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The mediating effect of depression between exposure to potentially traumatic events and PTSD in news journalists

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Background: News journalists are an occupational group with a unique task at the scene of an unfolding crisis—to collect information and inform the public about the event. By being on location, journalists put themselves at risk for being exposed to the potentially traumatic event.

Objective: To compare potentially traumatic exposure during work assignments at a crisis scene and in personal life as predictors of the development of post-traumatic stress disorder (PTSD) in news journalists. Further, to investigate the mediating effect of depression between the predictor and predicted variables.

Method: With a web-based questionnaire, information from a sample of Finnish news journalists ($n=407$) was collected. The data collected included details on the range of potentially traumatic assignments (PTAs) at the crisis scene during the past 12 months, lifetime potentially traumatic events (PTEs) in personal life, PTSD symptoms, and level of depression.

Results: Approximately 50% of the participants had worked with a PTA during the past 12 months. Depression had a significant indirect effect on the relationship between PTAs at the scene and symptoms of PTSD. A similar result was found regarding the relationship between personal life PTEs and PTSD. Depression had a complete indirect effect in the case of PTAs and a partial indirect effect in regard to PTE exposure in personal life.

Conclusions: Exposure to PTAs is common within journalistic work. The results reflect the importance of understanding the underlying mechanisms of the measured symptoms (PTSD, depression) in relation to trauma history. The main limitations of the study include the cross-sectional design and the nature of the instruments used for the collection of work-related trauma history.

Keywords: *Trauma history; reporter; traumatic stress; media; journalism*

For the abstract or full text in other languages, please see Supplementary files under Reading Tools online

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The nature of assignments of a news journalist typically changes from day to day. Journalists are expected to maintain a readiness to change focus and start working with new assignments with little or no notice. The individual and organizational capacity for such readiness is put to the test when sudden crises unfold. In such cases, the demands on the media professional are often considerable, especially when confronted with the worst of what the world offers—horror, tragedy, and disaster.

For the journalist, a personal readiness to be able to work well during an unfolding crisis includes work-related factors, such as understanding the ethical aspects of journalistic work and practical preparation, as well as individual factors. The importance of being prepared is reflected not only in how the demanding assignment is handled during the crisis but also subsequently in the level of satisfaction with one's work effort (Brayne, 2007; Englund, 2008; Newman, Simpson & Handschuh, 2003; Simpson & Coté, 2006). In the study at hand, one aspect

of personal readiness is investigated: the relationship among a journalist's trauma history, post-traumatic stress disorder (PTSD), and depression.

Trauma history, PTSD, and its comorbidity

Trauma history refers to an individual's total range of experiences of possibly distressing events during a defined period of time, either a lifetime or a shorter period. In accordance with the *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV)* PTSD A1–A2 criteria (American Psychiatric Association, 2000), events are classified into two categories: potentially traumatic events (PTEs) and traumatic events (TEs) (Corcoran, Green, Goodman & Krinsley, 2000; Norris & Hamblen, 2004; Weathers & Keane, 2008). The focus in the PTE category is on whether a person has been exposed to an event of a possibly distressing nature, corresponding to criterion A1 (such as natural disasters, motor vehicle accidents, war, etc.). The TE category (criterion A2) indicates whether an individual felt severe distress (fear, helplessness, or horror) because of the exposure.

PTSD is a severe anxiety disorder caused by experiencing or witnessing a subjectively distressing event (American Psychiatric Association, 2000). The disorder is diagnosed on the basis of symptoms such as reexperiencing the trauma, hyperarousal, and avoidance. Symptoms should persist for at least 1 month. As pointed out by Vogt, King D. W., and King L. A. (2007), Weathers and Keane (2007), and other researchers, only a minority of those exposed to a distressing event will develop full-blown PTSD.

