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Potential predictors of secondary traumatization in mental health workers

Hannah Troles

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Department of Psychology

University of Groningen

Examiner/Daily supervisor: Dr. Charmaine Borg

Second Examiner: Prof. Dr. Judith Daniels

Abstract

Professionals who work within the trauma field may be exposed to sensitive and traumatizing material on a daily basis. This can lead to secondary traumatization (ST), which is the development of trauma-related stress as a consequence of being involved with another person who experienced the trauma first-hand. The present study used a longitudinal design to determine how empathy, emotion regulation (ER), childhood trauma (CT) and peritraumatic dissociation (PD) are related to the development of ST. It was hypothesized that CT predicts ST and is mediated by empathy, ER and PD. Second, it was expected that PD moderates the relationship between ER and ST. 141 participants from the initial study were contacted again, resulting in a final sample of 82 mental health care providers. Mediation and moderation analyses were conducted as well as Post-Hoc bivariate correlations to further explore the variables of interest. The obtained results did not support the expectations, thus the two hypotheses were rejected. Nonetheless, PD showed a significant effect on ST in each model, providing preliminary indication as a potential risk factor. The study added valuable information to the trauma field and invoked for subsequent longitudinal studies. Further research should investigate potential predictors more thoroughly and establish a prevention-oriented research approach.

Keywords: Secondary traumatization, Risk factors, Longitudinal, Peritraumatic dissociation

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Potential predictors of secondary traumatization in mental health workers

Witnessing or listening to a traumatic event from an individual who was directly exposed to it can be defined as indirect exposure to trauma. Professionals who work with trauma patients experience indirect exposure more frequently than other occupational groups and may therefore be at risk for mental health problems (Boscarino et al., 2010). Being exposed to susceptible and traumatizing verbal reports can, in some cases, lead to a phenomenon referred to as secondary traumatization (ST) or secondary traumatic stress (STS). It is defined as the development of trauma-related stress as a consequence of being involved with another person who experienced the trauma first-hand (Krans et al., 2010). Several studies have found evidence that ST is prevalent among therapists working with trauma patients in different areas, such as mental health (Cunningham, 2003), family violence (Ben-Porat & Itzhaky, 2009), sexual abuse (Brady et al., 1999; Kassam-Adams, 1995; Schauben & Frazier, 1995) and child protection services (Bride et al., 2007). Since the phenomenon has become a growing concern, notably among professionals who work in the mental health sector, it is pivotal to enhance clarification of the term ST and identify individual risk factors and protective factors. An increased understanding of the latter and their relationship may also assist mental health agencies, policymakers and other organizations in the social work field. This will allow them to develop best practice guidelines to protect professionals from developing trauma-related stress symptoms (Quinn et al., 2018).

Symptoms of ST are similar to those of post-traumatic stress disorder (PTSD) which includes hyperarousal, avoidance reactions, numbing and intrusive images (Bride et al., 2007; Figley & Ludick, 2017; Vang et al., 2020). According to the latest version of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*, indirect exposure to aversive details of a traumatic event qualifies as a Criterion A stressor. Therefore, the *DSM-5* refers to ST as a potential origin within the definition of PTSD. A qualitative study by Daniels (2008) confirms

the similarity of symptoms. Specifically, psychotherapists indicated the lack of sleep and concentration, social isolation, nightmares, and hopelessness due to aversive traumatic material given by trauma patients. Also, Figley (1995) defined ST or STS as “a syndrome of symptoms nearly identical to PTSD” that arises from “exposure to knowledge about a traumatizing event experienced by a significant other” (Figley, 1995, p. 8). Furthermore, he described chronic suspicion of others, helplessness, heightened sense of vulnerability and loss of a sense of personal control as possible cognitive shifts resulting from ST (Figley, 1995). To defend against these symptoms, professionals may engage in denial, disbelief and detachment in the therapeutic alliance (Figley, 1995; Knight, 2013). To conquer those reactions and possible adverse effects on the professional, it is crucial to investigate the development of ST and its possible risk factors in more detail. By identifying specific risk- and protective factors, implications can be formulated for possible intervention and prevention. Yet research seems inconsistent and current studies still apply different assessment methods that investigate PTSD-like symptoms among conceptualizations other than ST.

The impact of indirect exposure to aversive events has been investigated under several different concepts other than ST or STS, such as "vicarious traumatization" (Baird & Kracen, 2006; Pearlman & Saakvitne, 1995), “compassion fatigue” (Figley, 1995; Stamm, 2010), and “burnout” (Vang et al., 2020; Zapf, 2002). The conceptualizations differ in their focus but share similarities in their symptomatology and are common to occur in professionals working with survivors or victims of trauma (Vang et al., 2020). This study will use the term secondary traumatization (ST) to refer to the manifestation of PTSD-like symptoms resulting from indirect exposure to traumatic material and use measures that are specific to ST.

Contributing factors

Many risk factors have been investigated in relation to ST; however, research findings are still inconsistent. The meta-analysis by Hensel et al. (2015) determined caseload size, personal trauma history, less work experience and social support as significant risk factors. Lerias and Byrne (2003) also documented less social support as a contributing factor for developing ST. Since ST can severely limit the therapist's work, it is also crucial to examine factors that are protective. Kindermann et al. (2017) determined *a sense of coherence, existing social support, male gender, and a secure or preoccupied attachment style* as resilience factors among interpreters who work with refugees. Nevertheless, before appropriate training and prevention strategies can be determined, increased clarification of ST, elevated understanding of clinically significant levels and the identification of possible risk factors are needed (Elwood et al., 2011).

Recent studies, including the first part of this study, have reason to suggest that the following factors pose a risk of developing ST, namely empathy, emotion regulation (ER), childhood trauma (CT) and peritraumatic dissociation. In the following, these factors are explored in detail.

Empathy

Many studies report empathy and perspective taking as one of the significant vulnerability factors for developing ST. Previous studies found that higher levels of trauma workers' empathy and involvement towards the client are associated with higher levels of ST (Daniels, 2008; MacRitchie & Leibowitz, 2010). According to Daniels (2008), three interconnected processes enable the development of ST, namely empathy, kindling and dissociation. Daniels (2008) concludes that ST is not a sign of lacking professionalism but rather a consequence of pronounced empathy of the therapist. Similarly, the Compassion

Fatigue Resilience Model (CFRM) emphasizes empathy as one of the main factors in the development of ST (Figley & Figley, 2017). Specifically, the connection between emotional contagion and empathy seems to promote developing ST symptoms (Figley & Figley, 2017). Furthermore, MacRitchie and Leibowitz (2010) found empathy as a consistent moderator between the relationship of exposure to traumatic material and ST. They discovered that previous trauma increases the level of empathy among trauma workers, which in turn enhances ST. Similarly, Greenberg et al. (2018) discovered that levels of empathy were elevated among adults who reported experiencing a traumatic event in childhood. Therefore, empathy seems to play a crucial role in the relationship between experiencing a CT and ST, yet lacking significant research findings. It thus seems pivotal to explore the relationship between the level of empathy and ST in order to contribute valuable information to the trauma field and to help clarify empathy's role in ST.

