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The association between alexithymia and posttraumatic stress symptoms following multiple exposures to traumatic events in North Korean refugees

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ABSTRACT

Objective: The present study aimed to investigate the effect of the interaction between the number of traumas experienced and alexithymia, on posttraumatic stress disorder (PTSD) symptoms.
Methods: The sample comprised 199 North Korean refugees. Participants completed the Trauma Exposure Check List for North Korean Refugees, Impact of Event Scale-Revised (IES-R), Toronto Alexithymia Scale-20 (TAS-20), and Center for Epidemiological Studies-Depression Scale (CES-D).
Results: TAS-20 scores were positively correlated with IES-R scores ($r = 0.21$, $p < 0.01$), after controlling for gender, age, and CES-D scores. The number of traumas experienced was also positively correlated with IES-R scores ($r = 0.32$, $p < 0.001$), but not with TAS-20 scores, after controlling for gender, age, and CES-D scores. A hierarchical multiple regression analysis revealed a significant interaction between the number of traumas experienced and TAS-20 scores, for IES-R scores ($t = 2.10$, $p < 0.05$). Moderation analysis further revealed that TAS-20 scores moderate the relationship between the number of traumas experienced and IES-R scores ($t = 2.90$, $p < 0.01$). For refugees with higher TAS-20 scores, those who had experienced more traumas had higher IES-R scores. However, within refugees with lower TAS-20 scores, IES-R scores were not significantly different for those who had experienced a higher number of traumas compared with those who had experienced a lower, or average, number of traumas.
Conclusion: The results of the current study suggest that, as individuals experience more traumatic events, clearly identifying and expressing emotions become more crucial for reducing PTSD symptoms.

Introduction

Posttraumatic stress disorder (PTSD) is a mental disorder that can develop following exposure to traumatic events. Symptoms of PTSD include intrusion, avoidance, negative cognition or mood, and alterations in levels of arousal or reactivity [1]. Because not every individual who experiences traumatic events eventually develops PTSD [2–4], identifying PTSD risk factors has become a central focus of investigation. Identified risk factors encompass numerous variables, including prior history of traumatic exposure or mental disorders, lower socioeconomic status or education, the type/frequency/duration of traumatic events, peri-traumatic emotional responses, and posttraumatic factors (e.g. lack of social support and other life stress) [1,4–7].

In particular, repeated exposure to a variety of traumatic events has been associated with poorer outcomes such as a higher rate, and greater severity, of PTSD [6,8–10], and more severe depression [6,11–13]. These findings on the greater negative impact of multiple exposures to traumatic events might support a dose–response model of trauma, which posits that an individual's risk of illness would be elevated as severity of the stressor increases. Nevertheless, some studies have failed to reveal significant relationship between magnitude of traumatic stress and PTSD severity [14–17]. For instance, the number of torture exposure in the imprisoned political activists did not predict PTSD severity [14]. Therefore, the dose–response model may not fully account the risk of PTSD. Other risk factors might play a moderating role in the relationship between the severity of traumatic experiences and the negative consequences following traumatic events.

Alexithymia has been proposed as another strong risk factor for PTSD. Alexithymia refers to difficulty in identifying, describing and/or expressing emotions, in addition to an externally oriented thinking

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style [18,19]. Prior studies demonstrated that individuals with PTSD were more alexithymic than both a non-psychiatric control group [20] and psychiatric outpatients without PTSD [21]. A positive correlation between alexithymia and PTSD symptoms has also been reported [22–24], and alexithymia has been shown to predict treatment outcomes in PTSD [25].

PTSD has been found to be associated with many other risk factors besides alexithymia. Many of these risk factors for PTSD were also reported to be associated with alexithymia. Alexithymia has been reported to be related with physical/emotional neglect during childhood, lower socioeconomic status, lower level of education, and repeated exposure to traumatic events [21,26–28]. Given the substantial interrelationship between alexithymia, PTSD and its risk factors, it would be imperative to examine whether individual's difficulty dealing with emotions is solely accountable for the negative outcomes following traumatic experiences, or whether alexithymia acts as a moderator within the context of other risk factors such as more number of traumas experienced.

