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Prevalence of and Risk Factors for Secondary Traumatization in Interpreters for Refugees: A Cross-Sectional Study

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Abstract

Background: A substantial proportion of refugees, fleeing persecution, torture, and war, are estimated to suffer from psychological traumatization. After being sheltered in reception centers, the refugees come in close contact with different occupational groups, e.g. physicians, social workers, and interpreters. Previous studies ascertained that such interpreters themselves often suffer from primary psychological traumatization. Moreover, through translating refugees' potentially traumatic depictions, the interpreters are in danger of developing a so-called secondary traumatization.

Objective: The present study aimed to analyze (1) the prevalence rates of primary traumatization in interpreters (2) the prevalence of secondary traumatization, depression, anxiety, and stress symptoms and (3) the association between secondary traumatization symptoms and resilience factors in terms of sense of coherence, social support and attachment style and (4) to test whether these resilience factors mediate the relationship between primary and secondary traumatization.

Methods: Participating interpreters (n=64) were assessed for past exposure to potentially traumatic events as well as symptoms of PTSD, secondary traumatization, depressive symptoms, anxiety, and subjective stress levels. Furthermore, we conducted psychometric surveys to measure interpreters' sense of coherence, degree of social support and attachment style as potential predictors.

Results: (1) 9% of the interpreters fulfilled all criteria for PTSD and a further 33% had subclinical PTSD. (2) A secondary traumatization was present in 21% of the examined interpreters. Of these, 6% showed very high total scores indicating a severe secondary traumatization. Furthermore, we found higher scores for depression, anxiety, and stress as compared to representative population samples, especially for females. (3) A present sense of coherence, an existing social support network, and a secure or preoccupied attachment style correlated significantly with low scores for secondary traumatization. (4) A significant correlation emerged between primary and secondary traumatization ($r=.595$, $p<0.001$); a mediation analyses revealed that this effect is partially mediated by low secure attachment.

Conclusion: A substantial proportion of interpreters working with refugees suffer from primary as well as secondary traumatization. However, high scores for sense of coherence and social support, male gender and especially a secure attachment style were identified as resilience factors for secondary traumatization. The results may have implications for the selection, training and supervision of interpreters.

Keywords: refugees, interpreters, PTSD, secondary traumatization, vicarious traumatization, resilience factors, sense of coherence, social support, attachment style.

Introduction

By the end of 2015, there were an estimated 65.3 million forcibly displaced people worldwide, of whom 12.4 million were newly displaced in 2015 alone [1]. Asylum seekers, fleeing persecution, torture, and war, display a high prevalence of posttraumatic stress disorder (PTSD) and depression due to terrifying conditions in their native lands, but also as a result of traumatic experiences during their flight [2]. Furthermore, once they have arrived at their destination, asylum seekers can suffer decisive psychological burden from post-migration stressors, such as being sheltered in reception centers with a great number of other refugees, partly from other conflicting ethnic groups [3-5]. Indeed, a recent meta-analytic review identified prevalence rates of 30.6 % for PTSD and 30.8 % for depressive disorders among refugees [6, 7].

After arriving at their target destination, asylum seekers are often sheltered in reception centers, and face lawful registration, medical examination [8] and asylum-seeking procedures before they are transferred to community-based accommodation facilities, at best resulting in social integration. During these stages of the asylum-seeking process, a variety of volunteers and professional helpers, e.g. doctors, social workers or security personnel, are in close contact with traumatized and psychologically burdened refugees. This constellation can lead to a phenomenon called secondary traumatic stress (STS), which means the transference of affective symptoms of a primarily traumatized subject to an initially healthy, non-traumatized individual [9, 10]. This entity may comprise symptoms of intrusions, hyperarousal and a diffuse feeling of menace [11, 12]. The concept of STS is extended by the concept of vicarious traumatization (VT), which describes not only the transference of trauma-related symptoms from a primarily traumatized person to a healthy subject, but also alterations in the latter's self-capacity, world view, and belief system [10].

