



The Interplay between Perceived Social Support, Post-Traumatic Stress Symptoms and Substance Use in a Trauma-Exposed Sample

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Foreword

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Abstract

It is well known that individuals with posttraumatic stress disorder (*PTSD*) often turn to addictive substances, such as alcohol and nicotine, in an attempt to relieve their symptoms. However, little is known about the precise effects of perceived social support on this association. In the present study, the interplay between perceived social support, PTSD, and substance use will be examined in a sample of adults with a history of trauma. Data were collected by self-assessment questionnaires from January until June in 2011. Participants were 490, aged 18 to 90 years. Results indicated that perceived social support following trauma was significantly associated with less likelihood of meeting criteria for PTSD symptoms (PDS score > 14). In addition, PTSD symptoms predicted daily smoking as well as having sought treatment because of substance abuse at some point. However, contrary to predictions, perceived social support did neither predict alcohol use or daily smoking. Furthermore, the moderating effect of perceived social support on the relationship between PTSD symptoms and substance use yielded non-significant results for all substance related variables. These results suggest that perceived social support is especially important in the aftermath of trauma to reduce the risk of PTSD symptoms. In addition, PTSD symptoms may increase the likelihood of substance use in trauma-exposed individuals.

Keywords: posttraumatic stress disorder, addictive substances, substance abuse treatment, perceived social support

Útdráttur

Það er vel þekkt að einstaklingar með áfallastreituröskun (ÁSR) leiti í ávanabindandi efni, líkt og áfengi eða sígarettur, til þess að vinna bug á einkennum sínum. Það er hins vegar lítið vitað um hvaða áhrif félagslegur stuðningur hefur á þetta samband. Markmið rannsóknarinnar var að kanna samspilið á milli félagslegs stuðnings, ÁSR einkenna og notkun ávanabindandi efna meðal einstaklinga sem höfðu sögu um áfall. Spurningalistar voru sendir í pósti og stóð gagnaöflun yfir frá janúar til lok júní 2011. Þátttakendur voru 490 einstaklingar á aldrinum 18 til 90 ára. Niðurstöður sýndu að einstaklingar sem fundu fyrir félagslegum stuðningi í kjölfar áfalls voru ólíklegri til þess að mæta greiningu á einkennum ÁSR samanborið við þá sem engan stuðning fengu. Þar að auki voru ÁSR einkenni forspárþáttur fyrir daglegum reykingum ásamt því að hafa farið í meðferð vegna vímuefnavanda. Hins vegar fannst ekkert samband á milli félagslegs stuðnings við daglegar reykingar né áfengisnotkun. Þar að auki var ekki marktæk samvirkni milli einkenna ÁSR og félagslegs stuðnings. Niðurstöður rannsóknarinnar benda til þess að félagslegur stuðningur í kjölfar áfalls sé sérstaklega mikilvægur til þess að minnka líkur á þróun ÁSR. Þar að auki getur ÁSR aukið líkur á að einstaklingar leiti í ávanabindandi efni í kjölfar áfalls.

Lykilhugtök: áfallastreituröskun, ávanabindandi efni, vímuefna meðferð, félagslegur stuðningur

The Interplay between Perceived Social Support, Posttraumatic Stress Symptoms and Substance Use in a Trauma-Exposed Sample

It is estimated that around 60-90% of the general population may experience a traumatic life event at some point in their life (Breslau, 2002). Given this high prevalence rate, it is important to examine how trauma affects the health of individuals. Generally, high levels of stress follow the traumatic experience as well as a range of emotions such as sadness, fear, confusion, and horror among those exposed (Foa, Stein, & McFarlane, 2006; Volpicelli, Balaraman, Hahn, Wallace, & Bux, 1999). Research indicates that most people recover with time and do not show any clinical symptoms, with only a small minority developing psychiatric disorders (Cahill & Pontoski, 2005; Zohar, 2015). Posttraumatic stress disorder (PTSD) as well as substance use disorders (SUD) can be developed following a trauma (Bonin, Norton, Asmundson, Dicurzio, & Pidlubney, 2000; Foa et al., 2006). These disorders may occur individually; however, the co-occurrence of these disorders is also prevalent (Jacobsen, Southwick, & Kosten, 2001). In recent years, social support following a traumatic event has been identified as a potential protective factor for both PTSD (Coker et al., 2002) and substance use (Boscarino, Adams, & Galea, 2006). This study will build on previous research and explore further the interplay between perceived social support, PTSD symptoms, and substance use.

Posttraumatic stress disorder and social support

To be diagnosed with PTSD, individuals have to experience a traumatic event as defined by Criterion A in the newest edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association, 2013). The event may be experienced directly, witnessed as it occurs to others, hearing about a serious event that happened to someone close, and finally an individual may experience recurrent, distressing details about an event, excluding exposure through electronic media or television. Various

types of traumatic events have been linked with the development of PTSD, such as sexual abuse (Ullman & Filipas, 2001), physical assault (Nehls & Sallmann, 2005), natural disasters (Feng et al., 2007), and exposure to combats (Klarić et al., 2008). According to DSM-5, PTSD is characterized by intrusive symptoms (e.g. flashbacks), avoidance symptoms (e.g. avoiding thoughts about the event), negative alternation in cognition and mood (e.g. hopelessness), and lastly symptoms of hyper-arousal and reactivity (e.g. outburst of anger) (American Psychiatric Association, 2013). The estimated lifetime prevalence of the disorder is approximately 6.8% (Kessler et al., 2005). In recent years, several studies have pointed out the importance of identifying protective factors for PTSD in order to reduce the incidence rate of the disorder (Coker, Weston, Creson, Justice, & Blakeney, 2005). A factor that has received much attention is social support (Clapp & Beck, 2009; Sneed & Cohen, 2014).

Social support is a broad concept, generally defined as companionship with others and having a network of social resources available in times of need (Zhou, 2014). Studies have shown that the perception of social support in times of great stress may promote health and protect individuals from the adverse effects of stress (Sneed & Cohen, 2014). This is in line with the stress-buffering hypothesis which proposes that social support acts as a moderator in the relationship between stress and health (Cassel, 1976; Cobb, 1976). There are two main forms of social support: perceived support which entails the individual's belief that social support is available if needed and received support which refers to the actual assistance individual receives (Norris & Kaniasty, 1996). Interestingly, studies have shown that perceived support is more important than received support in predicting adjustment to stress (Mcdowell & Serovich, 2007; Taylor et al., 2004; Wethington & Kessler, 1986).

