

THE PREDICTORS OF THE CONSEQUENCES OF SECONDARY EXPOSURE TO TRAUMA AMONG PROFESSIONALS WORKING WITH TRAUMA VICTIMS

Zygfryd Juczyński¹ and Nina Ogińska-Bulik²

¹WSB Merito University Lodz

²Institute of Psychology, University of Lodz

Helping those who have experienced trauma exposes the helpers to secondary traumatization. The mechanisms of its development are most often explained using the cognitive model of trauma processing. The aim of the research is to determine how disturbances of core beliefs and cognitive processing in the form of coping with stress are associated with secondary traumatic stress (STS) and secondary posttraumatic growth (SPTG). The study was conducted among psychologists and social workers ($N = 240$), working with people after traumatic experiences. Four standardized measurement tools were used. Based on the differential diagnosis, four types of consequences were identified. Discriminant analysis was used to establish the optimal configuration of predictors explaining the differences between the four subgroups. Two significant discriminant functions were significant, each identifies different beliefs and coping strategies. The first is associated with the disruptions of core beliefs about the world and cognitive processing in the form of a non-adaptive strategy; the second—with disturbed beliefs about oneself and adaptation strategies. Our results show a much greater exposure of social workers to the negative consequences of secondary traumatic stress disorder. A system of constant monitoring should be introduced, and the principles of prevention and therapy should be implemented.

Keywords: secondary traumatic stress; secondary posttraumatic growth; core beliefs; cognitive processing of trauma; discriminant function analysis.

ZYGFRYD JUCZYŃSKI, <https://orcid.org/0000-0002-2794-9254>; NINA OGIŃSKA-BULIK, <https://orcid.org/0000-0001-8868-407X>. Correspondence concerning this article should be addressed to Zygfryd Juczyński, Uniwersytet WSB Merito w Łodzi, ul. Brzozowa 5/7, 93-101 Łódź, Poland; e-mail: zygfryd.juczynski@wsb.lodz.pl.

Handling editor: WACŁAW BĄK, John Paul II Catholic University of Lublin. Received 30 Aug. 2022. Received in revised form 19 Feb. 2023. Accepted 14 June 2023. Published online 11 Aug. 2023.

When the Trauma of Others Becomes One's Own

Trauma caused by road accidents, sexual crimes, or other acts of violence, as well as life-threatening diseases is a common phenomenon. These events are associated with extreme stress, and cause changes in the psyche and behavior of people who have experienced them, and the victims in many cases require professional help. Such help is provided by various emergency services as well as other employees of various assistance professions.

Most studies on psychological trauma focus on the people who directly experience it. Meanwhile, through engaging in frequent contact with traumatized clients, listening to reports about experienced events and providing help and support, helpers may begin to look at the world through the eyes of their victims, and feel and manifest similar emotions and behaviors. In other words, the trauma of others becomes their own.

This kind of traumatization, referred to as secondary (vicarious or indirect), is defined by the disruptive and painful psychological symptoms that result from exposure to clients' traumatic memories although the helper has not experienced the trauma directly. Figley (1995) defines it as "the stress deriving from helping others who are or wanting to help a traumatized or suffering person" (p. 7). The latest version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5, American Psychological Association, 2013) includes this concept as a potential etiological origin within its definition of posttraumatic stress disorder (PTSD). Secondary traumatic stress (STS), which is also called Secondary Traumatic Stress Disorder (STSD), resemble the symptoms of PTSD disclosed by direct trauma victims. These symptoms, according to the new classification DSM-5 include intrusions, avoidance, negative changes in cognition and emotions, as well as increased reactivity and arousal.

On the other hand, it turns out that helping others after traumatic experiences can also be a source of positive changes, manifested in the form of secondary posttraumatic growth (SPTG). This phenomenon is derived from the posttraumatic growth concept developed by Tedeschi and Calhoun (1996) and is just beginning to arouse the interest of researchers and practitioners. SPTG involves positive cognitive, emotional, interpersonal, and spiritual changes arising as a result of vicarious traumatic exposure (Arnold et al., 2005).

It is also emphasized that positive posttraumatic changes coexist with negative changes. The conducted research provided data confirming the positive relationship between secondary stress and secondary growth in professionals working with people after traumatic experiences (Cohen & Collens, 2013; Ogińska-Bulik & Juczyński, 2020; Rhee et al., 2013). This means that people helping trauma vic-

tims may show symptoms of both secondary stress and post-traumatic growth at the same time. This suggests the need to study simultaneously the negative and positive consequences of secondary exposure to trauma.

Previous studies have provided data confirming the occurrence of STS symptoms in professionals working with trauma victims (Choi, 2011; Molnar et al., 2017; Ogińska-Bulik & Juczyński, 2020; Ogińska-Bulik et al., 2021a). A review of studies by Molnar and colleagues (2017) confirms the high risk of STS among social workers. In one of them, involving a group of licensed social workers, it was shown that 40.9% of the respondents met the PTSD criteria, assessed using the Secondary Traumatic Stress Scale. The research by Ga-Young Choi (2011) showed that among 154 social workers involved in helping victims of trauma related to violence, STS occurred in 21% of the respondents, and 65% revealed at least one symptom falling within the scope of STS. A meta-analysis of 38 studies (Bride et al., 2007) found that 34% of child protection professionals reported STS, including 15.2% of licensed social workers, and 55% reported at least one STS symptom. The results of research conducted among three groups of professionals, i.e., therapists, social workers and probation officers working with people after experiencing violence (Ogińska-Bulik et al., 2022), provided data indicating that social workers revealed a higher severity of STS compared to therapists and probation officers.