During the asylum-seeking process, interpreters play a decisive role to assure a largely unimpaired conversation between asylum seekers and officials as well as social and health

care workers. In this respect, the interpreters are often burdened with the responsibility to translate graphic details of traumatic experiences of asylum seekers, and are thus indirectly exposed to traumatic material. Such translation procedures can lead to serious psychological strain in interpreters: Loutan and colleagues reported painful memories in approximately 66% of their sample of 18 interpreters after translating refugees' experiences, which increased linearly with the number of translation sessions [13]. Furthermore, it has been indicated that interpreters working with refugees display higher prevalence rates of PTSD, compared to the general population [14]. For instance, Teegen and Gönnerwein investigated a sample of 51 interpreters, of whom 90% reported personal traumatic experiences: 10% of the sample fulfilled the diagnostic criteria for PTSD, while a further 10% were diagnosed with partial PTSD [14].

Although there are many studies focusing on techniques and performance of interpreting in the refugee context [15, 16], the best of our knowledge, no previous study has explored the phenomenon of secondary traumatization in interpreters by applying instruments especially designed to capture secondary traumatic symptoms and by differentiating it from primary traumatization sequelae. Furthermore, little is known about resilience factors in interpreters that might lead to a lower vulnerability to developing of secondary traumatization. The recent literature on secondary traumatization has identified the personal history of previous traumatic events, life stress, gender, age, and lack of social support as predictors of indirect traumatization [11, 17-19]. However, it remains unclear to what extent these factors can be applied as protective or risk factors with regard to secondary traumatization in interpreters. In this regard, interpreters' sense of coherence [20] as well as attachment style [21-24] might be of particular interest.

Sense of coherence is a central aspect of Antonovsky's concept of salutogenesis and results from the interaction of three different components: (a) *comprehensibility* or being able to understand the events happening in life, (b) *manageability*, meaning the ability to take care

of issues in life and (c) *meaningfulness*, which refers to the ability to give meaning to the events surrounding an individual [20, 25]. Attachment is defined as an innate motivational system of perception, interpretation and prediction of interpersonal interactions which is shaped by repeated interaction experiences and is activated especially in situations of need and illness or experiences of excessive demands. Through early interactions with the primary attachment figures, enduring “internal working models” develop, on the basis of which new relationship experiences are interpreted and one’s own behavioral impulses for self-regulation and interpersonal stress regulation are initiated [22-24]. So far, there has been preliminary evidence that *sense of coherence* [26] and *attachment style* [27] are important predictors of secondary traumatization. Other studies showed that social support plays a decisive role in recovery after direct and indirect traumatization [11, 17, 28]. As is evident from recent literature focusing on primary traumatization [29], a present sense of coherence seems to be protective for the development of secondary traumatization symptoms.

The aims of the presented cross-sectional study were (1) to assess the prevalence rates of primary traumatization in interpreters, (2) to assess the prevalence of secondary traumatization, depression, anxiety and stress symptoms, (3) to examine the association between secondary traumatization symptoms and resilience factors like sense of coherence, social support [30] and attachment style, and (4) to test whether these resilience factors mediate the relationship between primary and secondary traumatization.

Methods

Study design and ethical considerations

The cross-sectional study applied validated quantitative psychometric survey instruments. Prior to the distribution of the questionnaires, the study was approved by the ethics committee of the University Hospital Heidelberg (ethics application no. S-694/2015) and all examined interpreters provided informed consent to participate in the study. The study

was conducted in accordance with the Declaration of Helsinki (most recent version: Fortaleza, Brazil, 2013).

The Refugee Registration Center Patrick Henry Village in Heidelberg

On the site of the former US army barracks “Patrick Henry Village” (PHV) in Heidelberg, emergency winter accommodation for refugees was initially set up in December 2014. In September 2015, PHV became an official registration center for refugees in the German Federal state of Baden-Württemberg. Incoming refugees undergo several processes in PHV, from identification and medical examination [8] to the asylum application and decision. The site encompasses over 90 hectares, with approximately 33 accommodation buildings that can house around 4000 asylum seekers. A medical outpatient clinic run by registered physicians in Heidelberg and physicians from the University Hospital Heidelberg ensures care in the areas of general medicine, pediatrics, gynecology, tropical medicine and psychosocial medicine [[31]; Nikendei et al., unpublished data]. Counseling services, including independent social and procedural advice, are provided by voluntary welfare organizations such as the German Red Cross, the Diakonie (outreach ministry) and the Caritas Association.