A great deal of research has found a strong association between social support and PTSD (Clapp & Beck, 2009; Guay, Billette, & Marchand, 2006; Hofman, Hahn, Tirabassi, & Gaher, 2016). Some of these studies have demonstrated that social support can act as a

protective factor against the development of PTSD by helping the individual to cope with the trauma and buffer against the distress that normally follows traumatic experience (Ozer, Best, Lipsey, & Weiss, 2003; Schumm, Briggs, & Hobfoll, 2006). In accordance to this, Brewin and colleagues (2000) conducted a meta-analysis of 77 articles on risk factors for PTSD in trauma-exposed adults. Their results revealed that of the risk factors for PTSD, lack of social support served as the strongest predictor for the development of the disorder. Furthermore, a lack of social support in the aftermath of trauma has been associated with more severe PTSD symptoms (Galea et al., 2002; Schumm et al., 2006) and avoidant coping (Charuvastra & Cloitre, 2008). Moreover, Dai and co-workers (2016) found that social support was associated with recovery from prior PTSD, 13 to 14 years after a natural disaster.

Social support following trauma and substance use

People with stronger support around them tend to be physically and mentally healthier than those who are socially isolated (Melrose, Brown, & Wood, 2015). In relation to traumatic experience, individuals often lack coping skills to deal with their emotions and therefore turn to substances such as alcohol and nicotine to manage their symptoms (Brady, Back, & Coffey, 2004). Reaching out and seeking social support to promote healing in the aftermath of trauma offers more adaptive ways of coping (Dougall, Hyman, Hayward, McFeeley, & Baum, 2001; Flory, Hankin, Kloos, Cheely, & Turecki, 2009; Tomberg, Toomela, Pulver, & Tikk, 2005).

An association between perceived social support following trauma and substance use has been observed (Delany-Brumsey, Joseph, Myers, Ullman, & Wyatt, 2013; Shahzad, Begum, & Malik, 2014; Veenstra et al., 2006). Veenstra and colleagues (2006) found that individuals who lacked social support following a traumatic event were more likely to use alcohol to reduce their stress, while individuals with higher social support were more likely to find more adaptive ways to cope. Also, Cerdá and co-workers (2011) examined social

support two months after a hurricane in relation to changes in alcohol drinking, using a prospective study design. Their results demonstrated that social support two months after the disaster was associated with a decrease in alcohol use. Similarly, Flory and colleagues (2009) found that more social support following a natural disaster was associated with lower rates of substance use. These studies suggest that social support may protect individuals from the emotional distress which often follows trauma and thereby reduce the likelihood of substance abuse (Cerdá, Tracy, & Galea, 2011; Flory et al., 2009).

Posttraumatic stress disorder and substance use

It is estimated that around 80% of individuals diagnosed with PTSD meet the diagnostic criteria for at least one other mental disorder (American Psychiatric Association, 2013). Of these co-morbid disorders, substance use disorder (SUD) is particularly common (Brady et al., 2004; Jacobsen et al., 2001). According to the DSM-5 criteria, the main feature of SUD is a cluster of cognitive, behavioral and physiological symptoms illustrating a maladaptive pattern of substance use which affects major life domains (American Psychiatric Association, 2013). It is estimated that the prevalence of SUD among people with PTSD is around 21% to 43% (Dell'Osso et al., 2014). Considering the high co-occurrence of PTSD and SUD, it may be expected that a large proportion of individuals seeking treatment because of substance abuse also have PTSD and studies have actually shown that the lifetime prevalence of PTSD among treatment seeking patients is approximately 50% (Bonin et al., 2000; Ouimette, Brown, & Najavits, 1998).

With regard to alcohol misuse, recent studies have found that around one-third of individuals with lifetime PTSD show signs of alcohol use disorders (Tipps, Raybuck, & Lattal, 2014). Similarly, Kessler and colleagues (1995) found that 52% of men with PTSD and 28% of women met the criteria for lifetime alcohol dependence or abuse. Past research has also demonstrated that nicotine use is extremely prevalent among individuals suffering

from PTSD (Breslau, Davis, & Schultz, 2003; Flory et al., 2009; Fu et al., 2007; Lasser et al., 2000). It is estimated that over 45% of individuals with PTSD smoke, compared to 23% of the general population (Lasser et al., 2000). Furthermore, studies have shown that individuals suffering from PTSD show lower odds of quitting smoking than others who do not have PTSD (Hapke et al., 2005).

The nature of the relationship between PTSD and substance use is still not well understood, and research has led to the formulation of several competing hypotheses (Simons, Gaher, Jacobs, Meyer, & Johnson-Jimenez, 2005). Most studies have supported the self-medication hypothesis which entails that individuals suffering from PTSD may consume alcohol or smoke cigarettes to dampen or avoid their PTSD symptoms, which in turn leads to abuse or dependence (Beckham et al., 2005; Feldner, Babson, & Zvolensky, 2007; Langdon & Leventhal, 2014; Leeies, Pagura, Sareen, & Bolton, 2010). Today, there is an ongoing debate of whether or not there is a causal relationship between PTSD and substance use (Fu et al., 2007; Tipps et al., 2014). However, this association is most likely multifactorial and irrespective of what came first, once both conditions are present they will most likely reinforce and sustain each other (Wiechelt, Miller, Smyth, & Maguin, 2011).

Perceived social support, posttraumatic stress symptoms, and substance use

When looking closely at the literature, it becomes obvious that social support, PTSD, and substance use are related factors. However, there is a gap in the literature regarding the nature of this interplay. Usually, studies have focused on trauma exposure, social support, and substance use irrespective of PTSD diagnoses, or they have examined the main effects of these factors in relation to one another without testing the interaction. For example, Coker and co-workers (2002) examined the main effects of social support, PTSD, and substance abuse among abused women (e.g. sexual and physical). Their results revealed that women with higher social support were less likely to report symptoms of PTSD and substance abuse

compared to women that lacked social support. Similarly, Stappenbeck et al (2015) found that a decrease in perceived social support was associated with an increase in alcohol consumption among women reporting symptoms of sexual assault-related distress. Furthermore, Trautman and colleagues (2015) found that among army veterans a lack of social support following deployment was associated with an increase in daily alcohol consumption. Most of these studies note the importance of examining the role of social support in more detail in order to develop more effective health implications for individuals suffering from the co-occurrence of PTSD and substance use (e.g. Flory et al., 2009).

The purpose of the present study was to examine the interplay between perceived social support, PTSD symptoms, and substance use in a trauma-exposed sample. Based on the literature discussed above it is hypothesized that: (1) Individuals reporting perceived social support following a traumatic event are less likely to experience PTSD symptoms; (2) Individuals who perceive social support following a traumatic event are less likely to report daily smoking, alcohol consumption, weekly alcohol consumption and having sought substance abuse treatment at some point; (3) Individuals who meet the criteria for PTSD symptoms are more likely to report daily smoking, alcohol consumption, weekly alcohol consumption, and having sought treatment because of substance abuse; (4) Perceived social support is a moderator in the relationship between PTSD symptoms and substance use, PTSD should be a stronger predictor of substance use in those who did not perceive social support in the aftermath of trauma compared to those who did perceive social support.