Data obtained from a study among five professional groups (nurses, doctors, psychologists, social workers, counselors) indicate that the highest intensity of STS was found in social workers, and the lowest in psychologists (Manning-Jones et al., 2017). A similar result indicating the lowest severity of STS among therapists was obtained in a Polish study of 5 groups of professionals working with people after traumatic experiences, including therapists, medical rescuers, nursing staff, social workers and probation officers (Ogińska-Bulik & Juczyński, 2020). In turn, social workers were characterized by a higher severity of STS than therapists, but slightly lower compared to paramedics and the nursing team.

At the same time studies have confirmed the presence of positive effects of secondary exposure to trauma among professionals working with trauma victims (Arnold et al., 2005; Manning-Jones et al., 2017; Ogińska-Bulik et al., 2021b; Sui & Padmanabhanunni, 2016). Comparative studies of 5 groups of professionals working with people after traumatic experiences, including therapists, medical rescuers, nursing staff, social workers, and probation officers (Ogińska-Bulik & Juczyński, 2020) revealed little variation between the groups in terms of SPTG. Therapists and nursing staff had the highest scores, while social workers had the lowest scores. The research covering three groups of professionals, i.e., therapists, social workers and probation officers working with victims of violence (Ogińska-Bulik & Michalska, 2022), shows that therapists obtained the highest intensity of SPTG, social workers

the lowest—although the differences, albeit statistically significant, were relatively small.

There are many factors that can determine the occurrence of negative and positive consequences of secondary exposure to trauma among professionals working with people after traumatic experiences. These are e.g. environmental and organizational variables, such as e.g. workload, years of service, the number of clients, received social support, individual variables, including the gender and age of professionals, personal resources, such as self-efficacy or resiliency, undertaken remedial activity (Ogińska-Bulik & Juczyński, 2020). However, a special role in the occurrence of secondary stress and secondary growth is attributed to the cognitive processing of trauma.

Cognitive Processing of Trauma as a Mechanism Explaining the Consequences of Posttraumatic Changes

Most of the helpers exposed to vicarious trauma can cope effectively with this type of stress. As Figley (1995) notes, stress is for the helpers “a normal and natural additional effect of working with people after trauma” (p. 573). For some it even becomes a source of positive changes. So, what determines the susceptibility or resistance to the negative consequences of exposure to secondary trauma? Several theories try to explain this phenomenon.

One of the best known theories is the Shattered Assumptions Theory, developed by Janoff-Bulman (2004). According to this theory, the person tries to understand and explain an experienced event, which results in verification of their beliefs or assumptive world. The actions taken by the individual are aimed at achieving a cognitive adaptation to the existing situation. To this end, various cognitive operations are performed to adjust existing beliefs to the changed reality, or to maintain them unchanged. Foa and Rothbaum (1998) also point to the role of beliefs in posttraumatic adaptation. The importance of negative cognitive schemas in the development of PTSD symptoms is also emphasized by Ehlers and Clark (2000).

People who have experienced a traumatic event try to adapt to the new situation through cognitive processing. The cognitive efforts of a person exposed to traumatic events, both directly and indirectly, can be reflected in the form of various cognitive coping strategies. Their purpose is to give the experienced event a sense and meaning, and thus adapt to the new reality. This approach refers to the well-known concept of cognitive adaptation developed by Taylor (1983) and leads to the cognitive distortion of reality (“illusions that allow life”).

The role of coping efforts, both behavioral and cognitive, is considered by the Cohen and Collens (2013). According to the authors, these efforts are primarily related to the search for organizational support and the use of personal resources, mainly optimism and spirituality. Generally, a cognitive activity undertaken because of exposure to traumatic situations can be understood as a mechanism explaining the effects on an individual exposed to trauma, both negative and positive (Ehlers & Clark, 2000; Tedeschi & Calhoun, 2004).

Available research appears to confirm that disruptions of beliefs and cognitive processing play significant roles in the occurrence of negative effects of secondary trauma; however, these studies are still few in number. Changes to cognitive schemata regarding world views have been observed in working with bank employees who had been exposed to a bank robbery (Ortlepp & Friedman, 2002). It has also been shown that assessing the incident experienced by the client in terms of danger increases the likelihood of STS in helpers (Lerias & Byrne, 2003). One of the few studies in this area was conducted among prison psychologists. Studies have shown a negative relationship between the symptoms of STS and the nature of beliefs about the goodness of the surrounding world and its intelligibility (Malkina-Pykh, 2017).

The Current Study

The aim of the study was to determine the occurrence of consequences of secondary exposure to trauma in psychologists and social workers working with victims of trauma. Since the data presented in the literature indicate the possibility of coexistence of negative and positive consequences of secondary exposure to trauma (Cohen & Collens, 2013; Manning-Jones et al., 2017; Ogińska-Bulik & Juczyński, 2020), the coexistence of both negative post-traumatic symptoms and positive changes was assessed. Social workers help people deal with problems in their daily lives and solve personal and family problems. As a result of frequent interactions with clients who have experienced a frequent trauma, these workers are prone to burnout, secondary traumatic stress, and vicarious trauma (Singer et al., 2020). Psychologists—as it was assumed—due to their education and professional practice, should have a better insight into the mechanisms and factors protecting against the phenomenon of secondary traumatization. The main aim of the study was to determine how disruptions of basic beliefs about the world and about self and preferred ways of cognitive processing of trauma are related to the consequences of secondary exposure to trauma. An answer was sought to the questions: Do beliefs and coping strategies make it possible to predict the consequences of secondary exposure to trauma? Are they therefore related to mental health?