Sample

The interpreters serving to assist asylum seekers and refugees during medical and psychosocial care and official asylum-seeking procedures were recruited at various places of assignment at the University Hospital Heidelberg and Patrick Henry Village Heidelberg (PHV). Shift schedules and/or contact data were obtained from the persons responsible at the places of assignment. Interpreters were informed by the team leader and then personally approached by a research assistant at the place of assignment or were contacted by telephone. Five different groups of interpreters were surveyed:

1. Interpreters working for the social and procedural advice center of the Caritas Association and the Diakonie Association Heidelberg localized in PHV.
2. German Red Cross (DRK) interpreters serving the psychosocial and procedural advice center at PHV.
3. Interpreters from the medical outpatient clinic mediating between medical doctors and psychologists and general internal medicine, pediatric, gynecology and psychotherapy patients of PHV.
4. Certified freelance interpreters assisting asylum seekers and refugees seeking medical help at the University Hospital Heidelberg.
5. International students acting as freelance interpreters of their own volition.

During the survey period (May-December 2016) the contacts of 95 interpreters could be obtained. All of them were asked to participate in the study; 64 interpreters agreed to participate and completed respective questionnaires, leading to a response rate of 67%. The main reasons for refusing the participation in the study were lack of time and insufficient German language skills.

Survey instruments

Sociodemographic data

The following sociodemographic data were collected via survey: age, gender, nationality, native language, place/country of birth, school-leaving qualification, profession, further qualifications. Regarding the work as an interpreter, qualifying training as an interpreter, training as a translator, interpreted languages, professional experience as an interpreter, context of interpreting for refugees, access to and/or need for case reviews and supervision in the framework of interpreting activities were captured. Additionally, previous experiences in developing countries, personal history of flight, prior psychological strain, and psychotherapeutic treatments were documented.

Essen Trauma Inventory (ETI)

Interpreters' personal traumatic experiences and the severity of resulting PTSD symptoms in terms of primary psychological traumatization were assessed using the Essener Trauma Inventory [32, 33]. This instrument allows for a diagnostic classification both of posttraumatic stress disorder and of acute stress disorder according to the diagnostic criteria of the DSM-IV (Diagnostic and statistical manual of mental disorders IV). The presence of PTSD is indicated if a traumatic event has occurred that triggers an objective threat to life (A1 criterion) as well as a subjective feeling of threat (A2 criterion), and if the items from the areas of intrusion, avoidance and hyperarousal sum up to reach (or exceed) the cut-off score of 27. A score between 0 and 15 is classified as not clinically conspicuous, while scores between 16 and 26 are classified as borderline, suggesting a suspected partial PTSD. The sum scores can range between 0 and 92.

Questionnaire for Secondary Traumatization (FST)

Symptoms of a secondary traumatization were assessed using the Questionnaire for Secondary Traumatization (FST; [34, 35]). This questionnaire comprises 31 questions on the symptomatology of secondary traumatization. It measures symptoms of intrusion, avoidance, hyperarousal, para-psychotic sense of threat, and PTSD comorbidities, such as depressive symptoms. The items are answered via a 5-point Likert-scale ranging from 1 ("never") to 5 ("very often"). The questionnaire can yield scores from 31 to 155. Persons with sum scores above 65 are seen as suffering from clinically relevant symptoms; scores between 65 and 82 indicate moderate secondary traumatization, and scores above 82 are categorized as severe secondary traumatization [34]. The instruction text can be adapted to the relevant focus of investigation; in the present study it was adapted to the context of interpreting with refugee.

Patient Health Questionnaire (PHQ-9)

Depression was assessed using the depression module of the Patient Health Questionnaire (PHQ-9; [36]; German version [37]). The degree of severity of depressive symptoms can be determined by calculating a scale sum score ranging between 0 and 27. Scores between 1 and 4 suggest minimal depressive symptoms, scores between 5 and 9 suggest mild depression, scores between 10 and 14 suggest moderate depression, and scores of 15 or above suggest severe depression [38]. In a representative German norm sample, the mean sum score for depression was $M=3.6$ ($SD=4.1$) [39].

Generalized Anxiety Disorder Scale (GAD-7)

The anxiety module of the Patient Health Questionnaire, the Generalized Anxiety Disorder Scale (GAD-7), was used to assess symptoms of generalized anxiety ([40]; German version [41]). A sum score ranging from 0 to 21 can be calculated from the questionnaire; scores between 1 and 4 suggest minimal anxiety symptoms, scores between 5 and 9 suggest mild anxiety, scores between 10 and 14 suggest moderate anxiety, and scores of 15 or above suggest severe anxiety [40]. In a study with a representative population sample, the mean GAD-7 sum score was $M=2.9$ ($SD=3.4$) [41].