Method

Participants

This study is a part of a larger research project conducted in 2011, consisting of 940 participants. Overall, the response rate was 68% (643/ 940). As the aim of the study was to examine traumatic experience in relation to perceived social support, PTSD symptoms and

substance use, criterion for eligibility was having experienced a trauma according to the DSM-IV Criterion A. Of the 643 participants, 153 were excluded because they did not report a traumatic event as defined by Criterion A. The final sample, therefore, comprised 490 participants. The sample consisted of 1) individuals from Breiddalsvik and Raufarhofn who had experienced various types of traumatic events according to the Criterion A in DSM-IV as measured by the PDS ($n = 204$) and 2) residents of two avalanche affected towns (Flateyri and Sudavik) in the Westfjords of Iceland in 1995 ($n = 286$). The avalanches were catastrophic events, which took the lives of 34 inhabitants and caused vast destruction and damage. All participants were residents of these four towns in 1995, i.e. Breiddalsvik, Raufarhofn, Flateyri and Sudavik, irrespective of residence at the time of follow up. Participants were recruited through phone calls, emails or postal mail. Regarding demographic characteristics, the sample included 247 women (51%) and 241 men (49%); two participants did not disclose their gender. The age range was 18 to 90 years, with average age of 43.4 years ($SD=17.0$). The majority (67%) of participants were married or in a relationship. Participant's education level was as follows: 43% had finished grade school education or less, 34% had high school level education, and 23% had a university degree.

Procedure

The Icelandic Bioethics Committee granted approval for the study in 2010 (VSNb2009080005/03.7) and the Icelandic Data Protection Authority was notified of the study (s4608/2009/LSL/-). The Icelandic Bureau of Statistics, Statistics Iceland, provided residential records from 1995 with contact information for residents of Sudavik, Flateyri, Breiddalsvik and Raufarhofn. All living residents in these towns with an active phone number or postal address, age 18 years and older, received an introductory letter in 2011 which included information about the objective of the study (see Appendix A). A week later, a phone call was made to ask about their willingness to participate in the study. General

information about the study along with questionnaires was sent by email or postal mail to those who agreed to participate. Individuals who had an address in Iceland but not an active phone number received the letter about the study and the questionnaires by postal mail. It was clearly stated in the letter that answering and returning the questionnaire was viewed as consent to participate in the study. Two weeks later, email or postal mail was sent to the participants, thanking them for the participation and reminding those who had not returned the questionnaire to do so. A week later, a reminder phone call was made if the questionnaire had not been returned. The collection of the data started in January and ended in June 2011.

Regarding ethical considerations, participants were informed that all answers would be handled according to strict rules of confidentiality and anonymity. Participants were also invited to discuss with a certain psychologist at The National University Hospital of Iceland (Landspítali) if participation in the study caused any distress or difficulties.

Measures

The present study was retrospective and included data from a questionnaire created by Thordardottir and colleagues (2015). The questionnaire consisted of 94 questions relating to the physical- and mental health of the participants as well as background characteristics, trauma exposure etc. Six questions were selected for the present study regarding perceived social support, PTSD symptoms, alcohol use, smoking, and substance abuse treatment as well as demographic information (see Appendix B).

The Posttraumatic Diagnostic Scale (PDS; Foa, Cashman, Jaycox & Perry, 1997).

The PDS was used to assess posttraumatic stress symptoms reflecting the diagnostic criteria items in the fourth edition of the DSM-IV, specifically symptoms of reexperience, avoidance and hyperarousal (American Psychiatric Association, 2000). The PDS is a well known self-report scale with 49 items, beginning with a checklist of 12 traumatic events. An inclusion criterion in the study was having a history of at least one traumatic event on the PTSD trauma

checklist. Participants from Breiddalsvik and Raufarhofn answered the standard PDS and were specifically asked to state which event on the PTSD traumatic event checklist troubled them the most at the present moment. In the third part they were asked to answer 17 questions about the event that had disturbed them the most in the following month, corresponding to the DSM-IV criteria for PTSD. All of the participants from Flateyri and Sudavik met DSM-IV Criterion A of trauma exposure as they all experienced avalanches that occurred in 1995. The 17 questions corresponding to the DSM-IV PTSD criteria were modified with questions being avalanche specific (e.g. In the past month, have you experienced bad dreams or nightmares about the avalanche in Flateyri/Sudavik?). Questions on the PDS were rated from 0 (“not at all or only one time”) to 3 (“5 or more times a week/almost always”) for symptom frequency during the past month. PTSD symptom severity scores ranged from 0 to 51 and were obtained by summing up the responses on the 17 questions. A cut-off of >14 was used in the current study, which is considered to represent clinically significant PTSD symptoms (Coffey, Gudmundsdottir, Beck, Palyo, & Miller, 2006). Those who scored 0 to 14 on the scale were coded as 0, indicating that they did not have PTSD symptoms, and those who scored 15 to 51 were coded as 1, indicating PTSD symptoms. The Icelandic version of the PDS was used in the present study and demonstrated high internal consistency, with Cronbach’s $\alpha = .91$. In addition, the scale has shown high test-retest reliability and good concurrent validity (Foa, Riggs, Dancu, & Rothbaum, 1993).

Alcohol use. To assess alcohol use two questions were used. First, participants were asked: “Do you consume alcohol?” (0 = no and 1 = yes). Second, those who consumed alcohol were asked: “How often do you consume alcohol?” (1= less than once a month, 2 = about once a month, 3 = two to three times a month, 4 = weekly, 5 = many times per week). The responses to the latter question were combined into two groups (0 = less than once a week and 1 = once a week or more often).

Smoking. Regarding nicotine use, participants were asked: “Do you smoke (e.g. cigarettes, cigars and/or pipe)” (1 = no, I have never smoked, 2 = no but I smoked in the past, 3 = yes daily, 4 = yes at least once in week and 5 = yes, but less than weekly). The responses were combined into two groups (0 = not a daily smoker and 1 = daily smoker).

Perceived social support. One question with two versions was used to assess perceived social support following the trauma among the participants. The participants from Breiddalsvik and Raufarhofn were asked: “Did you feel you had someone to talk to about the trauma?” (1 = yes and 2 = no), while participants from Flateyri and Sudavik were asked about social support specific to one event, i.e. the avalanche in 1995: “Did you feel you had someone to talk to about the avalanche in Sudavik/Flateyri just after it fell?” (1 = yes and 2 = no). A new variable was computed where the responses from all participants were combined and split into two groups (0 = no perceived social support and 1 = perceived social support).

