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Attachment and Social Support Mediate Associations Between Polyvictimization and Psychological Distress in Early Adolescence

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Abstract

**Background and Objectives:** The current study assesses associations between multiple experience of traumatic events (polyvictimization), PTSD symptoms (PTSS), and psychiatric symptoms in early adolescence, and explores the mediating roles of attachment orientations and perceived social support in the associations between polyvictimization, PTSS, and psychiatric symptoms.

**Methods:** In 2001 a representative national sample of 390 Danish eighth-graders (Mage=...
Introduction

Experiencing a number of potentially traumatic events (polyvictimization) during an individual's life time is recognized as a risk factor for posttraumatic stress disorder (PTSD). PTSD is a highly debilitating trauma-related disorder that can consolidate into a chronic disorder that impacts negatively on the individual’s wellbeing and functioning (e.g., Zerach, Karstoft, & Solomon, 2017). The , fifth edition ( ) (APA, 2013), states that a diagnosis of PTSD is given when an individual experiences intrusive re-experiencing of the traumatic event, avoids trauma reminders, experiences negative swings in mood and cognition, symptoms of hyper-arousal, and profound functional impairment. A PTSD symptoms (PTSS) is operationalized as a continuous variable reflecting the total symptom severity (Weathers et al., 2013). Adolescence is a particularly risky developmental phase, as youth are more vulnerable to experiencing potentially traumatic events (PTE's) (e.g., Breslau, Wilcox, Storr, Lucia, & Anthony, 2004). PTE's are defined as traumatic experiences (e.g., accidents, physical abuse) that might induce PTSD and psychiatric symptoms. It is also known that adolescents who are
confronted with one PTE type are at increased risk for experiencing a number of PTE's (Finkelhor, Ormrod, & Turner, 2007). Thus, the identification of the variables that may serve as mechanisms for the link between multiple exposures to PTE's and PTSD and psychiatric symptoms is crucial. The current study explores the mediating role of two possible psychological resources -- i.e., attachment orientations and perceived social support -- in the associations between polyvictimization, PTSS and psychiatric symptoms during early adolescence.

**Polyvictimization and PTSD**

Early adolescence (12-14 years of age) is viewed as a developmental phase of rapid psychological, cognitive, and social changes. During this period adolescents' identity is brittle and less cohesive, as they practice different roles in the process of individuation and identity formation (e.g., Masten & Coatsworth, 2000). However, during this period, adolescents are also at higher risk for dangerous behaviors (Steinberg, 2007), are vulnerable to exposure to different forms of trauma and consequently, to developing mental disorders (e.g., Reardon, Leen-Feldner, & Hayward, 2009).

Traumatic experiences peak during adolescence, with about 70% to 80% of U.S. adolescents (ages 10-21 years) reporting exposure to a serious PTE such as physical violence and sexual abuse (Nonner et al., 2012). Moreover, regardless of the severity of their exposure, U.S. adolescents (ages 10-17 years) who are exposed to one PTE are known to be at high risk for experiencing a number of PTE's during these years (Finkelhor et al., 2007). Recently, it was found that among a national sample of U.S. adolescents (ages 14-17 years), a noteworthy number of adolescents experienced five or more PTE's during this developmental period (Finkelhor, Turner, Shattuck, & Hamby, 2013).

Findings from a recent review (Nonner et al., 2012) and meta-analysis (Alisic et al., 2014) concluded that mean PTSD rates among mostly Western samples of children and adolescents were 13.6% and 15.9%, respectively. Specifically, the type of traumatic event (interpersonal trauma) and
female gender augmented these effects. Importantly, exposure to different types of traumatic events and polyvictimization before age 18 are linked to elevated risk for a variety of psychological disorders in adulthood, among female students (Briere, Kaltman, & Green, 2008), particularly PTSD (Ford, Wasser, & Connor, 2011). Furthermore, a meta-analysis among children and adolescents (ages 6–18 years) shows that experiencing negative life events following a traumatic event might also lead to PTSD in the future (Trickey, Siddaway, Meiser-Stedman, Serpell, & Field, 2012). Nevertheless, the inconsistent PTSD rates in various studies highlights the need to better understand the mechanisms by which PTSD is formed and maintained.