Comorbidity studies of trauma-related distress symptoms have shown that depression is the most frequently coexisting disorder with PTSD (e.g., Breslau, 2009; Breslau, Davis, Peterson & Schultz, 2000; Keane, Brief, Pratt & Miller, 2007; Kessler, 1997; Ragheb & Zimmerman, 2008). However, the comorbidity issue in relation to psychological trauma is complex as the inclusion criteria and the chronology of disorders need to be taken into account. For instance, while, by definition, PTSD is caused by a distressing event, depression does not have a similar "external" criterion (American Psychiatric Association, 2000). In addition, symptoms of depression may have been present before the distressing event occurred, and this may have enhanced the risk for developing PTSD. In trauma studies, the chronology of included disorders has mainly been studied as relationships between main effects measured at several time points after the PTE had occurred (Breslau, 2009; Breslau et al., 2000; Erickson, Wolfe, King D. W., King L. A. & Sharkansky, 2001; Ginzburg, Ein-Dor & Solomon, 2010).

Following the aforementioned logic of possible patterns of comorbidity and chronology, studies investigating the mediating role of trauma-related disorders have

been designed in various ways depending on the study theme. For instance, the level of PTSD symptoms has been analyzed as a predictor in relation to several combinations of mediators and outcome variables, sometimes including depression as a subsequent disorder (Subica, Claypoole & Wylie, 2011). Depression has been studied in parallel with PTSD as a central post-trauma intervening factor, mediating a relationship between a trauma history factor and another identified mental illness or trauma-related behavior (see for example Dedert et al., 2010, or Nelson et al., 2011). PTSD has also been studied as an outcome factor in relation to previous trauma history and a chosen intervening variable. To the authors' knowledge, however, depression as an intervening variable between trauma history and PTSD has received no scholarly attention.

Trauma-related symptoms in journalists

Scholars providing overviews of studies on trauma-related symptoms in news journalists point out that only a limited number of studies have been published on the topic. Among these studies, sample sizes and the inclusion criteria have varied, and in some cases, they have been insufficiently reported, which in turn affects the comparability of results (Newman, Shapiro & Nelson, 2009; Simpson & Coté, 2006; Smith & Newman, 2009). Hence, current knowledge should be considered preliminary.

Among published studies, traumatic reactions caused by one identified assignment, as well as current trauma symptoms in relation to trauma history, have been investigated. In regard to the latter, trauma history has been defined either as work-related trauma exposure, as private life experiences, or, in some cases, combining both trauma contexts (Backholm & Björkqvist, 2010; Pyevich, Newman & Daleiden, 2003; Simpson & Boggs, 1999; Weidmann & Papsdorf, 2010).

Current studies indicate that 86–100% of daily news-gatherers have been exposed to events at work that should be regarded as possibly traumatic (Smith, 2008; Smith & Newman, 2009). Studies on the relationship between work trauma history and psychological distress have shown varying results. Some (Newman et al., 2003; Pyevich et al., 2003; Simpson & Boggs, 1999) have reported that the number of experienced work-related crises were connected to PTSD symptoms, whereas others (Backholm & Björkqvist, 2010; Dworzniak, 2008; Smith, 2008) have not found connections. The latter studies have reported that the characteristics of each specific work-related crisis is of importance rather than the number of such crises experienced. Some studies have shown that having worked with an event that included a large range of distressing characteristics was related to severe current distress symptoms. Distressing characteristics can consist of witnessing someone being killed, knowing the victims,

and/or oneself being directly attacked while working on the assignment (Pyeovich, 2001).

Studies of journalists, including private life trauma history as well, have usually found a relationship between exposure to a larger range of personal traumas and elevated levels of symptoms (Backholm & Björkqvist, 2010; Newman et al., 2003; Pyeovich et al., 2003).