Substance abuse Treatment. The question that was used to assess if individuals had sought treatment because of substance abuse was: “Have you ever received counseling or treatment because of alcohol –and/or substance abuse” (1 = yes, before 1995, 2 = yes, after 1995, 3 = yes, both before and after 1995, 4 = no, never). The year of 1995 was specifically noted in the response options because of the avalanches. The responses were coded into two groups (0 = never received treatment, 1 = received treatment at some point).

Statistical analysis

All statistical analyses were carried out in the Statistical Package for Social Sciences, version 23.0. (SPSS). Frequency data were calculated to provide information on the prevalence rates of substance use (i.e. daily smoking, alcohol consumption, and weekly alcohol consumption), substance abuse treatment, perceived social support, and PTSD symptoms in the sample. Second, bivariate- and multivariate logistic regression models were performed for perceived social support predicting PTSD symptoms. Third, series of forced

entry logistic regression models, including bivariate and multivariate analyses, were conducted to evaluate the role of perceived social support and PTSD symptoms in daily smoking, alcohol consumption, weekly alcohol consumption, and substance abuse treatment. Main effects as well as interaction effects were evaluated in these analyses. Bivariate logistic regression analyses were used to obtain crude odds ratios for perceived social support and PTSD symptoms. Multivariate logistic regression analyses were performed to identify the independent role of perceived social support and PTSD symptoms after adjusting for age and gender (coded: 0 for women and 1 for men). Each multivariate model included both predictors, i.e. perceived social support and PTSD symptoms; multicollinearity was not a problem in this data. Age was the only continuous variable, all other variables analyzed were categorical, consisting of two categories where “0” represented absence of condition and “1” represented the presence of condition. The results of the logistic regression are reported as odds ratios (ORs) with 95% confidence intervals; significance was set at $p < .05$.

Results

The frequencies of all variables analyzed in the present study are provided in Table 1. Approximately one-fifth of the sample reported being daily smokers. The majority of participants (77%) were alcohol consumers; however only 13% reported consuming alcohol once a week or more often. Similarly, a small proportion (8%) reported having sought substance abuse treatment at some point. Most of the participants (72%) reported perceived social support following the trauma. Furthermore, the prevalence rate of PTSD symptoms above the clinical cut-off in the past month was 17% in the sample.

Bivariate and multivariate logistic regression analyses were conducted to assess the association between perceived social support and PTSD symptoms. The full model was statistically significant, $\chi^2(3, n = 382) = 36.12, p < .001$. Indicating that the model was able to distinguish between respondents with and without PTSD symptoms. The model as a whole

explained between 9% (Cox and Snell R square) and 15% (Nagelkerke R squared) of the variance in PTSD symptoms and correctly classified 83% of the cases. As shown in Table 2, the odds ratio of perceived social support was 0.22, 95% CI [0.13, 0.39] in the multivariate model, suggesting that participants who perceived social support following the trauma had decreased odds of meeting the criteria for PTSD symptoms. In addition, the odds of meeting the criteria for PTSD symptoms were lower for men than women with an odds ratio of 0.47, 95% CI = [0.26, 0.84].

Table 1.

Frequencies and Percentage of Daily smoking, Alcohol Consumption, Weekly Alcohol Consumption, Substance Abuse Treatment, Perceived Social Support, and PTSD Symptoms (score >14) (n = 490)

	Frequency (n)	Percentage (%)
Daily smoking		
Yes	90	20%
No	363	80%
Alcohol consumption		
Yes	352	77%
No	103	23%
Weekly alcohol consumption		
Yes	57	13%
No	398	87%
Substance abuse treatment		
Yes	37	8%
No	406	92%
Perceived social support		
Yes	298	72%
No	117	28%
PTSD (PDS score >14)		
Yes	71	17%
No	354	83%

Table 2

Model Summaries of Logistic Regression for Perceived Social Support Predicting Posttraumatic Stress Symptoms (PDS score >14)

Predictors	Bivariate analysis ^a		Multivariate analysis ^b			
	OR	95% CI	β	SE	OR	95% CI
Age	0.99	[0.97, 1.01]	-0.01	0.01	0.99	[0.97, 1.01]
Gender	0.43	[0.25, 0.74]	-0.76*	0.30	0.47	[0.26, 0.84]
Perceived support	0.21	[0.12, 0.37]	-1.50**	0.29	0.22	[0.13, 0.39]

Note. SE = standard error; OR = odds ratio; CI = confidence interval.

^a Crude ORs. ^b Adjusted for age (continuous) and gender (0: men, 1: women).

* $p < .05$. ** $p < .01$.

Next, a series of logistic regression analyses were conducted, to assess if perceived social support and PTSD symptoms would predict daily smoking, alcohol consumption, weekly alcohol consumption as well as substance abuse treatment. Main effects and interaction effects were tested. The results from bivariate and multivariate analyses are presented in Table 3. For daily smoking, the full model containing both predictors was statistically significant, $\chi^2(4, n = 371) = 12.42, p < .05$. This indicated that the model was able to distinguish between respondents who were daily smokers from those who were not daily smokers. The model as a whole explained between 3.3% (Cox and Snell R square) and 5.2% (Nagelkerke R squared) of the variance in daily smoking and correctly classified 80% of the cases. As can be seen in Table 3, bivariate analyses showed that PTSD symptoms were associated with increased odds of daily smoking, OR = 2.77, 95% CI = [1.57, 4.89]. This association remained significant in the multivariate model, illustrating that individuals meeting the criteria for PTSD symptoms had 2.79 higher odds, 95% CI [1.47, 5.33], of being daily smokers compared to those who did not report PTSD symptoms. No association between perceived social support and daily smoking was observed in either the bivariate or the multivariate model.