METHOD

Sample

The sample consisted of psychologists ($N = 120$) and social workers ($N = 120$), working with trauma victims. All were employed at centers for trauma prevention and therapy, social service offices or at shelters for trauma victims in the central part of Poland. The criterion for inclusion in the research was permanent employment, consisting in helping people after traumatic experiences. Among the traumatic events experienced by the clients were accidents, violence, chronic somatic disease, and death of a loved one. The age of the subjects ranged from 24 to 65 years ($M = 39.11$, $SD = 9.86$). Most of the participants were women (89.0% and only 11.0% men), their average length of service was 14 years ($SD = 10.28$) and on average they worked with traumatic clients 24 hours a week ($SD = 13.40$). Psychologists have completed 5-year university studies and hold various certificates confirming the acquisition of appropriate skills important for their job. On the other hand, the qualifications of social workers can be obtained by graduating from a post-secondary college of social service workers, or by obtaining a first- or second-degree diploma in social work.¹ Taking into account the average length of service in the surveyed group (14 years), it can be assumed that at least half of the employees have higher education in social work.

The research was conducted in 2019, by establishing individual contact in all cases. In total, about 10% refused to participate in the research for various reasons. Tests were managed individually. All of the respondents were informed about the purpose of the research and their anonymity; they were also informed of the voluntary nature of the study and ensured that neither individuals nor organizations would be identified. The study was approved by the Ethics Committee of the Institutional Research Committee of the institutions employing the authors of the study. The survey was anonymous and did not require any personal data.

Instruments

The Secondary Traumatic Stress Inventory (STSI)

The STSI is a modified version of the PTSD Checklist for the DSM-5 (PCL-5) developed by Weathers et al. (2013) and adapted by Ogińska-Bulik et al. (2018).

¹ Act of 12 March 2004 on Social Assistance, and Act of 16 February 2007 Amending the Act on Social Assistance.

The modification of the tool consisted in supplementing the instructions with information on the occurrence of the subject's reactions in connection with the assistance provided to a person who experienced trauma. The inventory contains 20 statements/reactions about traumatic events. Each reaction is rated on a 5-point Likert scale. In addition to the overall result, the inventory includes four of the basic PTSD criteria. The internal consistency of STSI in the study group is very good, with a Cronbach's α score of 0.91.

The Secondary Posttraumatic Growth Inventory (SPTGI)

The SPTGI was developed by Ogińska-Bulik and Juczyński (2022) and is used to measure the degree of the positive changes deriving from secondary traumatic stress. It consists of 12 items evaluated on a 6-point scale. Factor analysis identified four factors. The internal consistency for the total score has been reported as satisfactory (Cronbach's α coefficients .92).

The Core Beliefs Inventory (CBI)

The CBI originally developed by Cann et al. (2010), adapted by Juczyński and Ogińska-Bulik (2018), consists of nine statements concerning disruption of core beliefs. The respondent assesses the extent to which the event has led to changes based on a 6-point scale. The sum of all the points indicates the rate of disruption of beliefs, with a higher score reflecting a greater inclination to change their previous beliefs. Cronbach's α coefficients range from .62 to .79.

The Cognitive Processing of Trauma Scale (CPOTS)

The CPOTS was originally developed by Williams et al., (2002), adapted by Ogińska-Bulik and Juczyński (2018), consists of 17 items assessed on a 7-point scale. The scale was designed to evaluate the processing of trauma captured in cognitive coping strategies (adaptive and non-adaptive). Cronbach's α coefficients for individual strategies range from .62 to .82 and are higher for the strategies of positive than for negative strategies.

Data Analytic Strategy

Analyses were conducted using PASW Statistics 18.0. The differential diagnosis based on the results of STS and SPTG measurements allowed to distinguish

four types (subgroups) of consequences of secondary exposure to a trauma. In such a situation, it is not possible to use classical regression techniques for prediction. The most frequently used method is discriminant analysis, the aim of which is to find the optimal configuration of predictors explaining the differences distinguishing the subgroups. As the grouping variable splits the respondents into four subgroups, the discriminant analysis distinguishes three discriminant functions (Radkiewicz, 2010).

RESULTS

Consequences of Secondary Exposure to Trauma: One- and Multi-Dimensional Approach

Most often, the negative and positive consequences of secondary exposure to trauma are assessed separately. The results for the two examined groups are presented in Table 1. Student's *t*-test was used to investigate the differences between groups. The social workers, compared to psychologists, demonstrated a significantly higher total score and higher component scores in the STS ($p < .001$; average effect size, $r_{bi} = .45$). In contrast, the group of psychologists demonstrated a higher level of positive changes, although the difference is not as significant as in the case of secondary stress ($p < .05$; small effect size = .15). The greatest differences concern increased acceptance and actions for other people and new challenges and professional competences, which were significantly higher among psychologists. The differences between the groups are statistically significant ($p < .01$ to $< .001$; effect size $\omega^2 = .15$ to $.40$ is small to average).

Relationships between STS and SPTG scores with age, seniority and workload with trauma victims were also established, separately in both groups. On the basis of the median, the groups were divided into younger and older; with shorter and longer seniority and more or less burdened with helping victims of trauma. Only the last two criteria differentiate in a statistically very significant way the intensity of secondary traumatic stress in the group of social workers. Greater helping burden (above 50%, $M = 28.60$, $SD = 11.89$; below 50%, $M = 14.77$, $SD = 12.33$, $p < .001$) and longer seniority (over 10 years, $M = 21.96$, $SD = 12.44$; under 10 years, $M = 16.30$, $SD = 12.87$, $p < .005$) are associated with greater severity of STS symptoms. However, none of the above-mentioned criteria differentiates the overall SPTG score, neither in the group of psychologists nor social workers.

