction seems to be an important factor in explaining the relationship between social support and the posi-

tive and negative effects of trauma. A friendly and mutually-supportive environment can increase job satisfaction, reducing the risk of secondary traumatic stress and promoting positive posttraumatic changes. It seems reasonable, therefore, to consider techniques to strengthen the stock of social support and job satisfaction among medical personnel.

Author contributions

Research concept: Piotr Gurowiec, Nina Ogińska-Bulik, Paulina Michalska

Research methodology: Piotr Gurowiec, Nina Ogińska-Bulik, Paulina Michalska

Collecting material: Piotr Gurowiec

Statistical analysis: Nina Ogińska-Bulik

Interpretation of results: Nina Ogińska-Bulik, Paulina Michalska

References: Piotr Gurowiec, Nina Ogińska-Bulik, Paulina Michalska

REFERENCES

1. Figley CR. Compassion fatigue: Toward a new understanding of the cost of caring. In: Stamm BH, editor. Secondary traumatic stress. Towson, MD: Sidran Institute. 1999; pp. 3-28.
2. Beck CT. Secondary traumatic stress in nurses: a systematic review. Arch Psychiatr Nurs. 2011;25:1-10.
3. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (5th ed.). Washington: DC; 2013.
4. Renkiewicz GK, Hubble MW. Secondary Traumatic Stress in Emergency Services Systems (STRESS) Project: Quantifying Personal Trauma Profiles for Secondary Stress Syndromes in Emergency Medical Services Personnel With Prior Military Service. J Spec Oper Med. 2021;21(1):55-64. <https://doi.org/10.55460/AO3Y-HY3W>.
5. Von Rueden KT, Hinderer KA, McQuillan KA, et al. Secondary traumatic stress in trauma nurses: prevalence and exposure, coping, and personal/environmental characteristics. J Trauma Nurs. 2010;17:191-200.