Table 3

Model Summaries of Logistic Regression for Perceived Social Support and PTSD Symptoms (PDS score >14) Predicting Daily Smoking, Alcohol Consumption, Weekly Alcohol Consumption, and Substance Abuse Treatment

	Bivariate analysis ^a		Multivariate analysis ^b			
	OR	95% CI	β	SE	OR	95% CI
<i>Daily smoking</i>						
Age	0.98	[0.96, 0.99]	-0.01	0.01	0.99	[0.97, 1.00]
Gender	1.10	[0.69, 1.74]	0.18	0.27	1.20	[0.71, 2.02]
Perceived support	0.83	[0.49, 1.43]	0.15	0.31	1.16	[0.63, 2.14]
PDS (score >14)	2.77	[1.57, 4.89]	1.03**	0.33	2.79	[1.47, 5.33]
<i>Alcohol consumption</i>						
Age	0.98	[0.97, 0.99]	-0.02*	0.01	0.98	[0.97, 1.00]
Gender	1.07	[0.69, 1.66]	-0.13	0.25	0.88	[0.53, 1.44]
Perceived support	0.98	[0.57, 1.66]	-0.06	0.30	0.94	[0.53, 1.68]
PDS (score >14)	0.65	[0.37, 1.17]	-0.52	0.34	0.59	[0.31, 1.15]
<i>Weekly alcohol consumption</i>						
Age	0.99	[0.98, 1.01]	0.00	0.01	1.00	[0.98, 1.02]
Gender	2.00	[1.13, 3.54]	0.62	0.32	1.85	[0.99, 3.48]
Perceived support	1.36	[0.67, 2.77]	0.25	0.39	1.29	[0.60, 2.73]
PDS (score >14)	0.85	[0.38, 1.98]	0.22	0.44	1.24	[0.52, 2.96]
<i>Substance abuse treatment</i>						
Age	1.00	[0.98, 1.03]	0.01	0.01	1.01	[0.99, 1.04]
Gender	3.61	[1.66, 7.85]	1.79**	0.47	5.99	[2.38, 15.04]
Perceived support	1.39	[0.59, 3.31]	0.99	0.53	2.70	[0.96, 7.61]
PDS (score >14)	2.64	[1.22, 5.72]	1.69**	0.49	5.42	[2.07, 14.16]

Note. SE = standard error; OR = odds ratio; CI = confidence interval.

^a Crude ORs. ^b Perceived social support and PTSD (score >14) entered simultaneously, adjusted for age (continuous) and gender (0: men, 1: women).

* $p < .05$. ** $p < .01$.

When predicting alcohol use, the full model was not statistically significant, $\chi^2(4, n = 372) = 8.29, p > .05$, indicating that the model was not able to distinguish between respondents who were alcohol consumers and those who were not alcohol consumers. The model as a whole explained between 2.2% (Cox and Snell R square) and 3.4% (Nagelkerke R squared) of the variance in alcohol consumption and correctly classified 78% of the cases. Neither perceived social support nor PTSD symptoms predicted alcohol consumption in either bivariate or multivariate models. A weak but significant association was detected for age in both bivariate and multivariate analyses, each one year was associated with decreased odds of being a alcohol consumer in the multivariate analysis, OR = 0.98, 95% CI [0.97, 1.00].

The full model for weekly alcohol consumption was not statistically significant, $\chi^2(4, n = 372) = 4.36, p > .05$, illustrating that the model was not able to distinguish between respondents who consumed alcohol weekly and others who did not. The model as a whole explained between 1.2% (Cox and Snell R square) and 2.2% (Nagelkerke R squared) of the variance in alcohol consumption and correctly classified 87% of the cases. Perceived social support and PTSD symptoms did not predict weekly alcohol consumption in either bivariate or multivariate models.

Finally, when predicting whether individuals with PTSD symptoms had previously sought substance abuse treatment, the multivariate model was statistically significant, $\chi^2(4, n = 366) = 27.00, p < .001$, indicating that the model was able to distinguish between respondents who had received treatment versus those who did not. The model as a whole explained between 7.1% (Cox and Snell R square) and 15.9% (Nagelkerke R squared) of the variance and correctly classified 91% of the cases. The bivariate- and the multivariate analyses revealed a significant association between experiencing PTSD symptoms and having a history of substance abuse treatment. Specifically, participants who met the criteria for

PTSD symptoms had 5.42 times, 95% CI [2.07, 14.16], higher odds of having received treatment compared to those who did not meet the criteria for PTSD symptoms in multivariate analysis. In addition, men had 5.99 times, 95% CI [2.38, 15.04] higher odds of having sought substance abuse treatment compared to women. Perceived social support was not found to be associated with substance abuse treatment in either bivariate or multivariate analyses.

To test whether perceived social support was moderating the relationship between PTSD symptoms and substance use, the interaction between PTSD and perceived social support was tested with all four substance related variables, i.e. daily smoking, alcohol consumption, weekly alcohol consumption and substance abuse treatment. The results did not yield any significant interaction on any of the substance related variables.

Discussion

The aim of the present study was to examine the associations between perceived social support, PTSD symptoms and substance use among adults with a history of trauma. This is, to the best of our knowledge, the first study to examine this interplay directly. The results revealed a strong relationship between perceived social support and PTSD symptoms, which supported the first hypothesis; individuals who perceived social support following the trauma were less likely to meet the criteria for PTSD symptoms. These findings are in line with previous studies which show that lack of social support is one of the strongest predictors for the development of PTSD (Brewin, Andrews, & Valentine, 2000; Galea et al., 2002; Ozer et al., 2003). Social bonds seem to play a critical role in the aftermath of trauma, particularly in relation to how an individual responds to trauma. Social support may help trauma-exposed individuals to regulate and cope with their emotions, which may in turn decrease the likelihood of developing PTSD. In addition, social bonds can create a sense of safety, which is essential for a recovery from traumatic experience (Charuvastra & Cloitre, 2008).

With respect to our second hypothesis, that lack of perceived social support would predict substance use, was not supported in this study. We found no association between perceived social support and daily smoking, alcohol use, weekly alcohol use or substance abuse treatment. This is contrary to previous research which have found that perception of social support in the aftermath of trauma decreases the likelihood of substance use (Brady et al., 2004; Cerdá et al., 2011; Flory et al., 2009; Veenstra et al., 2006). Individuals included in the present study had experienced various types of traumatic events, and in this context some other types of social support, i.e. emotional support and instrumental support, may have been more important than perceived social support. Research has shown that instrumental support is particularly important for individuals that have been exposed to a natural disaster (Cline, Orom, Child, Hernandez, & Black, 2015). Half of the sample in the present study experienced avalanches where many people lost their lives and houses were ruined. Instrumental support, such as offering financial help and housing, may have been more important for these participants. It is important to note that the literature on the association between perceived social support and substance use is scarce and further longitudinal studies with prospective designs are warranted to examine this relationship.