**Attachment orientations**

Attachment theory (Bowlby, 1988) is a well-known psychological perspective for understanding human adaptation to stress. This theory highlights the centrality of social interaction to explain individual variations in resilience and psychological adaptation (Mikulincer & Shaver, 2010). According to Bowlby (1988), from birth human beings use an innate behavioral attachment system that stimulates them to pursue closeness to significant others (attachment figures) in time of need, in order to protect themselves from multiple threats and to alleviate agony. Moreover, availability and responsiveness of attachment figures fosters a sense of protection and confidence (Bowlby, 1973). Nevertheless, unavailability and unsupportiveness of attachment figures hinders the development of a sense of security, so that the self and other representations are negatively depicted, and less secure attachment orientations are formed. These orientations may be conceived of as having two major dimensions, and . Avoidance is characterized by inhibition of proximity-seeking, and a tendency for self-reliance as a source of protection. Anxiety is characterized by profound
worries for the absence of significant other in times of need, and much effort to gain affection and help from the significant other (Brennan, Clark & Shaver, 1998).

During times of distress the attachment system is hypothesized to be activated to regulate emotions and stress responses. An intrapsychic experience of love and support by loved others bolsters one’s inner strength during stressful periods. Insecure attachment, however, is a risk factor that may weaken an individual’s resilience, thus predisposing him or her to a variety of emotional problems and mental disorders (Ein-Dor & Doron, 2015). Increasing evidence indicates that attachment insecurities are associated with PTSS among diverse populations such as adult civilians exposed to war threat (e.g., Besser & Neria, 2010), students exposed to a school shooting (Turunen, Haravuori, Punamai, Suomalainen, & Marttunen, 2014), and war veterans (e.g., Mikulincer, Solomon, Shaver, & Ein-Dor, 2014). However, more studies have found that attachment anxiety in particular, and not attachment avoidance, was positively associated with higher PTSD rates and higher levels of PTSS (e.g., Ferrajao, Badoud, & Oliveira, 2017).

Attachment orientations are generally considered stable traits or dispositions. However, some life circumstances (e.g., adversity) may alter attachment orientations (Mikulincer & Shaver, 2010). Given the link between exposure to PTE’s and attachment orientations, and the link between attachment insecurities and PTSS, it is surprising to find that only a handful of studies have examined the mediating role of attachment orientations, and that no study has focused on polyvictimization among adolescents. For example, attachment anxiety partially mediated the effect of exposure to combat on PTSS among Portuguese War Veterans (Ferrajão & Oliveira, 2015). Attachment avoidance and anxiety were indirectly associated with PTSS over time among Vietnam War veterans (Franz et al., 2014). Specifically, a few studies have found that attachment insecurities mediate the
associations between childhood trauma and students' PTSS (Browne & Winkelman, 2007). Another study has indicated that attachment anxiety was a partial mediator of the association between intimate partner violence and adolescent or adult sexual victimization and PTSS (Sandberg, Suess, & Heaton, 2010).

**Perceived Social support**

The concept of social support is one of the most important concepts in traumatology literature. Still, it is theoretically complex and relatively ill defined (Wagner, Monson & Hart, 2016). In general, social support is defined as one’s social interactions that are provided when biological, psychological or social stressors are presented. The construct of social support can be divided into such as practical help or financial aid, and such as a caring, listening, a sense of belonging and availability at times of distress. Social support can also be divided into actual received social support (i.e., the number of sources of support one received) and subjective perceived social support (i.e., the belief that one will get support and the perceived helpfulness of this support) (Kaniasty & Norris, 2008). As perceived support is more strongly related to psychiatric symptoms than objectively received support (e.g., Lakey & Cronin, 2008), the present study focuses on perceived social support following PTE’s among adolescents.

Perceived social support is a central interpersonal resource for adaptation to stress (e.g., Haber, Cohen, Lucas, & Baltes, 2007), and has been associated with positive psychological sequelae following traumatic events (Norris & Kaniasty, 1996). For example, studies conducted after various natural disasters found that perception of social support availability resulted in less PTSS and distress (Kaniasty & Norris, 2008). Moreover, three meta-analyses of studies using adult samples found low social support as a risk factor for PTSD, especially in the post-trauma phase (e.g., Xue et al., 2015).
Importantly, a recent review concluded that adolescents who reported less social support were more prone to experience traumatic events and develop PTSD (Nooner et al., 2012). A recent meta-analysis indicated that post-trauma variables such as social support from parents, peers and others during childhood and adolescence should be considered as protective factors both before and after a trauma (Trickey et al., 2012).