Perceived Stress Scale (PSS-10)

The Perceived Stress Scale (PSS-10; [42]) was used to assess the level of perceived stress. Scores from 0 to 40 can be reached on this scale, with higher scores indicating higher stress levels. In a current German norm sample, the mean sum score was $M=12.6$ ($SD=6.4$) [43].

Sense of Coherence Scale (SOC-29)

The Sense of Coherence Scale (SOC-29; [25]; German version [44]) was used to measure the sense of coherence. After reversal of inverted items the sum value is calculated, which can range from 29 and 203. In the most recent German norm sample, the average total score was $M=155$ ($SD=23$) [45].

Social Support Questionnaire (F-SozU K-14)

The perceived and anticipated support from one's environment was measured with the 14-item version of the Social Support Questionnaire (F-SozU K-14; [46]). The score can be calculated by summing up the item responses and then dividing by the number of answered items. The calculated score can range from 0 to 5. In a German norm sample the average score on the F-SozU K-14 was $M=3.9$ ($SD=0.7$) [47].

Relationship Questionnaire (RQ)

The German version of the Relationship Questionnaire (RQ) ([48]; German version [49]) was used to assess attachment style. The questionnaire enables a continuous rating from 0 to 7 on each individual attachment style (secure, fearful, preoccupied, and dismissing). An international study [50] with 17,804 participants from 62 cultural regions completing the RQ yielded the following average values: secure: $M=4.3$ ($SD=1.7$); dismissing: $M=3.7$ ($SD=1.8$); preoccupied: $M=3.4$ ($SD=1.9$); fearful: $M=3.5$ ($SD=2.0$).

Analysis

All data were coded and analyzed using SPSS (version 22). Group comparisons were carried out using Student's t-test for independent samples for interval-scaled data (or U-test if

data were not normally distributed) and using Chi² test for nominally scaled data (or Fisher's Exact Test). Correlations and partial correlations were calculated using Pearson's correlation coefficients for interval-scaled data and using Spearman's rank correlation for ordinal-scaled data. Mediation analysis was carried out using multiple regression analyses to assess each component of the proposed model and bootstrapping method with bias-corrected confidence estimates [51, 52] was applied to test the significance of the indirect effect. The 95% confidence interval of the indirect effect was obtained with 5000 bootstrap resamples [53].

Results

Response rate and sample description

The sociodemographic characteristics of the sample are depicted in Table 1. Thirty-six women (56%) and 28 men (43%) with a mean age of 37 years (SD=14.2) took part in the study. 52% originated from the Near East (Egypt, Iran, Iraq, Kuwait, Lebanon, Palestine, Syria), 17% from North Africa, and 19% from Germany; 25% had their own personal history of flight; half of these had fled from Iran or Iraq. 83% had no training as an interpreter, but had another (mostly academic) type of training. 64% had a university degree or were currently enrolled at a university. The majority had interpreted in a refugee reception center (78%) before; further areas of assignment were the University Hospital Heidelberg (49%), social institutions (30%), counseling centers (24%) or at police or court hearings (27%). The majority of the interpreters did the work voluntarily and without payment (56%). In terms of their professional experience as interpreters, large differences were found: On average, the respondents had three years of professional experience (range: 0.1-24 years).

Table 1

Own previous traumatic experiences

It was apparent that most of the interpreters had a clear prior psychological strain due to their own personally experienced traumatic events. 58% fulfilled the first entry criterion for posttraumatic stress disorder of the DSM-IV (experiencing, witnessing or being confronted with events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others). More precisely, almost half of the interpreters (44%) had severe harassment/bullying or separation experiences, one third (29%) had experienced a combat mission or had been resident in a war zone, while almost as many (27%) had faced a violent attack, and one in five (19%) had experienced a natural disaster. Of the full sample, 9% fulfilled the criteria for PTSD, (A-criteria fulfilled and ETI sum score ≥ 27) and a further 33% had suspected PTSD (sum-score between 16 and 26). There were no significant gender differences in terms of prior strain due to one's personal previous traumatic experiences, but significant differences did emerge regarding one's own personal history of flight. Among those who fulfilled the A-criteria, the interpreters who had been refugees themselves showed significantly higher sum scores ($M=20.0$, $SD=14.1$) than interpreters without personal flight experiences ($M=11.7$, $SD=11.1$; $U=-2.1$, $p=0.038$).