The third hypothesis regarding the relationship between PTSD symptoms and substance use was partially supported. Participants who met the criteria for PTSD symptoms were more likely to be daily smokers compared to those who did not report PTSD symptoms, which is in line with previous findings (Fu et al., 2007; Hapke et al., 2005; Lasser et al., 2000). When individuals are exposed to traumatic events, they use different methods to cope with the stress that follows the experience. Previous studies have suggested that individuals use smoking to cope with their symptoms, which is in line with the self-medication hypothesis (Beckham et al., 2005; Cougle, Zvolensky, Fitch, & Sachs-Ericsson, 2010). Furthermore, research has shown that there is a dose-response relationship between smoking

and PTSD, with higher rates of heavy smoking among individuals with more severe PTSD symptoms (Thorndike, Wernicke, Pearlman, & Haaga, 2006). PTSD symptoms were also associated with having sought treatment because of substance abuse; those who reported PTSD symptoms were more likely to have sought treatment at some point in their life. When looking at the literature on this subject, studies have shown that high proportion (50%) of individuals in substance abuse treatments also show symptoms of PTSD (Jacobsen et al., 2001). Moreover, research has shown that patients with comorbid SUD-PTSD benefit less from treatment and are more likely to relapse compared to those who only suffer from SUD (Ouimette et al., 1998).

The fourth hypothesis stated that perceived social support was a moderator in the relationship between PTSD symptoms and substance use. This was not supported in the present study as no significant interaction between perceived social support and PTSD was detected for any of the substance related variables. Perceived social support is therefore not a buffer in the relationship between PTSD symptoms and substance use. It is a possibility that this non-significant finding was due to a lack of statistical power; future studies should examine this association in a larger sample. In addition, as has been stated earlier, the concept of perceived social support was the only type of social support examined in this study. Other types of social support may moderate the association between PTSD and substance use.

These results should be interpreted with caution, as the study is not without limitations. First, the retrospective design and the cross sectional nature of the data does not allow us to infer much about the temporal sequence of the factors under study. We did not have any information on substance use prior to the trauma, and individuals were not asked if their substance use had changed since the trauma occurred. Second, the assessment of PTSD symptoms was made using self-reporting questionnaires rather than more sophisticated diagnostic tools such as structured clinical interviews which may have caused potential

deviation in the true prevalence of PTSD symptoms in the sample. In addition, the follow-up time is likely to have affected the rate of current PTSD, as individuals that experienced a trauma a long time ago may have had PTSD in the past but had recovered when the data was collected. In addition, 14% of the sample did not answer the PDS for unknown reasons. Third, only one question was used to assess perceived social support following the trauma which may not have been adequate; a better measure would be a standardized scale such as The Multidimensional Scale of Perceived Social Support (MSPSS) which consists of 12 questions relating to support from family and friends (Zimet, Dahlem, Zimet, & Farley, 1988). Fourth, alcohol use in general is common among Icelanders. A report from 2013 found that among 1362 Icelanders, aged 18 year and older, 87% were alcohol consumers (Embætti landlæknis, 2014). This prevalence rate is even slightly higher than what we found (77%). In this context, it would have been more informative to measure alcohol abuse specifically, and with a standardized measure such as with the Alcohol Use Disorders Identification Test (AUDIT) which assesses alcohol consumption, drinking behavior, and alcohol-related problems (Reinert & Allen, 2007). Fifth, traumatic events assessed by the PDS scale were addressed differently among participants included in this study. Originally, the sample was comprised of two groups; an avalanche group and a comparison group which was identified as having similar living conditions, but not geographically threatened by the avalanches (Thordardottir et al., 2015). The avalanche group answered the 17 items corresponding to DSM-IV criteria for PTSD on the PDS with regard to a specific traumatic event (i.e. avalanches in 1995), while the comparison group answered based on the most severe trauma they had experienced. This could potentially cause a reporting bias and an underestimation of the true prevalence of PTSD among the participants. However, it is important to note that Chi-square analyses were conducted to determine if the two groups differed with respect to all variables relating to this study. No statistical difference was

observed, which supported the notion of placing these groups together in one trauma-exposed group.

In spite of the limitations discussed above, our findings extend previous knowledge about the interplay between perceived social support, PTSD symptoms and substance use and may encourage further research. In addition, this study has practical implications by emphasizing the importance of educating the public about the significance of providing support to loved ones after traumatic events in order to decrease the likelihood of PTSD and substance use. Furthermore, practitioners working with individuals suffering from PTSD should encourage patients to seek social support in order to promote faster recovery.

Future studies should address the above limitations and examine the interplay between perceived social support, PTSD symptoms and substance use in more detail with a larger and more representative sample from the general population with a longitudinal design. Also, it would be interesting to systematically compare different types of traumatic events in relation to perceived social support, PTSD development, and substance use.

In conclusion, our findings indicated that perceived social support following trauma was associated with decreased likelihood of reporting PTSD symptoms. Moreover, individuals meeting the criteria for PTSD symptoms had higher odds of being daily smokers and of having sought substance abuse treatment at some point. Future studies will hopefully give more in-depth information on the role of perceived social support in association with PTSD and substance use.

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Appendix A

Introductionary letter



HÁSKÓLI ÍSLANDS

Heilsufar þolenda snjóflóðanna í Súðavík og á Flateyri árið 1995

Kæri viðtakandi,

Tilgangurinn með spurningalistanum sem við biðjum þig góðfúslega um að svara, er að kanna langtímaáhrif snjóflóðanna í Súðavík og á Flateyri árið 1995 á andlega og líkamlega heilsu íbúanna. Fimmtán ár eru nú liðin frá hinum mannskæðu snjóflóðum á Vestfjörðum, en lítið er vitað um langtímaáhrif áfalls af völdum náttúruhamfara. Von okkar er sú að með þátttöku þinni muni skilningur okkar og innsýn á þær afleiðingar sem áföll hafa á líðan fólks aukast.

Rannsóknin, „Heilsufar þolenda snjóflóðanna í Súðavík og á Flateyri árið 1995“ er unnin á vegum Miðstöðvar í lýðheilsuvísindum og sálfræðideildar Háskóla Íslands. Ábyrgðaraðili rannsóknarinnar er dr. Berglind Guðmundsdóttir, sálfræðingur og klínískur dósent við sálfræðideild Háskóla Íslands. Símanúmer hennar er 543-9292 og netfang berggudm@landspitali.is, aðsetur Landspítali háskólasjúkrahúss. Aðrir rannsakendur eru dr. Unnur Anna Valdimarsdóttir, forstöðumaður Miðstöðvar í lýðheilsuvísindum og Edda Björk Þórðardóttir, en rannsóknin er doktorsverkefni hennar við Háskóla Íslands. Símanúmer Eddu Bjarkar er 822-2152 og netfang eddat@hi.is. Samstarfsaðilar rannsóknarinnar eru Ágúst Oddsson, læknir á Vestfjörðum og Þórunn Finnsdóttir sálfræðingur. Rannsóknin hefur hlotið styrk frá Rannsóknasjóði Háskóla Íslands og Vísindasjóði Landspítala háskólasjúkrahúss.