Table 1
STS and SPTG—Comparison of Study Groups

Criteria	Psychologists (<i>N</i> = 120)		Social workers (<i>N</i> = 120)		<i>t</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Secondary Traumatic Stress: Total score	11.51	10.83	25.92	13.63	-7.86	< .001
Intrusion	3.19	2.88	7.06	4.20	-7.20	< .001
Avoidance	0.96	1.19	2.94	1.95	-8.26	< .001
Negative alterations in cognitions	3.62	3.82	7.89	5.27	-6.22	< .001
Alterations in arousal and reactivity	3.74	4.45	8.03	5.08	-6.03	< .001
Secondary Posttraumatic Growth: Total score	33.28	12.31	28.98	11.80	2.39	< .05
New challenges and competences	9.01	3.33	6.91	3.28	4.26	< .001
Changes in spirituality	4.22	4.03	5.37	4.00	-1.91	< .05
Changes in self-perception	10.26	3.85	9.43	4.21	1.37	ns
Increased acceptance and actions for others	9.79	4.11	7.27	3.77	-4.29	< .001

A diagnosis of secondary traumatic stress (STS) can be made based on the sensitivity and specificity of results; in this case, a score of 33 points was taken as the cut-off point (i.e., the threshold value). Regarding SPTG, a score of ≥ 7 sten is considered as indicative of high growth (Ogińska-Bulik & Juczyński, 2022). Based on these adopted cut-points for the tools measuring STS and SPTG, our findings suggest that the risk of high STS was 6.7% for psychologists and 35.0% for social workers. In turn, the probability of a high level of secondary posttraumatic growth can be determined for 41.7% of psychologists and 28.3% of social workers.

Above are presented results of one-dimensional approach to consequences of secondary exposure to trauma. Meanwhile, we usually deal with the coexistence of negative and positive changes. It is true that in the studied groups the relationship between STS and SPTG is low (.10; higher in the group of social workers; .26, $p < .01$), but in fact each of the individual respondents manifested both STS and SPTG changes, but of varying intensity.

Based on the above-mentioned thresholds values for both tools, four types of consequences were established, i.e.: 1. “no stress and growth” (52.1%); 2. “growth without stress” (27.1%); 3. “stress without growth” (12.5%); and 4. “with stress and growth” (8.3%).

Disruptions in Core Beliefs and Coping Strategies Determining Consequences of Secondary Exposure to Trauma

The examined variables differentiate statistically significantly among the 4 types of consequences of secondary exposure to trauma (Table 2). Employees included in the group without consequences or well-adjusted to work (types 1 and 2), compared to the other two groups (types 3 and 4), are younger in age and seniority ($p < .01$, small effect size, $\omega^2 = .15$). The biggest differences are in beliefs about the causality of events and the two coping strategies, i.e., downward comparison and denial. Both of these strategies are much less used in the first two groups (“no stress and no growth” and “growth without stress”). The greatest disruptions in core beliefs and the frequent use of both the adaptive (resolution/acceptance, cognitive restructuring) and the maladaptive coping strategies (denial, regret) are observed in the group “with stress and growth”. The differences between the groups are statistically significant ($p > .01$ to $> .001$; effect size small to average).

Table 2

Means and Standard Deviations for Four Types of Consequences of Secondary Exposure to Trauma

Variables	Type 1 (<i>N</i> = 125)		Type 2 (<i>N</i> = 65)		Type 3 (<i>N</i> = 30)		Type 4 (<i>N</i> = 20)		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Beliefs about:									
relationships with other	5.87	3.63	7.43	3.26	9.23	3.64	10.20	3.69	13.72***
causality of events	5.39	3.48	6.38	3.55	8.97	3.34	10.55	2.50	19.00***
the meaning of own life	3.29	3.63	5.17	4.15	5.50	3.75	9.50	3.47	17.27***
Coping strategies:									
downward comparison	17.8	3.01	17.70	3.35	20.10	3.26	20.10	3.26	7.50***
cognitive restructuring	6.20	3.74	8.30	4.42	6.60	4.97	10.10	3.70	8.07***
resolution/acceptance	12.60	4.95	14.60	4.19	11.90	4.93	15.50	3.86	4.93**
regret	3.82	3.49	4.32	3.41	5.73	3.96	7.00	4.47	5.84***
denial	3.95	3.72	3.37	3.87	5.73	4.65	7.80	5.36	7.73***
Age	41.14	10.28	43.85	11.0	47.63	9.72	45.00	11.04	3.66**
Seniority (in years)	12.14	9.25	14.46	9.98	17.75	11.35	19.17	12.89	4.62**
Time in work (in %)	55.53	31.06	59.97	29.29	65.60	27.90	73.50	27.15	2.61

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Predictors of the Consequences of Secondary Exposure to Trauma

Another statistical analysis was performed to identify which of the independent variables is best suited to discriminating among the four types (subgroups), representing combinations of secondary stress and growth. First, the assumptions required in the discriminant analysis regarding normality of distribution, homogeneity of variance and redundancy were verified. The input model included three types of beliefs and five cognitive coping strategies. Additionally, the age of the respondents, seniority and time spent in work with trauma victims were taken into account.

Discriminant Function Analysis Summary

Ultimately, in the model revealed nine predictors (Table 3): two concerning beliefs and four related to cognitive coping strategies, and three variables, i.e., age, time spent working with clients, and beliefs about relationships with others, which turned out statistically nonsignificant. The mean values of the discriminatory function in all groups reveal moderate differentiation (Wilks' lambda: .55, $F[27,67] = 5.53$, $p < .001$). The variables remaining in the model explain 45% of variance for consequences of vicarious traumatization.