Notwithstanding growing evidence that either multiple exposures to traumatic events, or alexithymia, may be associated with PTSD, few investigations have addressed the relationship between the number of traumas experienced, alexithymia, and PTSD symptoms. It has been reported that the number of combat exposure, alexithymia, and PTSD symptoms were correlated with each other [27]. Another study reported that rape victims who had experienced multiple assaults were more alexithymic, and more likely to develop PTSD, compared to victims of a single assault [28]. However, prior studies did not elucidate whether and how these two factors (i.e., alexithymia and number of traumas experienced) interact during the development of PTSD. Moreover, not every victim with multiple traumas met the criteria for PTSD, and thus the number of traumas experienced alone might not be enough for developing PTSD. Therefore, actual development of PTSD might be moderated by the individuals' level of alexithymia. That is, even though an individual has been repeatedly exposed to traumatic events, the extremely stressful experiences do not decisively yield posttraumatic stress symptoms if the person does not show any difficulty in affect regulation. In addition, an individual with higher level of alexithymia may not suffer from PTSD symptoms if stress level of the trauma is low.

Therefore, the major objective of the present study was to explore whether multiple traumatic experiences interact with alexithymia during the development of PTSD symptoms. To this end, the number of traumas experienced by a group of North Korean refugees was measured. North Korean refugees were regarded as an appropriate sample because they appear to have repeatedly experienced a variety of traumatic events, and demonstrate a high prevalence of PTSD [29]. In addition, depression should be regarded as a confounding factor, because numerous prior findings have demonstrated that depression is strongly associated with both alexithymia [30,31] and the number of traumas experienced [6,10–12]. Based on numerous reports of an association between alexithymia and PTSD, the current study investigated their relationship in terms of the number of traumatic events experienced.

Methods

Participants

Two hundred and thirteen North Korean refugees, who had settled in South Korea between 2000 and 2012, participated in the study. Of the initially recruited participants, 14 failed to complete the questionnaires and their data were excluded. The excluded participants did not differ from the included participants, for either gender or age. Of the remaining 199 participants, 147 were female (73.9%), and the average age was 38.56 ± 12.26 years (range: 19–74 years).

Procedure

The study was approved by the Institutional Review Board of Myeongji Hospital, Kwandong University. Recruited through advertisements, all participants received a thorough description of the study and provided written informed consent. They then completed self-report questionnaires concerned with: (a) demographic characteristics; (b) the number and type of traumas experienced; (c) alexithymia; (d) PTSD symptoms; and (e) depression.

Measures

The *Trauma Exposure Check List for North Korean Refugees* is based on the Traumatic Experiences Scale for North Korean Defectors [29], and assesses previous exposures to traumatic events. It measures whether respondents were exposed to any of the 13 types of traumatic events during residency in North Korea, or to any of 16 types of traumatic events following their escape, and prior to their arrival, in South Korea. The traumatic events in the questionnaire comprise either direct or vicarious exposure to torture, severe battery, life-threatening starvation/cold/accidents, rape, human trafficking, arrest/incarceration, and witnessing public executions.

The Toronto Alexithymia Scale-20 (TAS-20) is a self-report questionnaire which measures alexithymia via three subscales, thusly: difficulty identifying feelings; difficulty expressing feelings; and externally oriented thinking [32]. The Korean version administered in this study has demonstrated good internal consistency and test–retest reliability [33]. Cronbach's alpha for the scale in the current sample was 0.86.

The Impact of Event Scale-Revised (IES-R) was developed to assess PTSD symptoms – namely intrusion, hyperarousal, and avoidance – across 22 items [34]. For the present study, the Korean version of the scale, which has good internal consistency and test–retest reliability, was used [35]. Cronbach's alpha for this scale in the present sample was 0.97.

The Center for Epidemiological Studies-Depression Scale (CES-D) is a 20-item measure of depressive symptoms. The Korean version of the scale was administered presently, which has good reliability and validity [36]. Cronbach's alpha for this measure in the current sample was 0.92.

Statistical analysis

Descriptive statistics were used to summarize demographic data and scores on the self-report questionnaires. *T*-tests were used to evaluate differences in variables according to gender. Correlation analyses were conducted to explore the relationship between variables: partial correlation coefficients were calculated after controlling for gender, age, and CES-D scores. Finally, and most importantly, interactions between TAS-20 scores and number of traumas experienced were assessed using both hierarchical multiple regression analysis and PROCESS. The hierarchical multiple regression analysis examined whether adding the interaction to the regression models accounted for significantly more of the variance in IES-R scores. Particularly, in an attempt to rule out depression, the model contains not only CES-D scores, but also the interaction term of CES-D scores and number of traumas experienced. In addition, PROCESS was used to assess whether TAS-20 scores moderate the relationship between the number of traumas experienced and IES-R scores. PROCESS is a versatile modeling tool that combines a variety of functions such as INDIRECT, SOBEL, MODPROBE, MODMED, RSQUARE and MBESS, to carry out various moderation and mediation analyses [37,38]. Every continuous variable was z-standardized in the analysis, and the mean ±1 standard deviation of the moderator (i.e. TAS-20 scores) was used to explore its conditional effects.