The vast majority of studies of news workers' trauma-related experiences include measures of PTSD (Smith & Newman, 2009). Depending on the type of journalism, sample size, and situational factors in different studies, the proportion of cases with PTSD have varied. In their overview of studies, Smith and Newman (2009) estimated that possible PTSD in journalists varied from 4 to 29%. For instance, Dworznik (2008) reported that in a group of American domestic news journalists, 7% of respondents fulfilled the diagnosis criteria, whereas Hatanaka et al. (2010) noted that 6% of Japanese news reporters with similar work descriptions had full-blown PTSD at the time of the survey. War correspondents have been shown to be at a higher risk; Feinstein, Owen, and Blair (2002) reported that 29% suffered from PTSD at some point in their career.

Trauma-induced depression also has been studied in only a few journalist samples (Backholm & Björkqvist, 2010; Feinstein et al., 2002; McMahan, 2001; Weidmann, Fehm & Fydrich, 2008). Among these, the study design has varied. Some scholars have investigated the link between trauma-related assignment/trauma history and depression as well as the PTSD-depression comorbidity, while others have focused on one topic only.

Backholm and Björkqvist (2010), in a general sample of Finnish domestic news journalists, and Weidmann et al. (2008), studying European reporters working with the 2004 Asian tsunami disaster, found few or no direct relationships between the range of work-related traumatic exposure and changes in depressive symptoms. McMahan (2001) reported that among Australian journalists with a work history that included at least one crisis assignment, 43% experienced significant, long-term depression, which they attributed to potentially traumatic exposure. In regard to comorbidity between PTSD and depression, results have usually shown that more severe PTSD symptoms are correlated with more symptoms of depression (Backholm & Björkqvist, 2010; Feinstein et al., 2002; Weidmann et al., 2008). However, to the best of the authors' knowledge, studies with journalist samples have not investigated the underlying relationships between PTSD and depression in detail.

Objective

In this study, the complex relationship between trauma history and trauma-related symptoms in news journalists is investigated. The aim of the study is to investigate whether possible direct relationships between work-

related or personal trauma history and posttraumatic symptoms may be mediated by symptoms of depression.

Method

Participants

In total, 407 Finnish news journalists who had experienced one or several crisis-related work assignments during their career (including work on the location of the crisis, in the newsroom, or regional work in another, non-affected, part of the country) participated in the study. The sample was extracted from a larger sample of journalists. The choice to exclude journalists with no experience of crisis assignments was made to ensure a strictly defined sample of participants with a relevant work description. Journalists in the sample had a mean age of 43 years ($SD = 11.1$). Participant data was collected via a web-based survey on the topic of trauma history and current psychological distress within the profession and sent out to Finnish news journalists in the spring of 2008 (Backholm & Björkqvist, 2010). The total sample of the present study consisted of 178 males (44%) and 229 females (56%).

The main media affiliation of the journalists was as follows: newspapers, $n = 232$ (57% of the sample), television, $n = 74$ (18%), radio, $n = 73$ (18%), and other types of media, $n = 28$ (7%).

Measures

Work-related exposure to potentially traumatic assignments (PTAs) was measured with the Journalist Trauma Exposure Scale (JTES) (Newman et al., 2003; Pyeovich, 2001). In the JTES, 14 items measure the range of PTAs during the past 12 months, while a further nine items focus on the intensity of possible work exposure. In the collection of data, the authors wanted to distinguish between exposure to PTAs at the scene of the crisis and work tasks carried out in the newsroom or somewhere else. Accordingly, participants were asked to indicate whether they had experienced any of the above mentioned types of exposure on the location, indirectly, or both. For this study, only at-the-scene data for the 14-item PTA subscale was used in the analyses, and a summed score of provided yes/no-answers was derived. Since scales measuring trauma history (e.g., JTES) reflect exposure to various types of events rather than a unified underlying construct, reliability assessment for the trauma history scales is not meaningful and therefore is not presented.

To measure trauma history in personal life, the Traumatic Life Events Questionnaire (TLEQ) (Kubany et al., 2000) was used. The TLEQ consists of 23 items measuring the range of lifetime trauma history, corresponding to the *DSM-IV* PTSD A1 (PTEs) and A2 (TEs) criteria (American Psychiatric Association, 2000).