Emotion regulation

ER is defined as a process of conscious and unconscious modulation of emotions that are evoked by daily events. Several strategies are used to decrease emotional intensity in order to respond more adequately to different environmental demands (Măirean, 2016). Being unable to regulate one's emotional responses or having difficulties in ER towards a traumatized client increases the risk of developing ST (Badger et al., 2008). In contrast, reinterpreting a stressful situation into a more helpful way to cope with the stress is related to higher psychological well-being (Matta et al., 2014; Sehrish et al., 2020).

Studies on PTSD and ER found that changes in ER capacity result from exposure to trauma or PTSD symptomatology. Additionally, ER difficulties may also serve as a pre-trauma risk factor for developing PTSD (Jones et al., 2018; Seligowski et al., 2015). In this regard, changes in ER capacity may be the result of early exposure to traumatic material

(Ehring & Quack, 2010). Consequently, resultant ER difficulties may promote the development of ST (Badger et al., 2008). Therefore, in this study the relationship between early traumatic experience, ER and ST will be investigated in more detail.

Furthermore, prior research emphasized that maladaptive ER strategies in response to emotional distress during a traumatic event may lead to PD (Fikretoglu et al., 2006; Hopper et al., 2007). In addition, it is more likely that general ER difficulties are subject to and result in PD as a form of maladaptive ER (Jones et al., 2018). Consequently, as research has proven that ER difficulties facilitate the development of ST, it can be suggested that PD may moderate that relationship. Thus, in this study, it will be investigated whether the interaction between ER and PD enhances the development of ST.

Childhood trauma

Mental health workers who experienced a personal trauma or an aversive event during childhood are found to be at risk for developing ST. Theorists assume that exposure to a client's traumatic experiences, feelings, reactions and subsequent cognitive distortions may provoke a clinician's reactions to their own trauma (Pearlman & Saakvitne, 1995). Though mixed results can be found in the literature, many authors discovered personal trauma history to exacerbate ST reactions. For instance, the meta-analysis by Hensel et al. (2015) defined a personal trauma history as a crucial risk factor in the development of ST. Having experienced a personal trauma was linked to ST in all studies they examined, with effect sizes ranging from .05 to .36. Traumatic memories of clients akin to those of the trauma worker are particularly relevant, as they may induce more emotional distress than non-similar traumatic memories (Ludick, 2013; Salston & Figley, 2003).

Traumatic memories are also considered to be a risk factor illustrated by the CFRM (Figley & Figley, 2017). Occasionally, they might enhance the clinician's ability to fully

understand the client's experiences. However, personal traumatic memories often do not enable the professional to show greater empathy to the client but rather introspection and withdrawal (Figley & Ludick, 2017). Notably, unresolved traumatic events are assumed to place the professional at greater risk for negative outcomes when being exposed to clients' traumatic material (MacRitchie & Leibowitz, 2010). Consequently, personal traumatic events, particularly experienced in childhood (Ehring & Quack, 2010), may infer difficulties for the professional to pursue working adequately with their clients. Hence, this study will clarify the relationship between experiencing a childhood trauma as a mental health worker and ST and whether ER, Empathy and PD may be contributing.

Peritraumatic dissociation

PD was substantially examined within the context of PTSD. Thereby, PD was found to be the strongest predictor of PTSD, its persistence and severity (Lensvelt-Mulders et al., 2008; Levin et al., 2014; Ozer et al., 2003). PD is referred to as a strategy of detaching oneself from intense emotional feelings during a traumatic experience. It is characterized by high activation of emotions as well as disengagement from emotions by distancing oneself from extreme distress (Jones et al., 2018). Since ST resembles PTSD - symptoms, it seems pivotal to investigate PD as a possible risk factor for the development of ST. In this respect, Samson and Shvartzman (2018) found that workers with significant clinical levels of PD reported significantly high levels of ST. Also, Daniels (2008) assumed PD as one of the most significant predictors of ST.

Furthermore, Măirean and Ceobanu (2017) used a trauma film paradigm in their sample (N=148) to investigate the relationships between thought and emotion suppression and symptoms of intrusion. Additionally, they investigated whether these relationships are mediated by peritraumatic state dissociation and state anxiety. They found that state

dissociation predicted intrusive images (Măirean & Ceobanu, 2017). The study shows that PD plays a crucial role in developing PTSD-like symptoms (intrusive images) after exposure to traumatic material. Since research confirms PD as a predictor of PTSD (Lensvelt-Mulders et al., 2008; Levin et al., 2014; Ozer et al., 2003), mental health workers who experienced childhood trauma (CT) and meanwhile dissociated may be at particular risk. More specifically, professionals who experienced a CT may be triggered by the client's traumatic material. Consequently, they may engage in a more maladaptive ER strategy such as dissociation (Jones et al., 2018), which in turn enhances the risk of developing ST (Samson & Shvartzman, 2018). Hence, this study will investigate whether PD may take a mediating role in the relationship between CT and ST.

Aim of the current study

Based on the reviewed literature, it becomes clear that empathy, ER, CT and PD are pivotal to investigate, as they seem to elicit ST reactions. These factors have often been recognized as particularly risky in the onset and continuity of PTSD and are therefore essential indicators in the development of ST. Therefore, the aim of this study is to determine how empathy, emotion regulation (ER), childhood trauma (CT) and peritraumatic dissociation (PD) are related to the development of secondary traumatization (ST). Though these factors have been investigated on their own, they have rarely been examined in a related manner with the aim to determine what role each of the factors play in the onset of ST. If these factors may prove to be mutually dependent, they may possibly increase the risk for ST. Based on the above discussed research studies, it is hypothesized that:

H1. CT predicts the development of ST and is mediated by empathy, ER, and PD.

H2. ER predicts the development of ST and is moderated by PD.

Since most studies have been cross-sectional or literature reviews, the current study uses a longitudinal design by integrating data that was measured last year. Longitudinal studies are better to establish the correct sequence of events, identify changes over time, and provide insight into cause-and-effect relationships (Bijleveld et al., 2004). Since the study takes place during the COVID 19 pandemic, mental health workers may work under different conditions (e.g., via telephone and computer), which might influence their level of stress. Therefore, the current study takes measures into account that control for its possible influence in order to enable getting more accurate results.

Methods

Design

This study is the second part of a longitudinal study that assesses potential predicting relationships. The dependent variable (DV) is secondary traumatization (ST), and the independent variables (IVs) are empathy, emotion regulation (ER), childhood trauma (CT), and peritraumatic dissociation (PD). For the mediation analysis, CT is used as the IV, ST as the DV and ER, empathy and PD as mediators. For the moderation analysis, ER is used as the IV, ST as the DV and PD as the moderator.