Table 3

Discriminant Function Analysis Summary: Variables in the Model

	Wilks' lambda	Partial lambda	F-remove (3,228)	<i>p</i>	Toler.	1-Toler. (R^2)
Beliefs about causality of events	.58	.95	4.29	< .005	.43	.57
Cognitive restructuring	.58	.95	3.69	< .01	.61	.39
Downward comparison	.60	.93	5.89	< .001	.63	.37
Beliefs about the meaning of life	.58	.96	3.45	< .02	.50	.50
Denial	.57	.96	2.72	< .05	.85	.15
Resolution/acceptance	.57	.96	2.83	< .05	.70	.30
Age	.57	.98	1.85	ns	.96	.04
Time in work (in %)	.56	.98	1.10	ns	.90	.10
Beliefs about relationships with other	.56	.99	1.04	ns	.61	.39

A discriminant analysis was performed to find the optimal predictor configuration explaining the differences between the four subgroups. In this case, each person is located in relation to the three discriminatory outcomes. We used stepwise discriminant function analysis to determine some combinations of optimal variables, so that the first function provides the best overall discriminating group, the second provides the second most discriminating, and so on. The functions are independent, that is, their contributions to discrimination between groups do not overlap.

In the case of discriminant analysis involving more than two groups, the standardized coefficients (β) and the structure matrix for each variable for each function should be taken into account. The first discriminant function (β values in Table 4) is dominated by a disruption in beliefs about the causality of events (.61), followed by downward comparison (.41) and denial (.32) strategies. The relationships of these variables with the first function confirm strong correlations in the structure matrix (.81; .49 and .49, respectively). The second discriminant function is dominated by positive effects of beliefs regarding the meaning of life (.66) and strategies of positive cognitive restructuring (.63) and resolution/acceptance (.50), confirmed by strong correlations in the structure matrix (.46; .55 and .50, respectively). The third function is not statistically significant and can therefore be omitted.

Table 4
Standardized Canonical Discriminant Function

	Canonical discriminant function coefficients (β)			Factor structure coefficients		
	1	2	3	1	2	3
Beliefs about:						
causality of events	.61	-.41	.53	.81	.08	.33
the meaning of life	.25	.66	-.26	.69	.46	.00
Coping strategies:						
downward comparison	.41	-.65	.25	.49	-.18	.13
cognitive restructuring	-.01	.63	.39	.30	.55	.19
resolution/acceptance	-.11	.50	-.34	.12	.50	.02
denial	.32	-.11	-.93	.49	-.08	-.79
Eigenvalue	.36	.23	.02			
Cumulative proportion	.60	.97	1.00			

The nature of discrimination for each discriminant (canonical) function can be determined by examining the mean for these functions in groups. Undoubtedly,

the dimension of secondary traumatic stress is associated with the first discriminatory function, which is determined by a disruption in beliefs about justice, control, and causality of events (example from CBI: item 2, “Because of the event, I seriously examined the degree to which I believe things that happen to people are controllable”). Such beliefs stimulate the stress coping strategies of downward comparison (CPOTS, no. 11, “Other people have had worse experiences than mine”) and denial (no. 3, “I say to myself this ‘this isn’t real’”).

The second discriminatory function is associated with the dimension of secondary posttraumatic growth. In this case, the disruption in beliefs relates to beliefs about the meaning of one’s own life, spiritual beliefs and one’s own value as a person (CBI, no 7, “Because of the event, I seriously examined my beliefs about the meaning of my life”). Strategies for positive cognitive trauma processing are preferred, such as positive cognitive restructuring (CPOTS, no. 16, “I have been able to find a ‘silver lining’ in this event”) and resolution/acceptance (e.g., item 4, “I have moved on and left this event in the past”).

Model Effectiveness Assessment

Both discriminatory functions set dimensions that can additively increase the distance between the four groups identified. The eigenvalue (see Table 5) expresses the percentage of total intergroup variance explained by the function. Eigenvalues and their percentage share in the overall intergroup variance identify the functions which have significant empirical significance ($p < .001$). These estimates are supported by the coefficients accompanying the eigenvalues of the function.

Table 5
Statistics of Discriminant Functions

	Eigenvalue	Canonical <i>R</i>	Wilks’ lambda	Chi-square	<i>df</i>	<i>p</i>
Function 1	0.36	.52	.59	124.56	18	< .001
Function 2	0.23	.43	.80	51.97	10	< .001

The effectiveness of the model can also be assessed by analyzing the classification results. The ability of the classification functions to predict group membership is usually assessed using a classification matrix that shows the number of cases that were correctly and incorrectly classified. In the analyzed studies, overall, 58.3%

of people were correctly classified into four types of consequences of vicarious traumatization (83% to type 1), which can be considered a satisfactory result.

DISCUSSION

Most published studies focus on the negative consequences of secondary exposure to trauma and, if positive changes are also assessed, secondary stress and growth are assessed separately (Cohen & Collens, 2013; Manning-Jones et al., 2017; Ogińska-Bulik et al., 2021a, 2021b). Meanwhile secondary traumatic stress and growth can be seen as opposite ends of the same continuum, which implies a negative relationship between outcomes. Alternatively, it can be assumed that growth can coexist. For example, Solomon and Dekel (2007) confirm that greater growth is associated with greater stress. In addition, growth may also occur as an independent outcome, which may be the reason why some studies have not confirmed any significant relationship between growth and stress (Joseph et al., 1993). Molnar et al. (2017) distinguish negative, neutral and positive consequences of exposure to secondary trauma. According to the authors people who represent the neutral type are resilient, healthy workers.

We examined two groups of professionals working with trauma victims, i.e., psychologists and social workers. Social workers assist people by helping them cope with issues in their everyday lives, deal with their relationships, and solve personal and family problems. As a result of frequent interaction with clients who have often experienced trauma, these workers are susceptible to burnout, secondary traumatic stress, and vicarious trauma (Singer et al., 2020). On the other hand, psychologists, as it was assumed—due to their education and professional practice—should have better insight into the mechanisms and factors protecting against the phenomenon of secondary traumatization.