Secondary traumatization due to interpreting services

The mean score on the questionnaire for secondary traumatization was $M=52.5$ ($SD=15.6$). A secondary traumatization caused by interpreting the stories of asylum seekers and refugees was present in 21% of the examined interpreters, with 6% showing high total scores indicating a severe secondary traumatization. The duration of the secondary traumatic reaction ranged from 4 weeks at the shortest to still persisting at the time of the survey, which was the case in 10%. A non-significant trend was found for gender differences, with women ($M=55.6$, $SD=17.2$) showing higher secondary traumatization scores than men ($M=48.4$, $SD=12.2$; $p=0.068$). However, no differences emerged between interpreters with and without

a personal history of flight. Moreover, secondary traumatization was not significantly associated with duration of work experience as an interpreter or with whether an interpreter worked on a voluntary or paid basis.

Depression, anxiety, and stress levels in interpreters

The current psychological strain among the interpreters, measured using the scores for depression, anxiety, and perceived stress, was higher than in representative population samples (see Table 2). With an average PHQ-9 score of $M=4.4$ ($SD=4.1$), there was a nonsignificant trend toward greater depression in the present sample than in the normal population ($M=3.6$, $SD=4.1$, $n=2066$; $t(234.3)=1.5$, $p=0.066$). 8% of the interpreters fulfilled the criteria for moderate to severe depressive symptoms (PHQ score >9). With an average score of $M=4.8$ ($SD=4.4$), the anxiety symptoms were clearly higher than in the normal population ($M=2.9$, $SD=3.4$, $n=5030$; $t(159.8)=4.3$, $p<0.001$); in 16.1% of the sample, clinically relevant anxiety symptoms could be assumed (GAD score >9). With a mean score of $M=16.5$ ($SD=5.1$), the perceived stress level measured using the PSS-10 was likewise significantly higher than in a representative population sample ($M=12.6$, $SD=6.4$, $n=2527$; $t(393.6)=4.9$, $p<0.001$). Clear gender differences were found regarding the three measures of depression, anxiety, and stress, with women being significantly more strained than men in all three realms. By contrast, there was no difference regarding whether or not an interpreter had a personal history of flight. Moreover, there were no significant associations between measures of psychological strain and duration of work experience as an interpreter. Interpreters working voluntarily were significantly more depressed ($M=6.6$, $SD=5.4$) than interpreters working for payment ($M=2.9$, $SD=2.7$; $t(32.5)=2.7$, $p=0.01$); no significant differences were found for anxiety and stress.

Table 2

Impact of sense of coherence, social support, and attachment style

The hypothesis that particular personality and social characteristics have an influence on the psychological strain caused by the interpreting activity was confirmed (see Table 3). The sense of coherence correlated significantly with the strain values (secondary traumatization, depression, anxiety, stress). Significant associations were also found between the feeling of social support and the aforementioned strain measures. Furthermore, the attachment style was also found to play a decisive role: A secure attachment style was linked to lower psychological strain, while a dismissing attachment style was linked to higher psychological strain. Interestingly, the preoccupied attachment style was associated with significantly less secondary traumatization but significantly more anxiety symptoms. By contrast, neither the duration of professional experience nor having professional training as an interpreter had a significant influence on the strain scores.

Table 3

Association between primary traumatization and secondary traumatization

There is a significant correlation between primary traumatization symptom severity due to personal trauma history and secondary traumatization symptom severity due to interpreting activities ($r=.566$, $p<0.001$). Multiple regression analyses were conducted to investigate the hypothesis that some of the personality or social characteristics mediate the effect of primary traumatization on secondary traumatization. Results indicated that secure attachment mediates the association between primary and secondary traumatization (see Figure 1). First, it was found that primary traumatization was negatively associated with secure attachment ($b=-.084$, $SE=.017$, $p<.0001$). Furthermore, it was found that secure

attachment was negatively related with secondary traumatization ($b=-3.197$, $SE=1.138$, $p=.007$). As both the a- and b-path were significant, the mediation effect was tested using the bootstrapping method with bias-corrected confidence estimates. After controlling for the effect of secure attachment, the estimated indirect effect of primary traumatization on secondary traumatization was still significant ($b=.268$, $SE=.105$, 95% CI [0.101;0.526]). Thus, secure attachment partially mediates the effect of primary on secondary traumatization. Furthermore, the multiple regression analyses showed that the two predictors primary traumatization and secure attachment ($R^2=.439$) approximately accounted for 44% of the variance in secondary traumatization. None of the other assessed personality characteristics yielded a significant effect on the relationship between primary and secondary traumatization.