Participants and Procedure

Participants were mental health providers working with traumatized clients in Germany who were recruited via email and/or via public online announcements for the first part of this study in autumn 2019. 141 participants who took part in the first assessment of the longitudinal study indicated the willingness to participate in the second part and thus were contacted again via email. The email included brief information about the study and an individual link to the questionnaire accessible through the Qualtrics platform. The ethical approval of the initial study granted by the Ethical Committee of Psychology of the

University of Groningen is used accordingly for this follow-up study (EPC code: PSY-1920-S-0004). The data collection started on the 8th of April. This study included 82 participants (69 females, 12 males, 1 = no specification) aged between 28 and 69 with a mean age of 47.74 ($SD = 10.72$). Every participant was invited to sign an active online informed consent prior to their participation. The participants were given the opportunity to contact the researchers in case questions or problems arose.

First, the participants were briefly introduced to the study and its purpose. They were informed about its goal and the study's ethical considerations. After giving consent for participation, participants had to indicate some demographic information and were asked questions related to their work with traumatized clients. Next, participants were asked whether their working conditions changed due to the COVID 19 pandemic and whether it influenced their work and private life. Subsequently, participants had to complete questions assessing the level of secondary traumatic stress symptoms and how long those reactions have lasted. Further, participants were asked to fill in some items assessing dissociative symptoms during their work with traumatized clients and were asked questions regarding control and regulation of emotions. Lastly, participants were asked about perceived social support they may receive privately. In the end, participants were able to leave their email addresses if they intended to be informed about the outcome of the study. The data collection lasted for approximately five weeks. Reminders were sent to those participants who did not complete the questionnaire within two weeks. In total, three reminders were sent. All participants received a final notification via email in which the researchers informed about the end of the study and thanked them for participation.

Materials

The online questionnaire created via Qualtrics included several different measurements that assess the variables of interest. The present study excluded redundant measures of the initial study due to their assumed consistency: questions about CT, the measurement on empathy and items assessing psychological work qualifications were not utilized again. Hence, the values obtained last year on those measurements were used for this year's analysis. Information about those measurements can be found in the initial study. In the following, the utilized questionnaires are described in detail. Since participants are mental health workers from Germany, all materials were provided in German language. All material is saved for the interested reader.

Baseline Questionnaire

The Baseline Questionnaire intended to measure demographics and details about the participants' work. First, the participants had to indicate their age and gender. Next, participants were asked whether they have worked with traumatized clients in the course of the last year. Only participants who have worked with traumatized clients were enabled to complete the whole questionnaire. Further, they had to indicate how many hours they have worked on average with clients during the last year. Subsequently, participants were asked to answer the question "What percentage of the clients, you treated last year, were traumatized?". Next, they had to specify what percentage of the traumatized clients gave not only rough details of the trauma but also reported sensory details. The fifth question was stated as follows: "What percentage of the clients you are currently treating (in the last month) are traumatized?". The last question requested participants to indicate how long they have been working in their profession already.

COVID 19 Questions

Since the study took place during the COVID 19 pandemic, items were created in order to detect changes in participants' working conditions. Five questions were designed asking about how the participants currently carry out their work and how the pandemic might have influenced their work and private life. The first question "How do you currently carry out your work? " included the options "sessions via telephone", "sessions via computer", or "sessions in person". Participants had to indicate this as a percentage. An example of the four subsequent questions is "My therapeutic work is strongly influenced by the pandemic". Those had to be answered on a 5-point Likert scale. The data obtained on the last four questions were used as a covariate to control for the pandemic's possible influence on their level of stress. Unfortunately, the internal consistency was relatively poor for the last four items ($\alpha = .57$).

Questionnaire of Secondary Traumatization

The Questionnaire of Secondary Traumatization (German: Fragebogen Sekundäre Traumatisierung: FST) is a measurement that comprises 31 items and assesses symptoms of the four PTSD symptom clusters according to the *DSM-5* as well as items that measure safety behaviour and sense of threat (Weitkamp et al., 2014). The items need to be answered on a 5-point Likert Scale ranging from 1 (never) to 5 (very often). This study used the state version of the FST, meaning that the participants had to rate how often the 31 symptoms occurred over the course of the last week. A sum score between 65 and 82 would indicate a moderate clinical level of ST. A sum score above 82 would indicate a severe clinical level of ST (Daniels, 2006). The evaluation of the psychometric properties suggests a high internal consistency ($\alpha = .94 - .92$) for the total score, and the questionnaire is considered a reliable tool for acute and lifetime ST (Weitkamp et al., 2014). Similarly, the current study demonstrated excellent internal consistency ($\alpha = .91$).

Secondary Traumatic Stress Scale

The Secondary Traumatic Stress Scale (STSS) developed by Bride et al. (2004) is the second measurement assessing ST included in this study. It is a self-report measure of secondary trauma consisting of 17 items. Bride et al. (2004) based the items on the three DSM-IV criteria of PTSD. The items are scored using a 5-point Likert scale ranging from 1 (never) to 5 (very often). The internal consistency of the full STSS is considered very good with a Cronbach's alpha of .93. The measurement supported good convergent, discriminant and factorial validity (Bride et al., 2004; Ting et al., 2005). Also, within the present sample, internal consistency was high ($\alpha = .90$). Since there is no German public translation of the STSS, the researchers translated the items into German language by using a back translation method with the help of two native speakers. Though the STSS is a robust tool measuring ST, solely the scores obtained on the FST were used for the analysis.

Peritraumatic Dissociation Questionnaire

PD was assessed using 19 items. The first 9 items were derived from the initial study and utilized again for this round. Participants were asked to indicate how much the items have applied to them during the last year while they were listening to possibly stressful descriptions of their clients. They had to indicate their answer on a 5-point Likert scale ranging from 1 (never) to 5 (very often). Detailed information about the items can be found in the initial study. The scale demonstrated good internal consistency within the present study ($\alpha = .80$). The remaining 10 items were based on the Peritraumatic Dissociative Experiences Questionnaire (PDEQ; Marmar et al., 1994), which is a 5-point-Likert-scale self-report questionnaire, ranging from 1 (not at all true) to 5 (extremely true). The German version translated by Maercker (1994) was used for this study. The PDEQ is scored by taking the mean item response across all items (Birmes et al., 2005). The PDEQ illustrates moderate to

strong convergent validity and moderate to good internal consistency ($\alpha = .78 - .80$ for total score of PDEQ), which also applies to this study ($\alpha = .85$).

Emotion Regulation Questionnaire

To assess participants' emotion regulation skills, the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003) translated into German by Abler and Kessler (2009) was used. The ERQ is a 10 item self-report questionnaire that covers two strategies of emotion regulation, namely cognitive reappraisal (items 1, 3, 5, 7, 8, 10) and expressive suppression (items 2, 4, 6, 9). Cognitive reappraisal is described as an adaptive emotion regulation strategy, while expressive suppression is rather seen as maladaptive (Gross & John, 2003). An item that describes cognitive reappraisal is for instance: "When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about ". An item that measures expressive suppression is, for example: "I keep my emotions to myself". The items are rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), with higher scores indicating higher utilization of that strategy. The scoring takes the average of all scores of each subscale. Thus, a mean score for cognitive reappraisal as well as a mean score for expressive suppression is created and will be used separately within the analysis. The ERQ cognitive reappraisal ($\alpha = .89-.90$) and expressive suppression ($\alpha = .76-.80$) scores showed moderate to high internal consistency reliability (Preece et al., 2019) as well as high discriminant and convergent validity (Gross & John, 2003). Within the present study, ERQ cognitive reappraisal ($\alpha = .86$) and expressive suppression ($\alpha = .75$) scores showed acceptable to good internal consistency.