In our study we used a multi-dimensional approach distinguishing four different types of changes. Type 1 represents adapted workers who show no significant consequences of secondary exposure to trauma. This group included most respondents (52.1%). Type 2 represents employees who are well-adjusted to their profession (27.1%; there are twice as many psychologists as social workers). Type 3 represents maladjusted workers with severe symptoms of stress (12.5% of all respondents, mostly social workers). Finally, type 4 includes maladapted workers who face both the negative and positive consequences of secondary exposure to trauma. In this least numerous group (8.3%) social workers were more often represented (13.3%).

The discriminant analysis of the variables remaining in the model revealed two statistically significant discriminant functions. The first is dominated by a disruption in beliefs about justice, control, and causality of events. It is accompanied by significant effects associated with coping strategies in the form of downward comparison and denial. In turn, the second discriminant function is dominated by disruptions of core beliefs about the meaning of one's life and self-worth as a person and strategies of coping with stress in the form of positive cognitive restructuring and resolution/acceptance.

In summary, these two functions characterize different beliefs and coping strategies: in the former—disruptions in core beliefs about the world while in the latter—disruptions in beliefs about oneself. Moreover, the first function is dominated by the maladaptive downward comparison and denial strategy, and the second function is dominated by the adaptive positive cognitive restructuring and resolution/acceptance strategies.

The data obtained indicate that 6% of psychologists and as many as 35% of social workers are at high risk of secondary posttraumatic stress disorders. On the other hand, almost half of psychologists (41.7%) and only a quarter of social workers (28.3%) confirms the occurrence of posttraumatic growth. The obtained results are generally consistent with the data presented in the literature. Molnar et al. (2017) indicate that the prevalence of STS is 34% among child protection service workers and 40.9% among licensed clinical social workers. In studies of five groups of specialists working with trauma victims, it has been shown that the highest degree of STS and SPTG occurs in social workers and the lowest in psychologists (Manning-Jones et al., 2017).

Social workers are differently educated than psychologists and they have lower competences that would help them cope with stress, hence they are more likely to experience negative consequences of their work. In turn, most psychologists have professional qualifications and certificates of psychotherapists. Most of them qualify to neutral or positive types of consequences of vicarious traumatization. Certainly, training can help provide suitable skills for professional work. The starting point of increasing the resilience is work on cognitive schemas concerning the world and oneself, which as a result of contacts with trauma victims are subject to a process of changes. The next task is to change cognitive activity, acquiring new knowledge of consequences of secondary exposure to trauma and skills to prefer coping strategies that allow professional persons working with trauma victims to adapt to the changed reality.

Limitations and Strengths

The study has some limitations. First, errors in self-selection may have affected the results; employees who felt they were suffering from stress at work could opt out of the study. Secondly, most respondents were women. Thirdly, the study is of a cross-sectional nature, and any conclusions regarding causality should be drawn with caution. Moreover, the analysis of the results did not take into account the type of clients the assistants worked with (usually different ones), or what traumatic events they had experienced, nor did it examine the history of trauma experienced by the respondents themselves. Finally, a post hoc forecast was made, and a classification built using the beliefs and cognitive processing of trauma, on which the classification functions were calculated. It would therefore be advisable to verify the operation of the classification functions on new material.

The value of the presented work is that it shows cognitive mechanisms behind the development of STS and SPTG in a situation lacking any clear conceptualization of the nature of these phenomena, and more importantly, it provides an insight into the mechanisms of STS and SPTG symptoms developing. They are associated with disruptions of core beliefs about the world and oneself and in the cognitive processing of trauma leading to the appearance of intense emotional reactions. Of special importance is the use of a new measurement tool, developed to assess secondary positive posttraumatic changes among professionals working with trauma victims.

This approach used in the presented work has additional justification in the latest APA classification of mental disorders (DSM-5). The pathognomy symptoms of PTSD were complemented by negative changes in the cognitive sphere, which appear or become intense after the traumatic event. The development of PTSD is associated with the presence of persistent and excessively negative beliefs and expectations about oneself, others and the world, manifested in the views of the individual; it also derives from a permanently distorted view of the causes or consequences of a traumatic event.

Social service workers, including social workers, should be aware of daily exposure to secondary traumatic stress that affect quality of life and health. A better understanding of the consequences of secondary exposure to trauma, especially the mechanism of their development, is important both from a cognitive and practical point of view. Firstly, it can help prevent the occurrence of STS and promote the occurrence of SPTG, and thus improve the work efficiency of professionals. The more so because cognitive processing therapy underscores the importance of improving the cognitive processing of trauma survivors, as it has a substantial importance on how they view their self and the world, which ultimately affects their mental health (Nalipay et al., 2015).

It is the first comparative study of occupational groups to consider both the negative and positive consequences of secondary exposure to trauma. Our study results indicate that social workers are particularly vulnerable to secondary traumatization. Its consequences are manifested in the deterioration of mental health, which may result in lower productivity at work. There is a need to raise the social awareness of employees and their superiors. A system of continuous monitoring, prevention and therapy should be developed for social workers who experience negative consequences of their work.

There is compelling evidence of psychological effects of working with trauma victims although no rigorous evidence meeting eligibility criteria was found to inform how to intervene most effectively with mental health workers who experience symptoms of STS. Therefore, as noted Bercier and Maynard (2015) in order to provide effective interventions, we need to do even more to intensify our efforts to assess the results of current and developing practices. Future research should focus on implementing longitudinal designs as well as preventive and curative interventions.