Perceived social support has also been suggested to mediate the associations between stressful life events and various psychological outcomes such as depression and PTSD (Russell & Cutrona, 1991). Individuals who sustain caring social ties in the face of adversity tend to use adaptive coping behaviors (e.g., Galea et al., 2002) such as cognitive reappraisal (Zhou, Wu, & Zhang, 2017), involvement in less hazardous behaviors, and are less likely to experience re-victimization (Collishaw et al., 2007). Moreover, it is known that negative information can be more noticeable than positive information following stressful events, and negative social interactions may have greater influence on adjustment following stressful events (Major, Zubek, Cooper, Cozzarelli, & Richards, 1997). The social support deterioration model posits that being exposed to traumatic events may indirectly relate to PTSS and distress by waning and damaging social interactions. For example, the long-term effects of a hurricane natural disaster on PTSD have been mediated by perceived support (Norris & Kaniasty, 1996). Likewise, negative social reactions in the aftermath of victimization such as sexual assault are associated with poorer recovery and higher symptomatology (Ullman, 2010).

An examination of the closely related field of relations between perceived social support and depression among childhood and adolescence, shows that studies which focus on the mediating role of social support are relatively scarce compared to moderation effects (Stress-buffering effect; Rueger et al., 2016). However, the findings concerning the moderating role of social support are inconsistent and questionable. Moreover, just a few studies have documented a mediation effect of social support
on the links between victimization and depressive feelings (Pouwelse, Bolman, Lodewijkx, & Spaa, 2011), or between bullying and maltreatment perpetrated by the father and more severe adolescent depression (Seeds, Harkness, & Quilty, 2010). To our knowledge, the indirect association between polyvictimization, PTSS and psychiatric symptoms via perceived social support has never been examined among adolescents.

**Attachment orientations and social support**

While both attachment orientations and perceived social support can act as protective/risk factors, their interrelations can depict the process of responses to multiple traumatic events in a more elaborated and comprehensive way. As predicted by the trans-diagnostic model of attachment and psychopathology (Ein-Dor & Doron, 2015), accumulation of PTE’s may increase the levels of attachment insecurities as a distal risk factor. For example, mental representations of others as rejecting and inconsistent may lower the level of perceived social support and responsiveness, which might be defined as a proximate risk factor. Thus, insecurely attached adolescents are more likely to disbelieve others, avoid seeking aid from others, and even perceive them as malicious or uncooperative. Sadly, they are less expected to receive assistance from social support and might be more vulnerable to general posttraumatic distress and specific PTSS. Thus, following Sharp, Fonagy, and Allen's (2012) social-cognitive model of PTSD, vulnerability for PTSD among individuals with insecure attachment might be explained by the mechanism of impaired social-cognitive functioning, which hinders their efforts to gain needed social support in time of victimization.

The indirect association between attachment orientations and perceived social support has been empirically examined in only a few studies. For example, among individuals seeking treatment-who have a history of being abused during childhood, their unstable attachment representations were
indirectly related to observed psychiatric impairment via negative emotion regulation and low expectations of support from others (Cloitre, Stovall-McClough, Zorbas, & Charuvastra, 2008). Another study among a community sample found that both emotional and instrumental support mediated the link between attachment anxiety and PTSS, while only emotional support mediated the link between attachment avoidance and PTSS (Volgin & Bates, 2016).

Current Study

The present study aims to contribute to the existing literature in three main ways: first, by focusing on polyvictimization rather than the effect of exposure to a discrete event; secondly, by exploring these proposed mechanisms of effects -- namely, attachment anxiety and perceived social support -- on PTSS and general psychiatric symptoms; and thirdly, by examining these proposed effects among a representative sample of adolescents.