Perceived Social Support Questionnaire

The German version of the brief form of the Perceived Social Support Questionnaire (F-SozU K-6) comprises 6 items that are rated on a 5-point Likert scale ranging from 1 (does

not apply) to 5 (exactly applicable) (Kliem et al., 2015). The Questionnaire is used to measure perceived social support regarding participants' private life. The F-SozU K-6 illustrates a high factorial validity and a very good internal consistency reliability ($\alpha = .90$) which was found to be comparable to the longer German versions of the measurement (Kliem et al., 2015). The current study demonstrated good internal consistency for the 6 items ($\alpha = .86$).

Preliminary analysis

For the data analysis, the statistical program for social sciences (SPSS, version 26) was used. First, the dataset was merged with the dataset from the first part of the study. Hence, participants' scores obtained this year were matched with the respective scores from last year. Any data revealing personal information has been removed prior to the analyses. Furthermore, participants that either indicated not working with traumatized clients or did not finish the questionnaire were excluded from the dataset. Therefore, 13 participants had to be excluded. Subsequently, the CT variable was coded. Having experienced a CT (emotional abuse, sexual abuse, physical abuse, emotional neglect and physical neglect) was coded as 1, while not having experienced one of the trauma types was coded as 0.

The data was analysed for missing values using Little's MCAR test, revealing that values were missing completely at random. Approximately 2% of the values were missing; therefore, multiple imputation with 50 iterations was conducted. The final dataset was created using the OMS procedure to aggregate the pooled scores from the multiple imputed dataset. Next, the scores for the variables of interest were calculated as described in the materials. The variables were further checked upon violations of the assumptions. The QQ plots that result from linear regression of the residuals were visually inspected. It became apparent that normality was slightly violated for the relationship between CT and expressive suppression, FST and perspective taking and FST and empathy. Visual inspection does have some

limitations, such as vulnerability to subjectivity, but is still a commonly used procedure to check assumptions (Cohen et al., 2013). Since the present study uses a natural sample, it is not unusual that the assumptions are violated as they are not controlled for (Hayes & Rockwood, 2017). Hence, the analyses were conducted with the obtained scores despite the slight violation of the assumptions.

Statistical analysis

Since predictive relationships were investigated, the scores on the measurements assessing empathy, ER and PD (9 distractor items) that were obtained last year and this year's obtained score on the FST were used for the different analyses. First, demographics, information about the participants' work, the dependent variable, and the predictors were analysed using descriptive statistics. To test the first hypothesis, PROCESS model 4 was utilized to investigate whether empathy, ER and PD mediate the effect between CT and ST. Within PROCESS model 4 CT was the independent variable and ST the dependent variable. The two types of ER (cognitive reappraisal and expressive suppression), the two types of empathy (empathy and perspective taking) and PD were included as mediators. Thus, five mediators were included. Additionally, the four COVID 19 items and perceived social support were added as covariates. PROCESS modelling created the results for the total effect (the effect of CT on ST), the direct effect (i.e., the effect of CT on ST, after taking into account the indirect effect) and the indirect effect (the effect of CT on ST through empathy, ER and PD). The indirect effect was corrected with 95% bootstrap confidence intervals by using 5000 bootstrap samples.

Second, PROCESS model 1 was used to test whether PD moderates the relationship between ER and ST. In total, two moderation analyses were conducted, with each ER strategy (cognitive reappraisal and expressive suppression) used as the independent variable, ST as the

dependent variable and PD as the moderator variable. All means were centred to control for multicollinearity. In addition, the four COVID 19 items and perceived social support were used as covariates. PROCESS modelling produced two main effects and one interaction effect for each model.

To further examine the nature of the associations between the relevant variables, simple bivariate correlations were used as a Post-Hoc test. In particular, Pearson's correlation analyses were performed between the variables included in the mediation and moderation analyses. The effect size was interpreted using Cohen and Cohen (2013).

Results

Before testing the hypotheses, the descriptives of the relevant measurements were explored. Last year the participants of this study spent on average 17 hours per week working with clients ($SD = 10.28$), of whom approximately 52.6% ($SD = 31.24$) have been traumatized. On average, 40.2% ($SD = 30.66$) of those clients gave not only rough details of the trauma but also reported sensory details. Similarly, 52.4% ($SD = 32.78$) of the clients the participants have treated within the last month were traumatized. On average, the participants have already been working in their profession for 13 years ($SD = 9.33$, range: 2-42 years). Although the COVID 19 pandemic severely restricted and changed working conditions in some areas, the majority of therapy sessions were conducted as usual. That is, 77.2% ($SD = 26.56$) were conducted in person, 14.5% ($SD = 16.34$) via telephone and 22.6% ($SD = 22.05$) online. The mean score of the four COVID 19 items, measuring the pandemic's influence on the participant's level of stress, was 2.84 ($SD = .69$).

On average, the participants did not show significant clinical levels of secondary traumatization (ST) ($M = 48.24$, $SD = 8.36$). The obtained scores ranged from 31 to 79. Only 10 participants scored above 64, indicating moderate clinical levels of ST. The average level

of ST did not change compared to the levels of the initial study ($M = 48.35$, $SD = 12.46$). Few participants scored above 64, but one participant scored 88, indicating a severe clinical level of ST. Furthermore, it was observed that the majority of participants ($n = 62$, 75.6%) experienced a childhood trauma (CT) (emotional neglect, bodily neglect, emotional abuse, sexual abuse or bodily abuse). Most of them experienced at least one or two forms of trauma ($n = 38$, 46.3%). Most frequently emotional abuse ($n = 53$, 64.6%) was experienced. Moreover, in the first study participants used cognitive reappraisal ($M = 4.52$, $SD = 1.24$) more often than expressive suppression ($M = 2.51$, $SD = 1.03$) as emotion regulation (ER) strategy. These results have been unchanged in this year's assessment (cognitive reappraisal: $M = 4.72$, $SD = 1.13$, expressive suppression: $M = 2.75$, $SD = 1.10$). The remaining descriptive scores of last year's and this year's level of peritraumatic dissociation (PD), empathy and perspective taking and the scores on perceived social support can be found in Table 1.