Notast er við þrjá spurningalista til að meta einkenni áfallastreitu, kvíða, þunglyndis, svefnvanda auk líkamlegra sjúkdóma og kvilla. Einnig fylgir með spurningalisti, sem metur upplifun á snjóflóðinu. Svörin verða borin saman við svör um andlega og líkamlega heilsu til að meta áhrif mismunandi reynslu á hana. Auk þess er hægt að koma athugasemdum á framfæri í lok listans. Lítið er svo á að svörun og skil á spurningalista jafngildi samþykki til þátttöku í rannsókninni.

Spurningalistar verða sendir til þeirra íbúa sem bjuggu á Flateyri, í Súðavík, á Breiðdalsvík og Raufarhöfn árið 1995, sem eru 18 ára og eldri í dag. Tilgangurinn með því að senda spurningalista á íbúa Breiðdalsvíkur og Raufarhafnar árið 1995, er að meta líðan íbúa á svæði þar sem aldrei hefur fallið snjóflóð. Nöfn, heimilisföng og fæðingarár íbúa voru fengin hjá Hagstofu Íslands. Núverandi heimilisföng íbúa voru fengin með hjálp Ja.is.

Öll svör, sem þú veitir í könnuninni, verða meðhöndluð samkvæmt ströngustu reglum um trúnað og nafnleynd. Einnig verður farið að íslenskum lögum í hvívetna varðandi persónuvernd, vinnslu og eyðingu frumgagna. Rannsóknargögn verða varðveitt á öruggum stað hjá ábyrgðarmanni rannsóknarinnar meðan á rannsókn stendur. Rannsóknargögnum verður eytt að lokinni rannsókn. Gögnin verða ekki notuð í markaðsskyni né af þriðja aðila. Eingöngu rannsakendur munu nýta þau. Nafnalisti þátttakenda verður varðveittur eftir lok rannsóknarinnar en mögulegt er að hafa samband við ábyrgðaraðila hennar, dr. Berglindi Guðmundsdóttur, ef þú óskar eftir því að nafn þitt verði tekið af listanum.

Það tekur hálfa til eina klukkustund að svara spurningunum. Ekki er nauðsynlegt að þú svarir öllum spurningum í spurningalistanum ef spurningar vekja hjá þér vanlíðan á einhvern hátt eða óvíst er um svar, en æskilegt er rannsóknarinnar vegna og vinnslu hennar að sem flestum spurningum sé svarað eins nákvæmlega og unnt er. Þér er að sjálfsgöðu frjálst að hafna þátttöku án útskýringa. Ef þátttaka í rannsókninni veldur þér vanlíðan og vandkvæðum þá stendur þér til boða að ræða við Regínu Ólafsdóttur sálfræðing hjá sálfræðiþjónustu Landspítalans (543-2071).

Niðurstöður verða birtar í doktorsritgerð Eddu Bjarkar. Auk þess er fyrirhugað að birta niðurstöður í tímaritum á alþjóðavettvangi og á ráðstefnum.

Rannsóknin er unnin með samþykki Vísindasiðanefndar og hefur verið tilkynnt til Persónuverndar.

Þátttaka þín er mikils metin.

Með fyrirfram þökk fyrir þátttökuna.

Nafn ábyrgðarmanns s: 543-9292

Nafn meðrannsakenda

Nafn meðrannsakenda

Nafn meðrannsakenda

Ef þú hefur spurningar um rétt þinn sem þátttakandi í vísindarannsókn eða vilt hætta þátttöku í rannsókninni getur þú snúið þér til Vísindasiðanefndar, Vegmúla 3, 108 Reykjavík. Sími: 551-7100, fax: 551-1444.

Appendix B

Questions

1. Þú ert:

- Karl
- Kona

2. Hver er aldur þinn? _____

3. Hver er hjúskapastaða þín í dag? Merktu við allt sem á við.

- Í föstu sambandi en ekki í sambúð
- Í sambúð
- Gift/kvæntur
- Einhleyp/ur
- Fráskilin/n --- ár sem þú skildir _____
- Ekkja/ekkill --- ár sem þú misstir maka þinn _____

4. Hvaða námi hefur þú lokið?

- Hætt í skyldunámi
- Skyldunámi (*t.d. grunnskólaprófi, landsprófi, gagnfræðiprófi*)
- Starfsnámi, iðnnámi, bóklegu framhaldsnámi (*t.d. stúdentspróf, samvinnuskólapróf, verslunarpróf, vélfræðingar, skipstjóranám*)
- Sérskólanámi á eða við háskólastig (*t.d. iðnfræði- eða tækninám*)
- Háskólanámi (*3ja ára eða lengra*)
- Annað

5. Reykir þú (sígarettur, vindla og/eða pípu)? Merktu við einn reit

- Nei, ég hef aldrei reykt
- Nei, en ég reykti áður fyrr
- Já, daglega
- Já, að minnsta kosti vikulega
- Já, en sjaldnar en vikulega

6. Neytir þú áfengis?

- Já
- Nei

7. Hversu oft neytir þú áfengis?

- Sjaldnar en einu sinni í mánuði
- Um það bil einu sinni í mánuði
- 2- 3 sinnum í mánuði
- Vikulega
- Oft í viku

8. Fannst þér að þú hefðir einhvern til að tala um áfallið?

- Já
- Nei

Greiningarkvarði fyrir áfallastreituröskun
(*Posttraumatic Stress Diagnostic Scale*)

Höfundur: Edna B. Foa (1995); Þýðing: Georgía M. Kristmundsdóttir og Berglind Guðmundsdóttir, sálfræðingar (2008).

KAFLI 1

19. Hér fyrir neðan er listi yfir þungbæra lífsreynslu. Vinsamlegast svaraðu til um hvort þú hafir sjálf(ur) lent í eða orðið vitni að eftirtöldum atburðum á lífsleiðinni. Svaraðu með því að gera hringt utan um J fyrir já og N fyrir Nei.