Four hypotheses were specifically tested: (1) exposure to traumatic events and attachment anxiety will associate positively with PTSS and psychiatric symptoms; (2) past and current perceived social support will be negatively associated with PTSS and psychiatric symptoms; (3) attachment anxiety and perceived social support will mediate the link between the aggregate of being exposed directly to traumatic events, PTSS and psychiatric symptoms; (4) serial multiple mediation models will show that frequently being exposed to traumatic events will be connected with heightened attachment anxiety, that will relate to absence of perceived social support, which will then relate to both heightened PTSS and psychiatric symptoms.

Method

Participants

Data were collected in 2001 from a national Danish representative probability sample of 390 adolescents, aged 13 to 15.
sample was stratified into 10 geographical districts, so that its allocation was proportional to Danish population distribution. Thirty schools with eighth-graders were solicited. Of those, 22 schools agreed to participate (73.3% coverage). Classes contained 12 to 25 pupils (\( \bar{x} = 17.7 \)). On the day of the study, an average of 0.9 pupils were absent, resulting in a 95% response rate. The sample was gender balanced with 50% (\( @95 \)) females and 50% (\( @92 \)) males. 74% (\( @287 \)) of the eighth graders lived with both parents, 25% (\( @99 \)) with one parent, and 1% (\( @4 \)) had other arrangements. Variations between parents' education and their geographical distribution among various geographical regions were not significant.

**Procedure**

We presented the study with (1) a letter to school principals setting out the research procedure. Initials of the head teachers' names determined which class was chosen, if there was more than a single class of 8th graders at the school; (2) a letter was sent to the head teacher detailing the study and its monitoring, support, and confidentiality procedures (i.e., sealing the return envelope in the presence of the pupils); and (3) a letter to each pupil explaining the study's aims, privacy and non-participants shared code of Nordic ethical guidelines. Only medical trials must be approved by a regional Helsinki committee; ethical questions from studies in any other sector are decided solely by the psychologist responsible for the research.

**Measures**

**Sociodemographic questionnaire.** gender, age, parents' education, and living arrangements (living with one parent, two parents, or others such as grandparents, or within an institution) and parents' level education.

**Traumatic life events questionnaire** (Elklit, 2002). Since there was no validated self-report questionnaire in Danish available in 2001, a traumatic life events questionnaire was composed. This
measure suggests 20 PTE’s and negative life events that one might experience. Based on empirical and clinical literature, the questionnaire is comprised of life-threatening experiences (e.g., rape) and stressful family conditions (e.g., neglect). The total of negative life events to which participants were directly exposed was subjected to analysis. The direct exposure index ranged from 0 to 16, and the indirect exposure index ranged from 3-4: . The latter measure has been widely applied cross-culturally (e.g., Bödvarsdóttir & Elklit, 2007). The measure highly resembles the well-validated Life-Event Checklist (Gray, Litz, Hsu, & Lombardo, 2004). The inventory for direct exposure items' reliability was Cronbach $\alpha = .67$, and for indirect exposure Cronbach $\alpha = .82$.

**Harvard Trauma Questionnaire - Part IV (HTQ)** (Mollica, Caspi-Yavin, Bollini, & Truong, 1992). The scale assesses common posttraumatic stress symptoms and provides a PTSD diagnosis using DSM-IV criteria and a continuous PTSS assessment. The scale contains 30 items, 16 corresponding directly to -TR PTSD symptoms (APA, 2000). The remaining items tap PTSD-like states such as negative changes in mood and cognitions (e.g., " "). On a four-point Likert scale (1 = , 4 = ), participants are asked to rate experience of symptoms following most distressing event. If a person scores (3)$\#$ or (4) for one re-experiencing symptom, three avoidance symptoms and two arousal symptoms , they meet PTSD criteria. Additionally, when the intrusion subscale is met fully, a subclinical level of PTSD is recorded, when one symptom is missing from the other subscales. The total HTQ score served as a symptom severity index. HTQ-Part IV has been used extensively by Danish researchers (e.g., Shevlin & Elklit, 2008). Good reliability and validity have been demonstrated for the scale (Mollica et al., 1992) An earlier study indicated good structure validity and unique predictive value with other trauma-related variables (Elklit & Shevlin, 2007). In the current study, Cronbach $\alpha$ for the HTQ scale was .94.
Trauma Symptom Checklist (TSC-33: Briere & Runtz, 1989). The TSC-33 assesses general psychiatric symptoms (e.g., depression). The scale overlaps highly with the Symptom Checklist (SCL-90) (Derogatis, 1977) and the Hopkins Symptom Checklist (HSCL) (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974). The scale contains 33 items rated with reference to the previous month. Items are answered on a 4-point Likert scale from ‘never’ (1) to ‘very often’ (4). The total sum of TSC-33 in the current study served as a general psychological distress index. The TSC-33 has shown good internal consistency discriminant validity (Briere & Runtz, 1989; Elklit & Shevlin, 2007). In the current study, Cronbach ± for the TSC scale was .76.