Figure 1

Need for supervision and psychological support

While 23% of the participating interpreters stated that they had been given the opportunity for case reviews or supervision, more than one third (40%) indicated that they felt a need for debriefing sessions, case reviews, or supervision. Similarly, more than one third (41%) called for targeted training to deal with difficult situations within their work as interpreters. One in five interpreters (20%) wished for additional psychological support.

Discussion

A great proportion of interpreters working with refugees in a reception center suffers from primary as well as secondary traumatization and moreover displays high scores for depression, anxiety, and stress. To our knowledge, the current study is the first to assess the

psychological strain of interpreters through the concept of secondary traumatization by applying instruments specifically designed to capture secondary traumatic symptoms. Additionally, the study aimed to gather more knowledge about the relations between STS and sense of coherence, social support, as well as attachment style. The findings indicate that interpreters are a psychologically burdened and potentially vulnerable group involved in refugee care.

Nine percent of the interpreters fulfilled all criteria for PTSD, while another third were categorized as “subclinical PTSD”. These prevalence rates of PTSD are slightly higher than the rate of 7.8% found in the general population [54], thus providing preliminarily support for the conclusion that interpreters constitute a risk group for posttraumatic stress. In addition, we found that 21% of the subjects suffered from secondary traumatization, and 6% exhibited symptoms of severe secondary traumatization (scores > 82, [34]). Although no norm values of healthy samples are available for the FST, comparative values exist from other helping professions: According to these studies, the FST scores of interpreters are comparable with those of trauma therapists [55], counselors, psychotherapists, and refugee counselors [35], and are higher than those of psychotherapists in training for trauma therapy [35]. In our study, no differences in secondary traumatization were found between interpreters with or without a personal history of flight. However, our findings display gender specificity, indicating that female interpreters are more prone to secondary traumatization, which is in accordance with the role of gender concerning PTSD [17].

Interpreters working voluntarily in a reception center showed significant higher scores for depressive symptoms, which can perhaps be attributed to less possibilities of informal debriefing with colleagues and the absence of an adequate training. In the present examination there was a great proportion of interpreters, working honorary in the reception center, which can be explained in regard to different reasons: At first, there was a major mismatch of the demand of interpreters for the asylum procedures on the one hand and the disposable

interpreters of the Federal Office for Migration and Refugees on the other hand. There was moreover a great necessity of various and in some extent rare languages, to be interpreted properly. Eventually, the course of afflux of refugees in 2015/2016 led to substantial lacking of planning reliability for the authorities. Due to such vagueness and insufficient hiring of new interpreters, a great number of honorary interpreters were deployed, to meet the different, above mentioned requirements. Besides, an important motivation, which was reported by many interpreters, was the desire to give aid to their fellow countrymen and to contribute to supporting people, reporting similar histories of flight.

Previous studies merely investigated the occurrence of PTSD symptoms in interpreters [13, 14, 56], without clearly differentiating between primary traumatization through direct sensory experience of traumatic events, and secondary traumatization, which occurs via indirect contact with traumatic material, e.g. through translating refugees' background stories. This concern turns out to be even more complex, in view of this study's finding that a large proportion of the interpreters themselves suffer simultaneously from primary traumatization *and* secondary traumatization. In this regard, we identified a strong correlation between the concepts of primary and secondary traumatization, suggesting primary traumatization to be a risk factor for the development of secondary traumatization, and thus conforming that the aforementioned factor of "history of previous traumatization" [11, 19] is actually a predictor of an individual's vulnerability to secondary traumatization. To further elucidate this connection, we conducted the later discussed mediation analysis.

The current investigation found a trend towards higher depression scores in interpreters compared to the average score in the general population. This is in line with the findings of Teegen and Gönnerwein, who detected a higher prevalence of primary traumatization but no differences in depression rates between interpreters and the general population [14]. However, we were able to detect higher anxiety and stress levels in interpreters compared to the general population, with higher values for women than for men.

These findings of gender specificity are consistent with the existing literature concerning generalized anxiety disorders [57] and posttraumatic stress disorder [17].