In this study, a total of 18 trauma history items were used, 17 from the original TLEQ and one item added reflecting exposure to bullying. The item was added because of previous research showing that exposure to bullying is related to symptoms of PTSD (Björkqvist, 2001). The wording of items was modified somewhat to reduce length, and only data from the PTE subscale was used in this study. Answers for each item were provided as yes/no alternatives, and as in the case of the JTES, a summed score was derived.

For measuring symptoms of PTSD, the PTSD Checklist, Civilian Version (PCL-C) (National Center for PTSD, 2010; Weathers, Litz, Herman, Huska & Keane, 1993) was used. The PCL-C consists of 17 items with response choices arranged on a five-point Likert scale, ranging from “not at all” to “extremely”. The wording of the PCL-C in the study was modified to refer to past traumatic exposure in general. Moreover, a total summed score of items was used in the statistical analyses. In the study, the PCL-C had excellent internal consistency, with a reliability of $\alpha = .91$.

For symptoms of depression, the short version of the Beck Depression Inventory (BDI-13) (Beck A. T. & Beck R. W., 1972) was used. In the BDI-13, participants respond by choosing one out of four given alternatives per item. Alternatives range between low and high severity of symptoms. A summed score for the 13 items was used in the analysis. In this study, the BDI-13 obtained a reliability score of $\alpha = .84$.

Results

Sex

Differences between males and females were found on most factors (Table 1). Males reported a history of significantly more PTA as well as PTE exposure, whereas females had higher PTSD scores. Hence, sex was treated as a controlled variable in further analyses.

Table 1. Summary of sex differences in PTAs, PTEs, PTSD, and depression

Variable	Female M (SD)	Male M (SD)	t	df
PTAs (n = 357)	1.32 (1.88)	2.24 (2.89)	3.40**	246
PTEs in personal life (n = 407)	3.65 (2.17)	4.27 (2.65)	2.53*	338
PTSD (n = 352)	26.27 (9.38)	24.12 (8.21)	2.24*	350
Depression (n = 407)	2.74 (3.11)	2.18 (3.08)	ns	405

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

Trauma history

Journalists could indicate a maximum range of 14 PTA types exposed to at the location of the event. Among participants (n = 357), 196 (55%) had worked with at least one such event during the past year. As a group, the journalists reported having worked with a mean of 1.71 different types of events (SD = 2.41, range 0–12) during the past year. See Table 2 for the most frequent PTA types.

Participants (n = 407) indicated the types of PTEs they have experienced from a list of 18 types of PTEs. Results showed that 395 (97%) journalists had experienced at least one of the listed PTEs in their life. A mean of 3.92 types of exposure (SD = 2.41, range = 0–13) was found for the group, with a sudden death of a family member or friend as the most frequent type of exposure, experienced by 284 journalists (70%).

Direct and mediating effects between trauma history and measured symptoms

The occurrence of an indirect, or mediating, effect is supported if a significant relationship between a predictor variable and an outcome variable diminishes after introducing a third variable, the mediator (Baron & Kenny, 1986). A mediation effect can be either complete, when the significant relationship between predictor and outcome no longer prevails after adding the mediator, or partial, when the relationship is reduced in size, but still exists (Kenny, 2012).