Revised Adult Attachment Scale (RAAS; Collins & Read, 1990). This is an 18-item self-report scale that measures an individual’s attachment patterns and closeness to significant others (e.g., "
"
At all characteristic (1) to ‘very characteristic of me’ (5). The scale has three dimensions: (1) six items on closeness attachment; (2) six items on dependency attachment and (3) six items comprised the anxious attachment dimension. The sum of items in each dimension has been used as the index score. The RAAS is a widely used measure for adult attachment dimensions and attachment styles among adults and adolescents (e.g., Elklit, Karstoft, Lahav, & Andersen, 2016). The scale has shown good psychometric properties in various populations (Ravitz, Maunder, Hunter, Sthankiya, & Lancee, 2010). In the current study, Cronbach ± for the anxiety dimension was .71; Cronbach ±=.59 for the dependency dimension; and Cronbach ± =.19 for the closeness dimension. Due to the low Cronbach ± value for the closeness dimension, this variable was removed from advanced analyses.

Crisis Support Scale (CSS) (Joseph, Andrews, Williams, & Yule, 1992). This scale measures perceived social support following PTE’s and at the current time. The items are scored on a Likert scale ranging from ‘never’ (1) to ‘always’ (7) with reference to perceived available support such as
practical help and emotional support. Perceived social support in the past is represented in items such as "?", while perceived social support at the current time is represented in items such as ". The scale has good psychometric properties (Elklit, Pedersen, & Jind, 2001). Subscale internal consistencies in the current study were good (Present CSS, Cronbach ± = .63; Past CSS, Cronbach ± = .67).

Analytic Strategy

Prior to executing analyses, missing data analysis was performed. Proportion of missing values in the tested variables ranged from 0 to 28.2%. Additionally, a Little’s Missing Completely at Random (MCAR) test indicated that missing data were completely random, \( \chi^2 (1446) = 1445.08, p = .50 \). Imputation of missing data has been conducted via a maximum likelihood (ML) module. Bivariate relationships between research variables were tested by a series of Pearson correlation analyses. Finally, in order to test the serial mediation model, a structural equation modeling (SEM; Hoyle & Smith, 1994) strategy utilizing AMOS software (Version 21; Arbuckle, 2012) and the maximum likelihood method, has been employed. The criteria for SEM models fit were: a) a \( \chi^2 \) test, b) the root mean square error of approximation (RMSEA), c) the comparative fit index (CFI), d) the normed fit index (NFI), e) Tucker Lewis Index (TLI), and f) Standardized Root Mean Square Residual (SRMR). In a model for which the chi-square value was non-significant, CFI, TLI and NFI > 0.95, and the RMSEA and SRMR ranged from 0.00 and 0.08. All analyses were controlled for gender, and included only participants who had undergone at least one traumatic event. To assess significance of indirect paths, a bootstrapped confidence interval for the indirect effect, employing Preacher and Hayes’ procedures (2008), was utilized. 5,000 bootstrapped samples were obtained to

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estimate indirect effects of each mediators. We computed bias corrected, accelerated 95% confidence intervals (CIs) to measure statistical significance for each mediator's 'ab' paths and the two-step mediation. A 'CI' that does not include zero reflects evidence of a significant indirect effect or significant mediation.

Results

Prevalence of exposure to traumatic events and PTSD

Table 1 shows the average number of direct exposures to traumatic events per pupil was 2.5 (percentage that experienced one event = 17%, two events = 23%, three events = 25%, four events or more = 15%). Out of 289 students reporting at least one traumatic event and providing full information on the HTQ, 11 (5.6%) males and 24 females (12.3%) fulfilled the various PTSD criteria at the time of the event, accounting for 9% of the total group. Twenty-two males (11.2%) and 34 females (17.4%) made up a subclinical group that was one symptom or one sub-criterion short of the PTSD diagnosis (C and D groups, as per ). The difference between the sexes in PTSD rates was significant ($\chi^2 (3) = 23.6; \textless .0005$).