As a main finding, we identified *a present sense of coherence, existing social support, male gender* as well as *a secure or preoccupied attachment style* as resilience factors, while *a history of previous primary traumatization, female gender* and *dismissing attachment style* seem to represent risk factors for secondary traumatization. . . An explanation for the fact, that aside from a secure attachment style also a preoccupied attachment style leads to diminished risk of secondary traumatization is the notion, that it at least leads the individual to seek closeness and demand social support. To test whether these resilience factors mediate the relationship between primary and secondary traumatization, we furthermore conducted a mediation analyses and found that secure attachment partially mediated the relationship between primary traumatization and secondary traumatization. Since secure attachment was negatively associated both with primary and secondary traumatization the model shows that secure attachment attenuates the risk of secondary traumatization for subjects with primary traumatization and thus can be seen as an important resilience factor.

The basic conceptualization of secondary traumatization is discussed controversial and several arguments have been brought forward. The phenomenon of secondary traumatic stress itself is described as a result of a process, by which an initially healthy individual develops PTSD-like symptoms through indirect exposure towards traumatic material, for instance via translating the refugee's depictions of traumatic events. Although this concept has been used in various studies, other investigations point out STS to be a vague concept, which lacks of baseline data and generates disparate results [58]. Furthermore they indicate methodological restrictions referring to the fact that there are described positive changes after close contact to traumatized individuals as well, delineating in terms of psychological empowerment, enhanced psychological functioning and gain of resilience. In this regard the concepts of vicarious posttraumatic growth (VPTG) [59] and vicarious resilience (VR) [60] were

developed to emphasize those positive reactions. However, numerous prior studies, examining affective reactions due to close contact to traumatized individuals [[14, 34, 61], Kindermann et al., unpublished data] suggest the transmission of traumatization in terms of secondary traumatization to be considerably more common than the transmission of resilience. Furthermore, responding to those research and to traumatizing events in recent history, in DSM-V, the A-Criterion was extended as defined by secondary traumatization: Being indirectly exposed to traumatic material via knowing, that a close family member or relative experienced traumatizing events can be seen henceforward also as a cause for developing PTSD, according to DSM V [62].

Our findings have implications for the selection, training, and continuing education of interpreters. Consequently, training programs for interpreters should be implemented which provide early information about possible psychological strain and help to identify symptoms of depression, anxiety, stress, and traumatization. Furthermore, regular educational training units should be scheduled, including frequent debriefing sessions, case reviews, and continuing supervision to support the interpreters in handling work-related difficulties, occupational strain and symptoms of psychological alterations. Such training was called for by 40% of the interviewed interpreters. Manual-based training programs for health care workers with a focus on sense of coherence have proven to be helpful in the field of rescue services [63, 64] and might also be useful for interpreters. Interpreters with an insecure attachment style might benefit from more supervision, review cases, and feedback. However, so far there are no studies on the effectiveness on interpreters' training programs and their impact on the emergence of psychological strain, e.g. in terms of secondary traumatization. Regarding the selection of interpreters, our study emphasizes that officials should be aware that interpreters with their own history of traumatic experience are at risk of secondary traumatization, and that voluntary non-professional interpreters are more vulnerable to

depressive symptoms. These groups of interpreters might equally need more guidance, support and supervision.

Limitations

Several limitations of this study should be mentioned: First, our study is limited by the small number of participants. Nevertheless, compared to the existing literature, this investigation constitutes the largest study to date of interpreters examined in the context of refugee and asylum-seeker support. Moreover, the high response rate of questionnaires in the current study is not reported in the majority of comparable studies, leading to an acceptable comparability of our findings. The heterogeneity of our sample, comprising interpreters working in different contexts and with differing professional backgrounds, might restrict the generalizability of our findings. However, this might equally be regarded as an advantage, as it allowed us to perform subgroup analyses that revealed interesting results with practical implications regarding selection, training and supervision of interpreters. The generalizability of our findings may also be limited by the fact that we were only able to assess associations between exhibited psychological symptoms and personality factors in a cross-sectional design. While we employed a mediation analysis to provide further support for the role of resilience factors, the causal role of these factors needs to be conclusively confirmed.