6. Roden-Foreman JW, Bennett MM, Rainey EE, Garrett JS, Powers MB, Warren AM. Secondary traumatic stress in emergency medicine clinicians. *Cogn Behav Ther.* 2017; 46:522–532
7. Ogińska-Bulik N, Juczyński Z. When the trauma of others becomes one's own. Negative and positive consequence of helping people after traumatic experiences. Warszawa: PWN; 2020.
8. Ogińska-Bulik N, Gurowiec PJ, Michalska P, Kędra E. Prevalence and predictors of secondary traumatic stress symptoms in health care professionals working with trauma victims: A cross-sectional study. *PLoS One.* 2021;23;16(2):e0247596. <https://doi.org/10.1371/journal.pone.0247596>.
9. Ogińska-Bulik N, Gurowiec PJ, Michalska P, Kędra E. Prevalence and determinants of secondary posttraumatic growth following trauma work among medical personnel: a cross sectional study. *Eur J Psychotraumatol.* 2021;12;12(1):1876382. <https://doi.org/10.1080/20008198.2021>.
10. Tedeschi RG, Calhoun LG. Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychol Inq.* 2004;15:1–8.
11. Manning-Jones S, de Terte I, Stephens C. The relationship between vicarious posttraumatic growth and secondary traumatic stress among health professionals. *J Loss Trauma.* 2017;22:256–270.
12. Cohen K, Collens P. The impact of trauma work on trauma workers: A metasynthesis on vicarious trauma and vicarious posttraumatic growth. *Psychol Trauma.* 2013; 5:570–580.
13. Yaakubov L, Hoffman Y, Rosenbloom T. Secondary traumatic stress, vicarious posttraumatic growth and their association in emergency room physicians and nurses. *Eur J Psychotraumatol.* 2020;3;11(1):1830462. <https://doi.org/10.1080/20008198.2020>.
14. Calhoun LG, Cann A, Tedeschi RG. The posttraumatic growth model: Sociocultural considerations. In: Weiss T, Berger R, editors. *Posttraumatic Growth and Culturally Competent Practice: Lessons Learned from around the Globe.* Hoboken, NJ, USA: John Wiley & Sons; 2010. p. 1–14.
15. Gurowiec PJ, Ogińska-Bulik N, Michalska P, Kędra E. The Relationship between Social Support and Secondary Posttraumatic Growth among Health Care Providers Working with Trauma Victims-The Mediating Role of Cognitive Processing. *Int J Environ Res Public Health.* 2022;20;19(9):4985. <https://doi.org/10.3390/ijerph19094985>.
16. Dutton MA, Rubinstein FL. Working with people with PTSD: Research implications. In: Figley CR, editor. *Compassion fatigue: Coping with secondary traumatic stress disorder in those who treat the traumatized.* New York: Brunner/Mazel Publishers. 1995. p. 82–100.
17. Missouridou E. Secondary Posttraumatic Stress and Nurses' Emotional Responses to Patient's Trauma. *J Trauma Nurs.* 2017;24:110–115.
18. Fu CY, Yang MS, Leung W, Liu YY, Huang HW, Wang RH. Associations of professional quality of life and social support with health in clinical nurses. *J Nurs Manag.* 2018;26: 172-179. <https://doi.org/10.1111/jonm.12530>.
19. Hinderer K, Von Rueden K, Friedmann E, McQuillan K, Gilmore R, Kramer B, Murray M. Burnout, Compassion Fatigue, Compassion Satisfaction, and Secondary Traumatic Stress in Trauma Nurses. *J Trauma Nurs.* 2014;21(4):160–169.
20. Calhoun, LG, Tedeschi RG. *Posttraumatic Growth in Clinical Practice.* New York, NY, USA: Routledge; 2013.
21. Ogińska-Bulik N, Juczyński Z. Assessing positive posttraumatic changes among professionals working with trauma victims: The Secondary Posttraumatic Growth Inventory. *Annals of Psych.* 2022;XXV; <https://doi.org/10.18290/rpsych.2022.0006>.
22. Cieślak R, Widerszal-Bazyl M. *Psychosocial Working Conditions. The Questionnaire Handbook.* Warsaw, Poland: CIOP; 2000.
23. Zalewska A. The Satisfaction with Job Scale – Measuring the cognitive aspect of overall job satisfaction. *Acta Universitatis Lodzianensis Folia Psychologica.* 2003;7:49–60.
24. Giga SI, Fletcher IJ, Sgourakis G, Mulvaney CA, Vrkljan BH. Organisational level interventions for reducing occupational stress in healthcare workers. *Cochrane Database Syst*

- Rev. 2018;2018(4):CD013014. <https://doi.org/10.1002/14651858.CD013014>.
25. Gulavani A, Shinde M. Occupational Stress and Job Satisfaction among Nurses. *Int J Sci Res.* 2014;3(4):733-740.
26. Rosales RA, Labrague LJ, Rosales GL. Job satisfaction and Burnout: Is there a connection? *Int J Nurs Stud.* 2013; 2(1);1-10.
27. Hansford M, Jobson L. Sociocultural context and the post-traumatic psychological response: Considering culture, social support, and posttraumatic stress disorder. *Psychol Trauma.* 2022;14(4):669-679.
28. Lepore SJ. A social-cognitive processing model of emotional adjustment to cancer. In: Baum A, Anderson BL, editors. Psychosocial interventions for cancer. American Psychological Association; 2001. p. 99–116
29. Ehlers A, Clark DM. A cognitive model of posttraumatic stress disorder. *Behav Res Ther.* 2000;38:319–345. pmid:10761279
30. Jenkins SR, Baird S. Secondary traumatic stress and vicarious trauma: a validation study. *J Trauma Stress.* 2002;15: 423-432. <https://doi.org/10.1023/A:1020193526843>.
31. Niskala J, Kanste O, Tomietto M, Miettunen J, Tuomikoski AM, Kyngäs H, Mikkonen K. Interventions to improve nurses' job satisfaction: A systematic review and meta-analysis. *J Adv Nurs.* 2020;76(7):1498-1508. <https://doi.org/10.1111/jan.14342>.