Intercorrelations between study variables

As hypothesized, the sum exposure to traumatic events was positively linked to attachment anxiety but not attachment dependency, as well as to PTSS and small to medium effects of general psychiatric symptoms. As hypothesized, attachment anxiety was related positively, and attachment dependency negatively, to PTSS and small to medium effects of psychiatric symptoms. Furthermore, participants' past and current perceived social support was negatively related to both PTSS and small# effects of psychiatric symptoms. Additionally, attachment anxiety was negatively related, and attachment dependency positively, to past and current perceived social support (see Table 1).
Analysis of serial mediation

To test our hypothesis of serial mediation, we employed the multiple step mediation methodology, with a bootstrapped confidence interval for indirect effects (Model 6; Hayes, 2013). The final model included two outcome variables (PTSS and psychiatric symptoms), so that examination of this model via SEM was chosen. Due to the non-significant association between the sum total of traumatic events exposure and attachment dependency, our focus was only on the attachment anxiety dimension. Specifically, a number of questions were examined: (a) was exposure to traumatic events directly linked to PTSS and psychiatric symptoms; (b) was exposure to traumatic events indirectly linked to PTSS and psychiatric symptoms via attachment anxiety; (c) was exposure to traumatic events indirectly linked to PTSS and psychiatric symptoms via the perceived latent social support factor (d) did a two-step mediation process exist in which exposure to traumatic events was indirectly linked to PTSS and psychiatric symptoms via attachment anxiety and perceived social support.

The existence of significant direct relations between exposure to traumatic events related directly to PTSS and psychiatric symptoms was confirmed first. This model fits the observed data well (χ² = .02,  = .88, NFI = .99, CFI = 1.0, TLI=1.0, SRMR=.00, RMSEA = .00). As expected, total exposure to traumatic events was associated significantly with higher levels of PTSS ( = 2.17, = 5.04, <.00, 95% CI, 1.31, 3.19) and psychiatric symptoms ( = 1.10,  = 4.26, <.00, 95% CI, .47, 1.85). This model significantly explains 13% of the PTSS variance and 10% of the psychiatric symptoms variance.

Next, we specified a model in which exposure to traumatic events had direct paths to PTSS and psychiatric symptoms, as well as indirect paths via the attachment anxiety variable (one-step
mediation). The mediational model fit the observed data well ($\chi^2 = .02$, $p = .88$, NFI = 1.0, CFI = 1.0, TLI=1.0, SRMR=.00, RMSEA = .00) and significantly explained 23% of the PTSS variance and 17% of the psychiatric symptoms' variance. As hypothesized, the direct paths from total exposure to traumatic events to PTSS ($\beta = 1.66$, $p = 4.05$, $<.00$, 95% CI: 0.84, 2.58) and psychiatric symptoms ($\beta = .84$, $p = 3.33$, $<.00$, 95% CI: 0.21, 1.53) remain significant when attachment anxiety was included in the model. Furthermore, when applying the bootstrapping analysis, total indirect effect via attachment anxiety to PTSS ($\beta = .50$, $p = .00$, 95% CI: 0.19, 0.94) and psychiatric symptoms ($\beta = .26$, $p = .00$, 95% CI: 0.10, 0.48), was significant. Thus, total exposure to traumatic events was significantly associated with higher levels of attachment anxiety, which were then associated with higher levels of PTSS and psychiatric symptoms.