Table 1

Descriptives of variables

Variable	<i>M</i>	<i>SD</i>	Minimum	Maximum
Empathy	4.55	.61	2.56	5.78
Perspective taking	4.30	.65	2.44	5.78
PD last year	1.83	.53	1	3.56
PD1 this year	1.78	.51	1	3.33
PD2 this year	1.16	.28	1	2.40
Perceived social support	4.40	.65	2.17	5.00

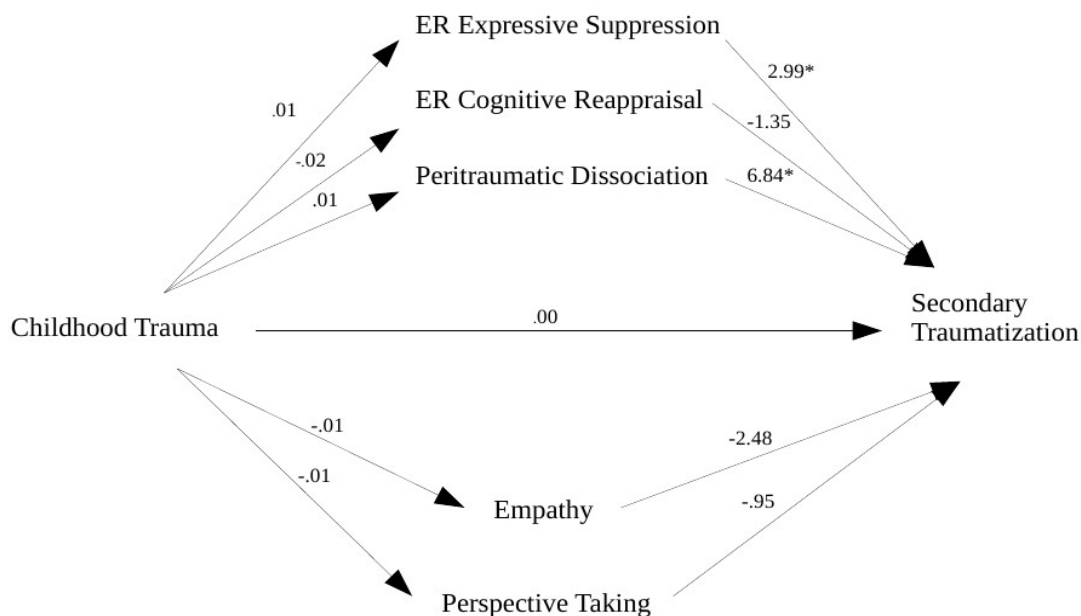
Note. PD1 refers to the scores obtained on the 9 distractor items. PD2 refers to the scores obtained on the PDEQ.

Mediation analysis

The results of the mediation analysis are displayed in Figure 1. In total, five mediators were included within the model. The results showed that empathy, ER and PD do not mediate the relationship between CT and ST. Thus, the findings were not in line with the expectations. The bootstrapped confidence intervals for the indirect effects of empathy, perspective taking, cognitive reappraisal, expressive suppression and PD contained zero, which indicates non-significant indirect effects. Nonetheless, the effect of PD on ST was found to be significant ($b = 6.84$, $t(81) = 2.84$, $p = .006$). Further, a significant effect of expressive suppression on ST was found ($b = 2.99$, $t(82) = 2.28$, $p = .026$). The total effect of CT on ST was not significant ($b = .17$, $t(82) = 1.04$, $p = .301$). After controlling for the indirect effect, no significant direct effect of CT on ST was found.

Figure 1

Results of the mediation analysis



Note. * $p < .05$. The regression coefficients are shown for each effect in the mediation model.

Moderation analyses

The results for the two moderation analyses are shown in Table 2 and Table 3. Both moderation analyses contradicted the expectations, hence the second hypothesis had to be rejected. In the first model, no significant interaction effect of cognitive reappraisal and PD on ST was found, indicating that PD does not moderate the relationship between cognitive reappraisal and ST. Nonetheless, there was a significant main effect of PD on ST ($b = 8.35$, $t(82) = 3.53$, $p < .001$), but no significant main effect was found for cognitive reappraisal on ST.

In the second model, the interaction effect of expressive suppression and PD on ST was not significant, indicating that the relationship between expressive suppression and ST is not moderated by PD. Again, there was a significant main effect of PD on ST ($b = 6.56$, $t(82) = 2.73$, $p = .008$), but no significant main effect was found for expressive suppression on ST. An additional analysis of conditional effects, however, showed that the relationship between expressive suppression and ST was significant for participants with high levels of PD ($b = 3.97$, $t(82) = 2.65$, $p = .010$), but not significant for participants with low or medium levels of PD. Simple Slopes of the relationship between expressive suppression and ST for different levels of PD are illustrated in Figure 2.

Table 2

Results of moderation analysis with cognitive reappraisal as predictor

Predictor	<i>B</i>	<i>SE (B)</i>	<i>t</i>	<i>Sig</i>
(Constant)	41.02	9.66	4.25	< .001
Cognitive reappraisal	-1.73	1.02	-1.69	.096
Peritraumatic dissociation	8.35	2.37	3.53	<.001
Cognitive reappraisal x Peritraumatic dissociation	-1.86	1.86	-1.00	.320
Perceived social support	-.62	1.88	-.33	.740

COVID items	3.52	1.77	1.99	.051
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Dependent variable: Secondary traumatization.

Table 3

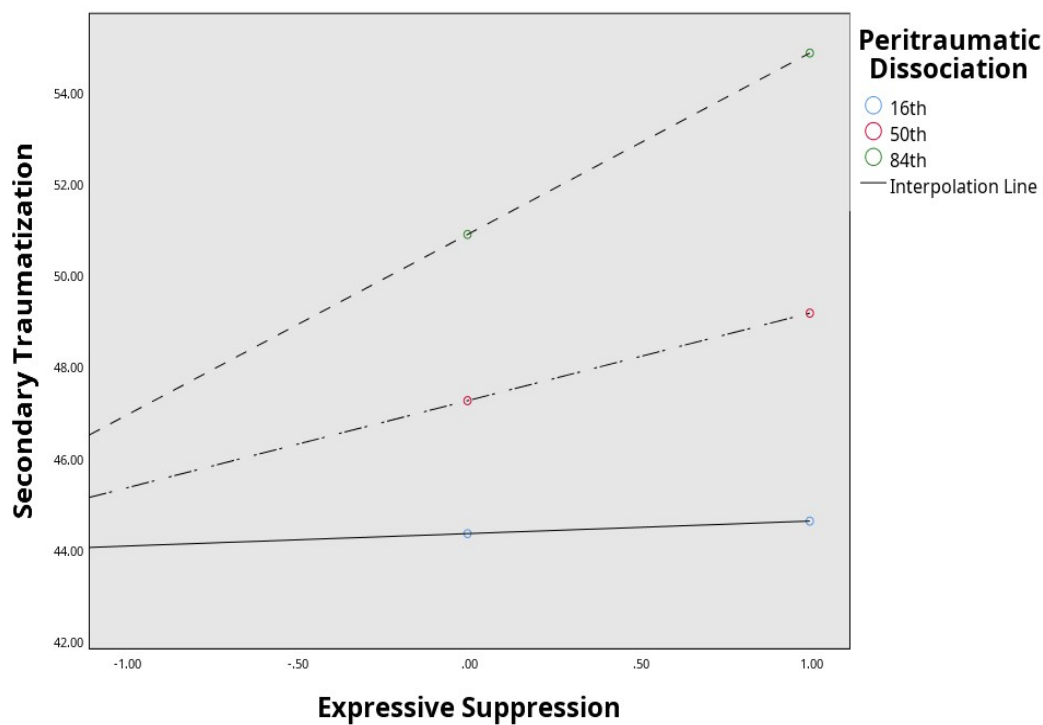
Results of moderation analysis with expressive suppression as predictor