CONCLUSIONS

1. Professional help to victims of trauma is associated with the risk of secondary traumatization. Our research shows that a significant increase in intensity STS disorders occurs among social workers (35%) and a few psychologists (6.7%). In turn, the occurrence of secondary positive changes (SPTG) is confirmed by almost half of psychologists and a few social workers.

2. The occurrence of STS symptoms is associated with disruption of core beliefs and the use of maladaptive coping strategies for exposure to secondary trauma, such as denial. Meanwhile, adaptive coping strategies, such as cognitive restructuring and acceptance, favour the occurrence of positive changes (SPTG).

3. The moderating variables in the group of social workers turned out to be seniority and time spent on helping. More than 10 years of work experience and spending more than half of the working week to helping trauma victims are associated with a greater severity of secondary traumatic stress.

4. The risk of secondary trauma should be monitored, especially among social workers, and provided with appropriate help and support in the workplace.

5. Awareness of secondary traumatization should be raised, and prevention programs implemented among professionals to help trauma victims. Such activities are aimed not only at understanding the phenomenon of secondary traumatization, but above all at increasing competence in coping with secondary trauma and pro-

tecting and strengthening one's own mental health, which in turn can increase work efficiency.

CRediT Author Statement

ZYGFYD JUCZYŃSKI (50%): conceptualization, methodology, software, validation, formal analysis, resources, writing (original draft, review and editing).

NINA OGIŃSKA-BULIK (50%): conceptualization, methodology, software, validation, formal analysis, resources, writing (original draft, review and editing).

REFERENCES

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.).
- Arnold, D., Calhoun, L. G., Tedeschi, R., & Cann, A. (2005). Vicarious posttraumatic growth in psychotherapy. *Journal of Humanistic Psychology, 45*, 239–263. <https://doi.org/10.1177/0022167805274729>
- Bercier, M., & Maynard, B. (2015). Interventions for secondary traumatic stress with mental health workers: A systematic review. *Research on Social Work Practice, 25*, 81–89. <https://doi.org/10.1177/1049731513517142>
- Bride, B. E., Jones J. L., & Macmaster S. A. (2007). Correlates of secondary traumatic stress in child protective service workers. *Journal of Evidence-Based Social Work, 4*, 69–80.
- Cann, A., Calhoun, L. G., Tedeschi, R. G., Kilmer, R., Gil-Rivas, V., Vishnevsky, T., & Danhauer, S. (2010). The Core Beliefs Inventory: A brief measure of disruption in the assumptive world. *Anxiety, Stress & Coping, 23*, 19–34. <https://doi.org/10.1080/10615800802573013>
- Choi, G. (2011). Organizational impacts on the secondary traumatic stress of social workers assisting family violence or sexual assault survivors. *Administration in Social Work, 35*, 225–242. <https://doi.org/10.1080/03643107.2011.575333>
- Cohen, K., & Collens, P. (2013). The impact of trauma work on trauma workers: A metasynthesis on vicarious trauma and vicarious posttraumatic growth. *Psychological Trauma: Theory, Research, Practice, and Policy, 5*(6), 570–580. <https://doi.org/10.1037/a0030388>
- Ehlers, A., & Clark, D. M. (2000). A cognitive model of posttraumatic stress disorder. *Behavioral Research and Therapy, 38*, 319–345. [https://doi.org/10.1016/S00057967\(99\)00123-0](https://doi.org/10.1016/S00057967(99)00123-0)
- Figley, C. R. (1995). Compassion fatigue as secondary traumatic stress disorder: An overview. In Ch. R. Figley (Ed.), *Compassion fatigue: Coping with secondary traumatic stress disorder in those who treat the traumatized* (pp. 1–20). Brunner/Mazel Publishers.
- Foa, E. B., & Rothbaum, B. O. (1998). *Treating the trauma of rape: Cognitive-behavioral therapy for PTSD*. Guilford Press.
- Ga-Young Choi (2011). Secondary traumatic stress of service providers who practice with survivors of family or sexual violence: A national survey of social workers. *Smith College Studies in Social Work, 81*(1), 101–119. <https://doi.org/10.1080/00377317.2011.543044>
- Janoff-Bulman, R. (2004). Posttraumatic growth: Three explanatory models. *Psychological Inquiry, 15*, 30–34. <https://doi.org/10.5964/pch.v2i1.39>