A theoretical model of the mediation analysis is provided by Kenny (2012) and presented in a slightly modified format in Fig. 1. In the figure, path A is the predictive value between predictor and mediator, and path B is the regression coefficient between mediator and outcome, while controlling for the effect of the original predictor. Path C represents the regression coefficient between the predictor and the outcome variable before introducing the mediator. C' stands for the “new” predictive value between the original predictor and outcome, with the mediator included, and thus should be smaller than C if an indirect effect is present. This can be represented by the following equation:

$$C = C' + AB$$

A series of regression analyses (Table 3) were conducted to investigate whether exposure to PTAs had a direct

Table 2. Most frequent types of PTAs in the past year

Assignment type	Exposed one or more times (N = 357)
Motor vehicle accident	37% (n = 133)
Fire with casualties or deaths	20% (n = 70)
Subject with life-threatening illness	18% (n = 63)

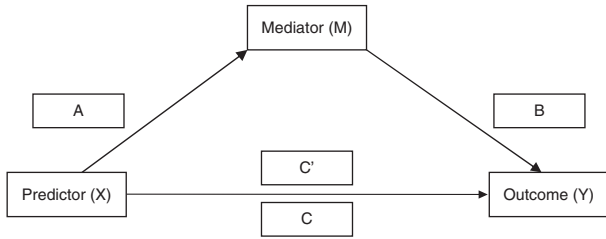


Fig. 1. Theoretical model of a mediation equation. This model is a modified version of the model by Kenny (2012) (Reproduced with permission from David A. Kenny).

predictive effect on PTSD symptoms in the sample, and if so, whether symptoms of depression had an indirect effect on the relationship. In all analyses, sex was controlled for. First, a regression analysis was conducted to test for a predictive effect of PTA exposure on higher level of PTSD symptoms. The result was significant (Table 3 and Fig. 2, path C).

Since a significant effect between PTAs and PTSD symptoms was found, the relationship between the predictor and the mediator, or path A, was investigated. The regression analysis showed that PTA exposure was a significant predictor for the proposed mediator, depression (Table 3 and Fig. 2, path A).

In the final step of the mediation analysis, paths B and C' were investigated by conducting a regression analysis that focused on the predictive value of the mediator (depression) on the outcome variable (PTSD), including the original predictor (PTAs) in the analysis. When

Table 3. Summary of an analysis of the mediating effect of depression between exposure to PTAs and PTSD, controlling for sex ($n = 352$)

	<i>B</i>	SE <i>B</i>	β
Analysis of path C ^a ($R = .19, R^2 = .03, \text{Adj. } R^2 = .03$)			
PTAs	0.54	0.20	.15**
Male sex (controlled)	-2.63	0.97	-.15**
Analysis of path A ^b ($R = .17, R^2 = .03, \text{Adj. } R^2 = .02$)			
PTAs	0.18	0.07	.14*
Male sex (controlled)	-0.82	0.34	-.13*
Analysis of paths B and C' ^c ($R = .64, R^2 = .40, \text{Adj. } R^2 = .40$)			
PTAs	0.22	0.16	.06
Depression	1.76	0.12	.62***
Male sex (controlled)	-1.19	0.77	-.07

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

^aRegression analysis of PTAs as predictor of symptoms of PTSD, controlling for sex.

^bRegression analysis of PTAs as predictor of symptoms of depression, controlling for sex.

^cRegression analysis of PTAs and symptoms of depression as predictors of symptoms of PTSD, controlling for sex.

B is the unstandardized regression coefficient.

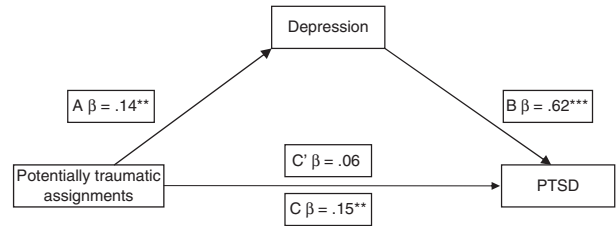


Fig. 2. Mediation analysis on the relationship between exposure to PTAs and PTSD. Summary of an analysis of the mediating effect of depressive symptoms on the relationship between exposure to PTAs and PTSD symptoms. C represents the predictive value of PTAs on PTSD before including depression into the equation; C' the value after including depression.

introducing depression as a mediator, the predictive effect of PTAs on PTSD symptoms was no longer significant (see paths B and C' in Fig. 2, and Table 3). Furthermore, a Sobel test (MacKinnon, Lockwood, Hoffman, West & Sheets, 2002; Sobel, 1982) showed that the complete indirect effect of PTA range via depression on PTSD was significant ($z = 2.53, p < .05$).