Predictor	<i>B</i>	<i>SE (B)</i>	<i>t</i>	<i>Sig</i>
(Constant)	40.56	9.79	4.15	< .001
Expressive suppression	2.10	1.28	1.65	.103
Peritraumatic dissociation	6.56	2.40	2.73	.008
Expressive suppression x Peritraumatic dissociation	3.69	2.12	1.74	.085
Perceived social support	-.14	1.87	-.08	.940
COVID items	2.68	1.83	1.46	.147

Dependent variable: Secondary traumatization

Figure 2

Relation of expressive suppression and ST for different levels of PD



Note. On the y axis the scores of ST are visible. On the x axis the level of expressive

suppression can be depicted. The three different lines display the different levels of PD. The upper dashed line represents the highest level of PD, the 84th percentile. It can be seen that participants display high levels of expressive suppression and ST when PD is also high.

Post-Hoc analyses

Bivariate correlation analyses were conducted in order to explore the relationship between the variables of interest. An overview of the correlations and their significance can be found in Table 4. A significant positive correlation between this year's level of ST and last year's level of ST was found, assuming a stable pattern. Nevertheless, when inspecting the individual scores of each participant, it can be seen that for some participants the level of this year's ST changed considerably in comparison to last year. The comparison is shown in Figure 3.

Table 4

Correlations between variables of interest

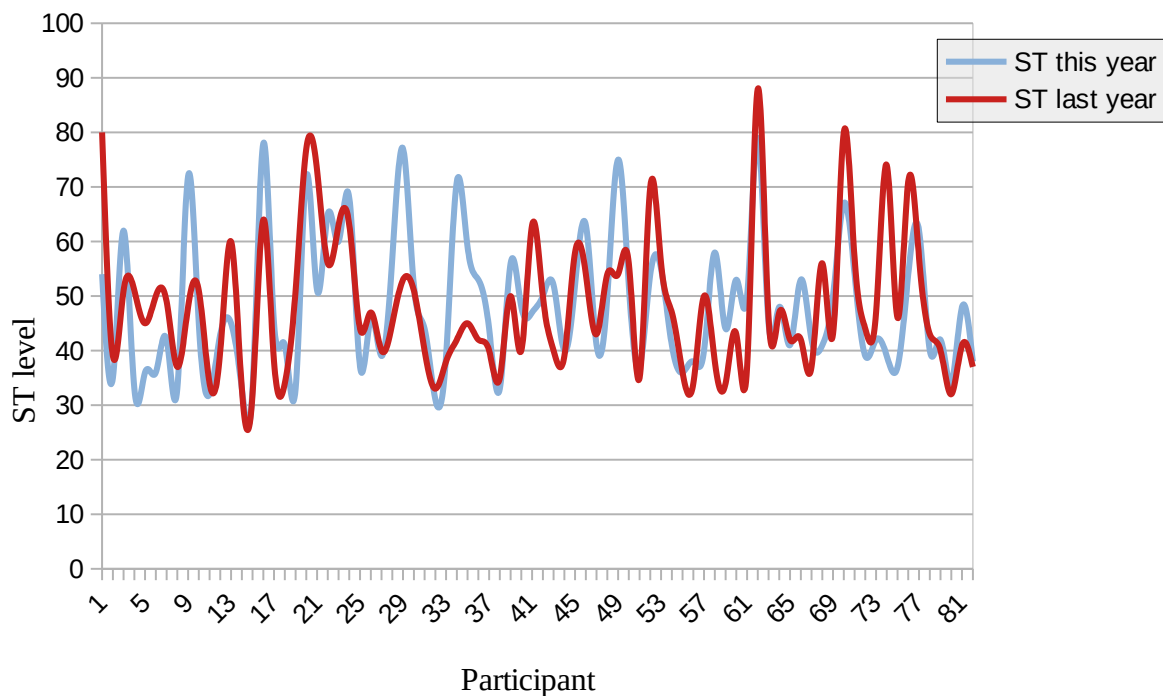
Variable	<i>n</i>	1.	2.	3.	4.	5.	6.	7.	8.
1. ST this year	82	–							
2. PD last year	82	.396**	–						
3. Expressive suppression last year	82	.322**	.332**	–					
4. Cognitive reappraisal last year	82	-.157	.764	.092	–				
5. Empathy last year	82	-.125	-.058	.134	.118	–			
6. Perspective taking last year	82	-.223*	-.088	-.039	.286**	.588**	–		

7. Childhood trauma last year	82	.098	.147	.238	.364	.084	-.086	_
8. ST last year	82	.583**	.639**	.254*	-.017	.009	-.086	.092

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

Figure 3

Comparison between last year's and this year's level of ST for each participant



Note. On the y axis the level of ST can be seen, the x axis displays each participant. The red line displays last year's level of ST of each participant; the blue line displays this year's level of ST of each participant.

Discussion

The present study primarily examined how empathy, emotion regulation (ER), childhood trauma (CT) and peritraumatic dissociation (PD) are related to the development of secondary traumatization (ST). The longitudinal study allowed to investigate whether last year's measures of empathy, ER, CT and PD predict this year's level of ST in the present

sample. The results showed that the first and second hypotheses had to be rejected. The relationship between CT and ST was not mediated by empathy, ER and PD and the relationship between ER and ST was not moderated by PD. Nonetheless, in each model, the effect of PD on ST was significant, indicating a relationship between the two, which is in line with current research (Daniels, 2008; Samson & Shvartzman, 2018). Moreover, the results of the moderation analysis showed that the relationship between expressive suppression and ST appeared to exist only for participants with high levels of PD.

ST severity in the present sample

On average the sample did not show significant clinical levels of ST. Only 12.2% indicated having moderate clinical levels of ST, and none of the participants showed severe clinical levels of ST. The results seem contradictory with previous research that emphasized ST as common among professionals who work with traumatized patients (Boscarino et al., 2010). There can be several reasons why the sample did not show significant levels of ST. Protective factors such as social support, supervision or secure attachment style (Kindermann et al., 2017) may have been prevalent among the present as well as the previous sample. Since social support was measured this year to serve as a covariate, this one protective factor was controlled for. Still, the models were insignificant, assuming that other factors might have helped participants to reduce their risk of ST. Thus, assessing additional protective factors among the sample would have added explanatory value within the present study. One major factor that has been investigated in previous studies explaining low levels of ST is resilience (Gottesman, 2008). It is described as the human ability to develop significant psychological and emotional skills and to use social support to better process stressful or traumatic experiences (Horn & Feder, 2018). The sample may be considered as more resilient, which in turn may explain the low levels of ST.