- Joseph, S., Williams, A., & Yule, W. (1993). Changes in outlook following disaster: The preliminary development of a measure to assess positive and negative responses. *Journal of Traumatic Stress, 6*, 271–280. <https://doi.org/10.1002/jts.2490060209>
- Juczyński, Z., & Ogińska-Bulik, N. (2018). The importance of core beliefs in the process of posttraumatic adaptation – the Polish adaptation of the Core Beliefs Inventory. *Advances in Psychiatry & Neurology, 27*(2), 102–119. <https://doi.org/10.5114/ppn.2018.77211>
- Lerias, D., & Byrne, M. K. (2003). Vicarious traumatization: Symptoms and predictors. *Stress & Health, 19*, 129–138. <https://doi.org/10.1002/smi.969>
- Malkina-Pykh, I. G. (2017). Associations of burnout, secondary traumatic stress, and individual differences among correctional psychologists. *Journal of Forensic Science and Research, 1*, 18–34. <https://doi.org/10.29328/journal.jfsr.1001003>
- Manning-Jones, S., de Terte, I., & Stephens, C. (2017). The relationship between vicarious posttraumatic growth and secondary traumatic stress among health professionals. *Journal of Loss and Trauma, 22*(3), 256–270. <http://www.tandfonline.com/loi/upil20>
- Molnar, B., Sprang, G., Killian, K., Gottfried, R., Emery, V., & Bride, B. (2017). Advancing science and practice for vicarious/secondary traumatic stress: A research agenda. *Traumatology, 23*, 120–142. <https://doi.org/10.1037/trm0000122>
- Nalipay, M., Mordeno, I., & Saavedra, L. (2015). Cognitive processing, PTSD symptoms, and the mediating role of posttraumatic cognitions. *Philippine Journal of Psychology, 48*, 3–26. <https://www.pap.ph/assets/files/journals/cognitive-processing-ptsd-symptoms-and-the-mediating-role-of-post-traumatic-cognitions.pdf>
- Ogińska-Bulik, N., & Juczyński, Z. (2018). Cognitive processing of trauma – Polish adaptation of the Cognitive Processing of Trauma Scale. *The Review of Psychology, 61*(2), 171–187. http://www.kul.pl/files/714/2.61.2018_art.1.eng.pdf
- Ogińska-Bulik, N., & Juczyński, Z. (2020). *Kiedy trauma innych staje się własną. Negatywne i pozytywne konsekwencje pomagania osobom po doświadczeniach traumatycznych* [When the trauma of others becomes their own. Negative and positive consequence of helping people after traumatic experiences]. PWN.
- Ogińska-Bulik, N., & Juczyński, Z. (2022). Assessing positive posttraumatic changes among professionals working with trauma victims: The Secondary Posttraumatic Growth Inventory. *Annals of Psychology, 25*(2), 99–120. <https://doi.org/10.18290/rpsych2022.0006>
- Ogińska-Bulik, N., Gurowiec, P., Michalska, P., & Kędra, E. (2021a). Prevalence and determinants of secondary posttraumatic growth following trauma work among medical personnel: A cross-sectional study. *European Journal of Psychotraumatology, 12*(1). <https://doi.org/10.1080/20008198.2021.1876382>
- Ogińska-Bulik, N., Gurowiec, P., Michalska, P., & Kędra, E. (2021b). Prevalence and predictors of secondary traumatic stress symptoms in health care professionals working with trauma victims: A cross-sectional study. *PLoS ONE, 16*(2). <https://doi.org/10.1371/journal.pone.0247596>
- Ogińska-Bulik, N., & Michalska, P. (2022). The role of empathy and cognitive trauma processing in the occurrence of professional posttraumatic growth among women working with violence victims. *International Journal of Occupational Medicine and Environmental Health, 35*(6), 679–692; <https://doi.org/10.13075/ijomeh.1896.01945>
- Ogińska-Bulik, N., Juczyński, Z., & Michalska, P. (2022). The mediating role of cognitive trauma processing in the relationship between empathy and secondary traumatic stress symptoms among female professionals working with victims of violence. *Journal of Interpersonal Violence, 37*(3–4). <https://doi.org/10.1177/0886260520976211>

- Oginska-Bulik, N., Juczyński, Z., Lis-Turlejska, M., & Merez-Kot, D. (2018). Polish adaptation of PTSD Checklist for DSM-5 – PCL-5. A preliminary communication. *The Review of Psychology*, 61, 287–291. http://www.kul.pl/files/714/2.61.2018_art.5.eng.pdf
- Ortlepp, K., & Friedman, M. (2002). Prevalence and correlates of secondary traumatic stress in workplace lay trauma counselors. *Journal of Traumatic Stress*, 15, 213–222. <https://doi.org/10.1023/A:1015203327767>
- Radkiewicz, P. (2010). Analiza dyskryminacyjna. Podstawowe założenia i zastosowania w badaniach społecznych [Discriminant analysis. Basic assumptions and applications in social research]. *Psychologia Społeczna*, 5(2–3), 14–161.
- Rhee, Y. S., Ko Y. B., & Han I. Y. (2013). Posttraumatic growth and relating factors of child protective service workers. *Annals of Occupational and Environmental Medicine*, 25(6). <http://www.aoemj.com/content/25/1/6>
- Singer, J., Cummings, C. & Moody, S. (2020). Reducing burnout, vicarious trauma, and secondary traumatic stress through investigating purpose in life in social workers. *Journal of Social Work*, 20(5), 620–638. <https://doi.org/10.1177/1468017319853057>
- Solomon, Z., & Dekel, R. (2007). Posttraumatic stress disorder and posttraumatic growth among Israeli ex-POWs. *Journal of Traumatic Stress*, 20, 303–312. <https://doi.org/10.1002/jts.20216>
- Sui, X. C., & Padmanabhanunni, A. (2016). Vicarious trauma: The psychological impact of working with survivors of trauma for South African psychologists. *Journal of Psychology in Africa*, 26(2), 127–133. <http://doi.org/10.1080/14330237.2016.1163894>
- Taylor, S. E. (1983). Adjustment to threatening events: A theory of cognitive adaptation. *American Psychologist*, 38, 61–74. <https://doi.org/10.1037/0003-066X.38.11.1161>
- Tedeschi, R. G., & Calhoun, L. G. (1996). The Post-Traumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Trauma Stress*, 9, 455–471. <https://doi.org/10.1002/jts.2490090305>
- Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry*, 15, 1–18. https://doi.org/10.1207/s15327965pli1501_01
- Weathers, F., Litz, B., Keane, T., Palmieri, P., Marx, B., & Schnurr, P. (2013). The PTSD Checklist for DSM-5 (PCL-5). Scale available from the National Center for PTSD at www.ptsd.va.gov
- Williams, R. M., Davis, M. C., & Millsap, R. E. (2002). Development of the cognitive processing of trauma scale. *Clinical Psychology and Psychotherapy*, 9, 349–360. <https://doi.org/10.1002/cpp.343>