A similar mediation model was used for investigating whether a possible predictive effect of PTEs in personal life on PTSD symptoms would be indirectly affected by the level of depressive symptoms. In Table 4 and Fig. 3, results from the regression analyses are presented. The predictive value of PTE exposure on PTSD symptoms diminished after introducing the mediator, but they still

Table 4. Summary of an analysis of the mediating effect of depression between exposure to PTEs in personal life and PTSD, controlling for sex ($n = 352$)

	<i>B</i>	SE <i>B</i>	β
Analysis of path C ^a ($R = .32, R^2 = .10, \text{Adj. } R^2 = .10$)			
PTEs in personal life	1.09	0.19	.30***
Male sex (controlled)	-2.78	0.92	-.15**
Analysis of path A ^b ($R = .25, R^2 = .06, \text{Adj. } R^2 = .06$)			
PTEs in personal life	0.29	0.07	.23***
Male sex (controlled)	-0.82	0.33	-.13*
Analysis of paths B and C' ^c ($R = .65, R^2 = .43, \text{Adj. } R^2 = .42$)			
PTEs in personal life	0.60	0.15	.17***
Depression	1.68	0.12	.59***
Male sex (controlled)	-1.39	0.75	-.08

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

^aRegression analysis of PTEs as predictor of symptoms of PTSD, controlling for sex.

^bRegression analysis of PTEs as predictor of symptoms of depression, controlling for sex.

^cRegression analysis of PTEs and symptoms of depression as predictors of symptoms of PTSD, controlling for sex.

B is the unstandardized regression coefficient.

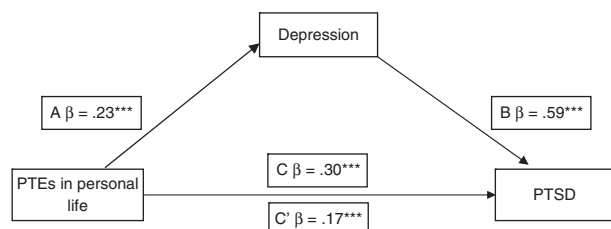


Fig. 3. Mediation analysis on the relationship between exposure to personal life PTEs and PTSD. Summary of an analysis of the mediating effect of depressive symptoms on the relationship between exposure to PTEs in personal life and PTSD symptoms. C represents the predictive value of PTEs on PTSD before including depression into the equation; C' the value after including depression.

remained significant. A Sobel test showed that the partial indirect effect of PTEs experienced in personal life via symptoms of depression on symptoms of PTSD was significant ($z = 3.97, p < .001$).

Discussion

The aim of this study was to investigate whether the amount of trauma history at work and in personal life was related to levels of PTSD symptoms in journalists, and if so, whether this relationship was mediated by the severity of depressive symptoms.

The work-related PTA results showed that among the participants, 55% had been deployed to the location of a crisis in the past 12 months. This number is not directly comparable with Smith and Newman's (2009) overview in which 86–100% of news journalists had had assignments including potentially traumatic exposure at some point. It is worth noting that work-related trauma history questionnaires have varied between studies. In this study, only exposure to PTAs among journalists directly witnessing a crisis was investigated, not exposure among journalists working with PTAs, for example, in the newsroom. Also, the sample was more strictly defined than that in some previous studies, including only journalists who had worked with at least one crisis assignment during their career. Finally, the data was collected via a web-based survey; therefore, the included sample may not be representative for Finnish news journalists in general. Still, the results from this study support the overall picture that exposure to PTAs is common in journalistic work.