More experienced workers are suggested to be less vulnerable to ST symptoms (Birck, 2001). In contrast, beginning therapists show higher levels of anxiety, higher self-focus and vulnerability to feelings of guilt when clients re-experience the trauma during therapy (Dutton & Rubinstein, 1995; Stoltenberg et al., 1997). The sample could be considered as experienced since the participants have been working in their field for an average of 13 years. If the sample would have consisted of more novice mental health workers, the level of ST may have been higher. In addition, caseloads of clients and the number of hours spent per week with clients may help to explain ST severity within the sample. During the last year, participants have worked approximately 17 hours per week with clients, of whom 52.6% were traumatized, which was similar within the initial study. If the participants were confronted with greater caseloads of traumatized clients and/or more working hours per week, ST symptoms might have also been more prominent (Bober & Regehr, 2006; Sprang et al., 2007). However, other studies have often failed to report a relation between hours spent with trauma clients and ST (Adams et al., 2008; Boscarino et al., 2004; Ennis & Home, 2003; Linley et al., 2005).

Furthermore, the average level of ST did not change considerably compared to last year within the sample. A strong positive correlation was found between the two measurements. However, when inspecting the scores on an individual level, it can be seen that several participants scored considerably different in comparison to last year. Although the statistic proves a more stable pattern of ST over the course of one year, the individual inspection suggests otherwise (Figure 3). Nevertheless, the stability and continuity of ST symptoms need to be further explored using longitudinal studies, which may investigate levels of ST over the course of, for instance, two or three years.

Even though the sample size was relatively robust, only 82 of the initial 141

participants were able to participate in this study. Some had to be excluded due to unfinished responses ($n = 10$), while some did not treat traumatized patients last year ($n = 3$). However, it is also reasonable to assume that those who did not participate again ($n = 46$) may have had high ST levels. Thus participants, who may have been highly affected by the topic, were rather reluctant to participate a second time. In addition, presumably, some of the 82 participants answered in more socially desirable ways, which also reduces the validity and reliability of the findings.

Empathy as mediator

Previous studies discovered that empathy levels are elevated among trauma workers (MacRitchie & Leibowitz, 2010), which in turn may enhance ST. Therefore, the present study suggested that empathy would mediate the relationship between CT and ST. Nonetheless, the findings did not support the expectation. Interestingly, the Post-Hoc test showed a negative correlation between empathy and ST as well as perspective taking and ST. This finding seems to be partly in line with current literature. Taking a closer look at the concept of empathy, professionals in the trauma field face a paradox. Research, on the one hand, suggests that those who have a great capacity to feel and express empathy tend to be more at risk for symptoms of ST (Daniels, 2008; Figley, 1993). Other studies, however, stress the importance of mental health worker's empathy towards the client (Halpern, 2003; Stephan & Finlay, 1999; Suchman, 1997). Empathy is defined as empathic concern, willingness to communicate and emotional contagion (Omdahl & O'Donnell, 1999). The latter seems to be the most controversial factor and is rather described as a part of compassion. Additionally, Figley and Figley (2017) emphasized that the connection between empathy and emotional contagion seems to promote the development of ST. Thus, emotional contagion assumedly plays a key role in the development of ST symptoms.

In this respect, the study by Crumpei and Dafinoiu (2012) could provide more clarification. In their study, emotional contagion referred to compassion and was defined as an affective process in which "an individual observing another person, experiences emotional responses parallel to that person's actual or anticipated emotions" (Miller et al., 1988, p. 254). It was separated from empathy which was defined as "the willingness to understand the patient's emotional reactions, to see the situation through the patient's eyes and to communicate this understanding" (Hojat et al., 2002). Their study revealed that medical workers who were more compassionate showed more intrusive and avoidant symptoms. However, medical workers who displayed more clinical empathy did not show more ST symptoms (Crumpei & Dafinoiu, 2012). Therefore, rather compassion implying emotional contagion seems to expose mental health workers to ST symptoms.

In the present study, the measurement assessing empathy did not capture the three factors of empathy described by Omdahl & O'Donnell (1999). Further studies should consider assessing participant's compassion implying emotional contagion and differentiate it from empathy. Hence, prevention can focus on teaching professionals to show empathy and understanding while defusing emotional contagion and compassion to reduce the ST incidence.

Emotion regulation as predictor and mediator

In the present study, ER consisted of two strategies, specifically expressive suppression and cognitive reappraisal, that were measured by the ERQ (Gross & John, 2003). Expressive suppression is seen as a more maladaptive way of coping with emotions. This strategy primarily modifies the behavioural aspect of emotional responses but fails to reduce the experience of negative emotions. It inhibits ongoing emotion-expressive behaviour and establishes a sense of discrepancy between inner experience and outer expression, which leads

to a feeling of being inauthentic rather than honest (Gross & John, 2003). On the other hand, cognitive reappraisal is seen as a cognitive change in which the emotional meaning of potentially emotion-triggering situations is changed. This strategy can thus effectively reduce the experience of negative emotions and helps to regulate emotions more adequately (Gross & John, 2003). Based on that, it was expected that rather expressive suppression with its detrimental consequences might function as a predictor of ST. In addition, it was suggested that the relationship between expressive suppression and ST would be even stronger when PD is prominent. This was based on current research assuming that the general ER difficulties are subject to and result in PD as a form of maladaptive ER (Jones et al., 2018).

Both hypotheses, however, were rejected. A reason for insignificant results within both analyses could be that the participants engaged in more adaptive ways of emotional coping. In fact, when comparing the utilization of expressive suppression and cognitive reappraisal within the sample, it becomes apparent that cognitive reappraisal was used more frequently. Since cognitive reappraisal can effectively reduce the experience of negative emotions, it may also help to decrease ST symptoms. Taking this a step further, one may argue that cognitive reappraisal has a protective quality that can prevent ST. In fact, it appears to be associated with increased levels of psychological well-being (Matta et al., 2014), low levels of psychopathology (Aldao et al., 2010) and reduced negative affectivity (Goldin et al., 2008).

Although both hypotheses were rejected, the results of the conditional effects analysis and Post-Hoc test underpin the relationship between ST and ER as well as the relationship between ER and PD. Whether ER functions as a predictor or mediator in relation to ST could not be demonstrated and needs to be further explored.