- | | | |
|---|---|--|
| J | N | Alvarlegt slys, eldsvoði, sprenging (til dæmis vinnuslys, slys við landbúnaðarstörf, bílslys, flugslys eða sjóslys) |
| J | N | Nátturuhamfarir (til dæmis fárviðri, umtalsverðum jarðskjálfti, eldgos, eða snjóflóð) |
| J | N | Líkamsárásir (ekki kynferðisleg árás) af völdum fjölskyldumeðlims eða einhvers sem þú þekkir (til dæmis vera rænd(ur), barsmíðar, skotin(n) hnífsstunga eða ógnað með byssu) |
| J | N | Líkamsárás (ekki kynferðisleg árás) af völdum einhvers ókunnugs einstaklings (til dæmis vera rænd(ur), barsmíðar, skotin(n) hnífsstunga eða ógnað með byssu) |
| J | N | Kynferðislegt ofbeldi af völdum fjölskyldumeðlims eða einhvers sem þú þekkir (til dæmis nauðgun eða tilraun til nauðgunar). |
| J | N | Kynferðislegt ofbeldi af völdum einhvers ókunnugs (til dæmis nauðgun eða tilraun til nauðgunar). |
| J | N | Hernaðaráttök, stríðsástand eða götuóeirðir. |
| J | N | Kynferðisleg snerting þegar þú varst yngri en 18 ára af völdum einhvers sem var a.m.k. 5 árum eldri en þú (til dæmis brjóst eða kynfæri snert). |
| J | N | Frelsissvipting (til dæmis fangelsun eða tekin(n) sem gísl). |
| J | N | Pyntingar |
| J | N | Lífshættulegur sjúkdómur |
| J | N | Önnur þungbær lífsreynsla |
| J | N | Ef þú merktir við atriði 12, tilgreindu þá hver sú lífsreynsla var hér að neðan. |

Hafir þú merkt við einhver ofantalinna atriða haltu þá áfram, en annars skaltu hætta hér.

Kafli 2

20. Ef þú merktir við fleiri en eina þungbæra lífsreynslu í kafla 1, skaltu merkja hér við þann atburð sem angrar þig mest nú. Ef þú merktir aðeins við eitt dæmi um þungbæra lífsreynslu skaltu merkja aftur við það hér á listanum.

- Slys
- Nátturuhamfarir
- Líkamsárás (ekki kynferðisleg)/einhver sem þú þekkir
- Líkamsárás (ekki kynferðisleg)/ einhver ókunnugur
- Kynferðislegt ofbeldi/einhver sem þú þekkir
- Kynferðislegt ofbeldi / einhver ókunnugur
- Hernaðaráttök / stríðsástand / götuóeirðir
- Kynferðisleg snerting fyrir 18 ára aldur af völdum einhvers sem var a.m.k. 5 árum eldri
- Frelsisvipting
- Pyntingar
- Lífshættulegur sjúkdómur
- Annað

Lýstu í stuttu máli þeirri þungbæru lífsreynslu sem merktir við hér að ofan.

Hér að neðan eru nokkrar spurningar um þungbæru lífsreynsluna sem þú lýstir hér að ofan.

21) Hve langt er síðan þú varðst fyrir þessari lífsreynslu? (Veldu einn möguleika).

- Styttra en 1 mánuður
- 1-3 mánuðir
- 3-6 mánuðir
- 6 mánuðir – 3 ár
- 3-5 ár
- Lengra en 5 ár

Svaraðu næstu spurningum með því að gera hring utan um J fyrir Já og N fyrir Nei.

Á meðan atburði stóð:

- 22) **J N** Slasaðist þú?
- 23) **J N** Slasaðist einhver annar?
- 24) **J N** Taldir þú að þú værir í lífshættu?
- 25) **J N** Taldir þú að einhver annar væri í lífshættu?
- 26) **J N** Upplifðir þú þig hjálparvana?
- 27) **J N** Varstu skelfingu lostin(n)

Kaflí 3

28. Hér að neðan er listi yfir vandamál sem fólk upplifir stundum eftir þungbæra lífsreynslu. Lestu vandlega yfir hvert þeirra og dragðu hring utan um þá tölu (0-3) sem lýsir best hve oft það vandamál hefur valdið þér óþægindum í SÍÐAST LIÐINN MÁNUÐI. Fyrir hvert vandamál miðaðu við þann atburð sem þú merktir við í kafla 2

0 Aldrei eða einungis einu sinni.

1 Einu sinni í viku eða sjaldnar / af og til.

2 2 – 4 sinnum í viku / helminginn af tímanum

3 5 sinnum eða oftar í viku / nærri alltaf

- 1) 0 1 2 3 Hugsanir eða myndbrot um atburðinn sem valda uppnámi komu upp í huga þinn þegar þú vildir það ekki
- 2) 0 1 2 3 Vondir draumar eða martraðir um atburðinn
- 3) 0 1 2 3 Endurupplifa atburðinn, hegða sér eða líða eins og atburðurinn sé að gerast aftur.
- 4) 0 1 2 3 Tilfinningalegt uppnám þegar eitthvað minnir þig á atburðinn (t.d. verða óttaslegin(n), döpur (dapur), reið(ur) eða sakbitin(n) o.s.frv.)
- 5) 0 1 2 3 Líkamleg viðbrögð, þegar eitthvað minnir þig á atburðinn (t.d. svitnar, færð ákafan hjartslátt).
- 6) 0 1 2 3 Reynir að hvorki hugsa, né tala um atburðinn eða upplifa tilfinningar tengdar honum.
- 7) 0 1 2 3 Reyna að forðast athafnir, fólk eða staði sem minna þig á atburðinn.
- 8) 0 1 2 3 Geta ekki munað eftir mikilvægum þáttum lífsreynslu þinni.
- 9) 0 1 2 3 Sinna mikilvægum athöfnum minna eða hafa minni áhugi á þeim.
- 10) 0 1 2 3 Finnast þú vera fjarlæg(ur) eða úr tengslum við fólk í kringum þig.
- 11) 0 1 2 3 Tilfinningalegur dofi (t.d. geta ekki grátið eða fundið fyrir ástúð)
- 12) 0 1 2 3 Finnast eins og framtíðardraumar þínir eða áætlanir munu ekki rætast (t.d. að þú munir ekki eiga farsælan starfsferil, eignast maka, börn eða lifa lengi).

- 13) 0 1 2 3 Eiga erfitt með að sofna eða vaknarðu oft upp
- 14) 0 1 2 3 Upplifa þirring eða reiðiköst
- 15) 0 1 2 3 Einbeitingarerfiðleikar (t.d. detta inn og út úr samræðum, missa þráðinn þegar horft er á sjónvarpið, eða gleyma því sem þú lest)
- 16) 0 1 2 3 Vera óvenjulega vör (var) um þig (t.d. gáirðu oft til að sjá hver er í kringum þig, líða illa ef þú snúa baki að dyrum, o.s.frv.)
- 17) 0 1 2 3 Vera taugaveiklaður eða bregða auðveldlega (t.d. ef einhver gengur fyrir aftan þig).
- 29) **Hve lengi hefurðu upplifað þau vandamál sem þú greindir frá að ofan? (veldu einn möguleika)**
- Styttra en 1 mánuð
 - 1-3 mánuði
 - Lengur en 3 mánuði
- 30) **Hve löngu eftir þessa þungbæru lífsreynslu þína fórst að finna fyrir þessum vandamálum? (veldu einn möguleika)**
- Styttra en 6 mánuðir
 - 6 mánuðir eða lengra