The most common PTA included motor vehicle accidents and fires. These findings are roughly similar to those from other studies; see, for example, Dworzniak (2008), Pyevich et al. (2003), Newman et al. (2003), and Smith (2008). The nature of the most frequent PTA reflect an important aspect sometimes neglected within journalism and trauma research or teaching: crisis-related work relatively infrequently involves being sent out to large-scale disasters or war zones, but rather usually

consists of small local incidents with a limited number of victims affected (Norwood, Walsh & Owen, 2003; Simpson & Coté, 2006).

In the sample, 97% had experienced at least one PTE at some point in their personal life. The numbers are in line with the conclusion drawn by Norris and Slone (2007): by the age of 45, most people will have been exposed to at least one PTE.

An indirect, or mediating, effect is defined by Kenny (2012) as the possible effect of a third variable, intervening in an existing relationship between a predictor and an outcome. In this study, the range of depressive symptoms had a complete indirect effect on the relationship between work-related PTAs during the past 12 months and current PTSD. Also, depression had a partial indirect effect on the significant relationship between the range of lifetime personal PTEs and PTSD symptoms.

Some conclusions can be made regarding the relationship between the two types (work-related and private life) of measured trauma history and PTSD. After including depression as an intervening variable, only private life trauma history had a significant predictive value on PTSD. On a broad level, these results support the epidemiological literature on risk factors for PTSD, where trauma history has been indicated as a central factor for heightened risk (Brewin, Andrews & Valentine, 2000; Ozer, Best, Lipsey & Weiss, 2003; Vogt et al., 2007). In these studies, overall trauma history has been highlighted as a risk factor, and no differentiation between personal life and work-related exposure has been made.

The connection found between personal PTEs and current PTSD symptoms reinforces previously reported results for other journalist samples (Newman et al., 2003; Pyevich et al., 2003). However, studies including work-related PTAs have received mixed results. Some have not found any direct link between work exposure and trauma-induced distress (Dworznic, 2008; Smith, 2008), whereas the results of others suggest that such an impact exists (Newman et al., 2003; Pyevich et al., 2003; Simpson & Boggs, 1999).

In relation to these results, the reader is reminded of the nature of the measurement of trauma history in this study. Only potentially traumatic exposure was studied, and no data on the range of events provoking outspoken subjective severe distress was analyzed. Furthermore, the exposure time period varied between instruments (PTAs during the past 12 months, personal PTEs during a lifetime). As posited by Dworznic (2008), there is a need to refine the instruments used for measuring exposure to PTAs in newsgatherers. For example, an added subscale probing for assignments experienced as traumatic (*DSM-IV* PTSD criterion A2; American Psychiatric Association, 2000) would be useful in future research. As pointed out elsewhere by the authors (Backholm & Björkqvist,

2010), more research on the possible impact of PTAs on journalists is clearly needed.

In this study, depression had a strong indirect effect on the relationship between predictors and outcome, in the case of PTAs to the point that the direct effect on PTSD disappeared. These findings indicate that previous symptoms of depression have a strong influence on the development of PTSD in journalists exposed to a potentially traumatic event during work or in personal life, supporting the notion of prior psychiatric history being a risk factor for PTSD (Brewin et al., 2000; Ozer et al., 2003). Furthermore, this study design underlines the importance of taking the analysis a step further than merely treating both PTSD and depression as outcomes of traumatic exposure.

Although, as discussed in the introduction, a few studies in the broader area of trauma research have looked at the complex relationships among trauma history, PTSD, and depression in a more general sense, this study is of relevance since, to the authors' knowledge, no studies with journalist samples have investigated depression as an intervening variable.

The results in regard to the intervening effect of depression should, however, be interpreted with caution. The main limitation is related to the cross-sectional study design. Although trauma history by definition consists of experiences that have occurred in the past, the assumptions behind included factors in the mediation models are theoretical only. More definitive results could be obtained by using a longitudinal design (Breslau, 2009; Vogt et al., 2007).

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Conflict of interest and funding

There is no conflict of interest in the present study for any of the authors.

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