Childhood trauma as predictor

Previous findings indicate that experiencing a personal trauma increases the risk of developing ST (Hensel et al., 2015). Within the present study, the majority of participants (75%) experienced a traumatic event in childhood. Therefore, the present study suggested CT as one of the major predictors of ST. Nevertheless, the mediation analysis did not support that expectation. In addition, no strong significant correlation was found between CT and ST within the Post-Hoc test, but a weak, insignificant one. Although previous studies are still inconsistent about whether CT is a risk factor of developing ST (Elwood et al., 2011), the results contradict most studies as they assume that personal trauma exacerbates ST reactions (Bride et al., 2007; Hensel et al., 2015). Previous studies also suggest that a trauma similar to that of the client as well as unresolved traumatic events pose a greater risk for clinicians to suffer psychological stress symptoms (Ludick, 2013; MacRitchie & Leibowitz, 2010; Salston & Figley, 2003). The initial study did not screen for participant's traumatic experiences that are either unresolved or akin to those of the clients. The participants most frequently reported being emotionally abused or neglected in their childhood. Their client's traumatic experiences might not be comparable to their own trauma, which might lower the risk of developing ST.

Being exposed to traumatic material that is reminiscent of personal experience may provoke unresolved emotions, which in turn promote stress responses (Figley, 1995). Therefore, it is important to ask about trauma resolution. In fact, resolved trauma reactions endorse lower ST symptoms compared to unresolved reactions (Hargrave et al., 2006). Through effective treatment, the sufferer can process and resolve one's personal trauma more successfully, making him/her more resilient when exposed to novel traumatic material (Horn & Feder, 2018). As previously mentioned, resilience is assumed to be responsible for low levels of ST (Gottesman, 2008); thus, it should be assessed in subsequent research. Moreover, greater conclusive results could have been obtained by assessing whether participants have

received effective treatment and to what degree they have resolved their traumatic experience. Overall, a more deliberate measure of CT should be considered in prospective research, which would integrate not only the above-mentioned factors but also assess trauma experienced later in life.

Peritraumatic dissociation as mediator and moderator

PD was assumed to be a mediating as well as a moderating variable within the present study. Recent studies confirm that PD is seen as one of the strongest factors associated with ST (Daniels, 2008; Samson & Shvartzman, 2018). Since PD is a strategy of disengaging from intense emotions during a traumatic experience, it was assumed that it takes a mediating role between CT and ST. Research found that professionals, who experienced a CT, can be triggered by their client's traumatic material and, in turn, may engage in dissociation to protect themselves from recurring intense emotions (Jones et al., 2018). Nevertheless, the present study could not support the hypothesis. Again, the participants might have received effective treatment for their trauma and show more resolved trauma reactions, thereby also decreasing the risk of PD. In fact, it becomes apparent that the level of PD was, on average, very low within the sample. Nevertheless, the findings indicate that PD and ST are associated since a significant correlation was found between the two. Also, the significant main effect of PD on ST underpins its potential indication as a risk factor.

Further, it was expected that PD would moderate the relationship between expressive suppression and ST since research confirms that maladaptive ER strategies in response to emotional distress may lead to PD (Fikretoglu et al., 2006; Hopper et al., 2007). Although the hypothesis was rejected, a significant main effect of PD on ST was found in both moderation analyses. Again the present study demonstrated that PD seems to be a vital factor related to

ST. Although this study failed to establish the exact relationship between the two, further research should not ignore but explore the relationship in more detail.

Strengths and limitations

The longitudinal design was a major strength of the study, as it establishes the correct sequence of events, identifies changes over time, and provides insight into cause-and-effect relationships (Bijleveld et al., 2004). Thus it represents major advantages above cross sectional studies. In addition, the sample size of 82 participants was relatively robust for a natural group under investigation. Natural groups within research can be more easily compared to the population that the group represents, enabling generalizability of findings.

On the other hand, this study faced some severe limitations, which should be considered carefully within the interpretation of the findings and further research. First, the results need to be interpreted with caution, as assumptions of homoscedasticity and normality were violated for some variables. Therefore, the validity and reliability of the findings might be reduced. More sophisticated analytical techniques might prevent that. Furthermore, research within the trauma field must be treated very sensitively, as there is a high risk of triggering recurrent stress reactions among the participants. To avoid that, the survey was kept as short as possible, and redundant questions from the initial study were excluded (see materials). However, in the end, the questionnaire was still considered lengthy. This may be one reason for unfinished responses and higher dropout rates.

Since ST touches upon a susceptible area of research, the questions, especially about ST symptoms, might have elicited response bias by those purposely avoiding the topic. Thus, participants who may have been highly affected by the topic might have been more reluctant to participate. In fact, on average the sample did not show clinically significant levels of ST; hence it may not be representative of the ST prevalence rate of the true population of mental

health workers. In general, it is certainly pleasant to see that most of the participants do not suffer from ST symptoms. However, this cannot be ruled out, as the design of self-reports would certainly allow socially desirable answers to be given, which would falsify the results.

Lastly, the first and second part of this longitudinal study took place during the COVID 19 pandemic. The researchers tried to control for its possible influence by including measures that assessed its impact. However, the items may not have covered the potential impact the pandemic might have had on the participants. In fact, the Cronbach's alpha of the COVID 19 scale was poor, indicating that the scale cannot be used as a reliable tool to measure the potential pandemic impact. In addition, the pandemic might be one reason for non-participation since the initial sample may have been exposed to additional stress.

Further research and conclusion

First, the study added valuable information to the trauma field and set further impetus for investigating causal relationships regarding ST. Thus, further longitudinal studies should be implemented establishing insight into specific predictors and the course of ST symptoms. Since the present study failed to provide insight into how empathy, ER, PD and CT are related to ST, research should continue investigating each factor more deliberately. A bigger sample size and advanced analytical techniques, as well as more accurate measurements, could assist with that matter. Research instruments specifically designed to assess ST would lead to more coherent findings and provide more accurate implications in terms of prevention (Elwood et al., 2011).

Furthermore, prospective studies should increase research into potential protective factors. They would add more explanatory value to subsequent research and establish a prevention-oriented research approach. For instance, studies have proven that resilience is one factor decreasing ST symptoms (Gottesman, 2008). Therefore, further research should address

it to increase knowledge about its preventative quality in relation to ST. Moreover, research is still inconsistent on whether personal trauma is a risk factor for developing ST. Recent studies may not have examined whether participants who experienced personal trauma were treated for it, which in turn may have reduced the risk of ST reactions. Further studies should investigate whether the participants have been treated for it and resolved their stress reactions. Lastly, the relationship between PD and ST should be explored more thoroughly. Thereby, PD should be examined primarily as a predictor rather than a mediator or moderator.

To conclude, this study enabled investigating causal connections concerning ST due to its longitudinal design. However, the study failed to clarify whether empathy, ER, CT and PD are potential predictors of ST. None of the proposed models showed significant results that shed more light on the effects of empathy, ER, CT, and PD on ST. Nonetheless, the study suggests that specifically, PD and expressive suppression are related to ST. Due to the sensitive nature of the topic, further studies should pay attention to possible response bias and socially desirable responses, which could falsify results. Therefore, more accurate measurements should be used, and longitudinal studies should be promoted to enable investigating cause-and-effect relations. That said, the study added valuable information to the trauma field by raising awareness for the topic, invoking for subsequent longitudinal studies and demonstrating that PD and expressive suppression are associated with the development of ST.

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