Conclusion

A substantial proportion of interpreters, responsible for word mediation in different settings of refugee work, suffer from primary as well as secondary traumatization, which have to be clearly differentiated from each other. Moreover, translating potentially traumatic content can lead to higher rates of depressive symptoms and anxiety, as well as an increased

stress level. A high sense of coherence, strong social support, and especially a secure attachment style were identified as resilience factors for secondary traumatization. Our findings have implications for the selection, training and supervision of interpreters. Interpreters with a prior history of trauma and interpreters with a low sense of coherence, lack of social support and an insecure attachment style are particularly vulnerable to secondary traumatization.

Disclosure Statement

The authors have no conflicts of interest to declare.

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Table 1

Sample description

Measure				
Age (years)	Min=18	Max=73	M=37.25	SD=14.22
Gender	female: 36 (56.2%)	male: 28 (43.8%)		
Most frequent nationalities	German: 57.1%			
	Iranian: 9.5%			
	Syrian: 7.9%			
Most frequent native languages	Arabic: 41.3%			
	Persian: 11.1%			
	German: 6.3%			
	Farsi: 6.3%			
Most frequent countries of birth	Germany: 19.0%			
	Iran: 12.7%			
	Iraq: 12.7%			
	Morocco: 9.5%			
School graduation	High school: 84.1%			
	Middle school: 7.9%			
	Primary school: 4.8%			
	No school graduation: 3.2%			
University degree or currently enrolled at a university	63.5%			
Personal history of flight	25.4%			
Escape country	Iran: 25.0%			
	Iraq: 18.8%			
	Afghanistan, Lebanon, Syria: 12.5%			
Training as interpreter	yes: 17.5%	no: 82.5%		
Work experience as interpreter (years)	Min= 0.08	Max= 24	M=3.3	SD=5.4
Context of interpreter for refugees	Refugee camp			77.8%
	Social institution (e.g. women's refuge)			30.2%
	Hospital			49.2%
	Counseling center (e.g. free legal advice center)			23.8%
	Other (e.g. police, court)			26.9%
Voluntary/Professional basis	Voluntary:			55.6%
	Professional:			33.1%
	Both:			11.3%
Min= Minimum, Max= Maximum, M= Mean, SD= Standard Deviation				

Table 2

Psychological strain of the interpreters

Measure	Interpreters				Norm sample		Test statistics		
	Min	Max	M	SD	M (SD)	n	t	df	p
ETI	0	54	14.48	11.42	-	-	-	-	-
FST	32	96	52.54	15.60	-	-	-	-	-
PHQ-9	0	20	4.35	4.14	3.56 (4.08) ^a	2066	1.525	237.95	0.129
GAD-7	0	18	4.83	4.37	2.95 (3.41) ^b	5030	4.365	162.33	<0.001
PSS-10	6	28	16.53	5.08	12.57 (6.42) ^c	2527	4.896	399.53	<0.001

M=Mean; SD= Standard Deviation; ETI=Essen Trauma Inventory; FST=Questionnaire for Secondary Traumatization; PHQ-9=Patient Health Questionnaire depression module; GAD-7=Generalized Anxiety Disorder Scale; PSS-10=Perceived Stress Scale; ^a Rief et al. (2004); ^b Löwe et al. (2006); ^c Klein et al. (2016).

Table 3

Intercorrelations between sense of coherence, social support, attachment style, and psychological strain

	FST		PHQ-9		GAD-7		PSS-10	
	r	p	r	p	r	p	r	p
SOC-29	-.53**	<.0001	-.72**	<.0001	-.73**	<.0001	-.59**	<.0001
F-Sozu	-.35**	<.001	-.50**	<.0001	-.32*	.01	-.29*	.02
RQ								
Secure	-.56**	<.0001	-.58**	<.0001	-.59**	<.0001	-.45**	<.0001
Fearful	.12	.35	.05	.72	.00	.98	.06	.67
Preoccupied	-.41**	.001	.19	.14	.34*	<.05	.18	.17
Dismissing	.34**	.009	.29*	.02	.45**	<.0001	.29*	.02

FST=Questionnaire for Secondary Traumatization, PHQ-9=Patient Health Questionnaire depression module, GAD-7=Generalized Anxiety Disorder Scale, PSS-10=Perceived Stress Scale, SOC-29=Sense of Coherence Scale, F-Sozu= Social Support Questionnaire, RQ=Relationship Questionnaire.

Figure 1

Indirect effect of primary traumatization on secondary traumatization through secure attachment

*Note: depicted values are standardized regression coefficients; a,b,c= direct effects; c'=indirect effect; * $p < .05$, ** $p < .01$, *** $p < .001$*