Next, an examination was carried out to determine whether one step mediator- perceived social support accounted significantly for the direct link between exposure to traumatic events, PTSS and psychiatric symptoms. For a number of reasons, it was decided to define a construct (factor) defining its indicators as participants’ current and past social support. First, current and past perceived social support variables were highly correlated ($r = .47$), and the direction and magnitude of association with the two outcome variables were relatively similar. Second, when assessing participants' perception of social support, a subjective assessment of two experiences measured on the same scale was made. Thus, combining those perceptions should provide a more valid assessment of the construct. Third, given the relatively small number of participants, a latent factor would provide less possible links and a more parsimonious model for examination. Then, a model was specified in which total exposure to traumatic events had direct paths to PTSS and psychiatric symptoms, as well as indirect paths via the latent perceived social support factor. The mediational model fit the observed data well ($\chi^2 = .50$, $p = .97$, NFI = .99, CFI = 1.0, TLI=1.0,
SRMR=.00, RMSEA = .00), significantly explaining 12% of the PTSS variance and 11% of psychiatric symptoms' variance. The direct paths from total exposure to traumatic events to PTSS (β = .86, t = 3.11, p < .01, 95% CI: 0.25, 1.46) and psychiatric symptoms (β = .34, t = 2.10, p < .05, 95% CI: 0.03, 0.73) remain significant when the model included perceived social support. However, contrary to our hypothesis, under the bootstrapping analysis, the total indirect effect via perceived social support to PTSS (β = -.03, t = .82, 95% CI: -0.22, 0.09) and psychiatric symptoms (β = -.02, t = .82, 95% CI: -0.15, 0.08), were not significant. Thus, total exposure to traumatic events was not significantly associated with higher levels of perceived social support, which in turn were associated with higher PTSS and psychiatric symptoms levels.

Finally, a model was specified in which exposure to traumatic events had direct paths to PTSS and psychiatric symptoms; one-step indirect paths through the attachment anxiety variable; and two-step indirect paths through the attachment anxiety and the latent perceived social support factor. Unstandardized coefficients and bootstrap solutions are presented in Table 2, and unstandardized results are presented in Figure 1.

The observed data fit the mediational model well (χ²[6] = 4.09, p = .66, NFI = .98, CFI = 1.0, TLI = 1.0, SRMR = .02, RMSEA = .00), significantly explaining 24% of the PTSS variance and 19% of the psychiatric symptoms' variance. As hypothesized, although magnitude was attenuated the direct paths from total exposure to traumatic events to PTSS and psychiatric symptoms remained significant when the model included all mediators. Specifically, as hypothesized, the two-step indirect effects results indicated that total exposure to traumatic events was significantly associated with higher levels of attachment anxiety, that was associated with lower levels of social support, which in turn was associated with high levels of psychiatric symptoms and PTSS. Notably, in the path from perceived social support to PTSS the final model became insignificant. After omitting non-significant paths
Discussion

Review of Findings

The current study's primary goals were to examine possible links between polyvictimization, PTSS and psychiatric symptoms. Moreover, we aimed to explore the mediating roles of two psychological mechanisms -- attachment anxiety and perceived social support -- in the links between polyvictimization, PTSS and psychiatric symptoms during the early adolescence developmental phase.

Our main results indicated that insecure attachment anxiety and avoidance as well as low levels of perceived social support are associated with higher levels of PTSS and psychiatric symptoms. Attachment anxiety, but not perceived social support, was found to independently mediate the associations between polyvictimization, PTSS and psychiatric symptoms. Serial multiple mediation model results indicated that exposure to traumatic events was significantly associated with high attachment anxiety, which was associated with low perceived social support, which was then associated with high PTSS levels and psychiatric symptoms. To the best of our knowledge, this is the first study to research interrelations between attachment orientations and perceived social support and their combined mediating role in adaptation to multiple stressful and traumatic events in early adolescence.

The results indicated that poly-victimization was related to higher levels of attachment anxiety and heightened PTSS and psychiatric symptoms. Attachment anxiety was the only attachment orientation found to mediate the link between polyvictimization and distress. We offer two
explanations for these results. First, several studies have indicated that individuals with an insecure attachment orientation, specifically attachment anxiety (Besser & Neria, 2012), show reduced confidence in their ability to coping capacity, tending toward greater anxiety, hostility, and distress when faced with stressful situations (e.g., Sandberg, 2010). Individuals with heightened attachment anxiety were also found to have maladaptive trauma appraisals. Since they perceived traumatic events as more fundamental to their identity and more severe, that might increase the probability for higher PTSS (Ogle, Rubin, & Siegler, 2016). Thus, attachment anxiety patterns may interfere with adolescents' emotional regulation of the cumulative nature of polyvictimization, and increase their vulnerability to psychological distress.

Second, it is suggested that attachment anxiety is inevitably connected to negative cognitions about one's self, such as low self-worth (Lim, Adams, & Lilly, 2012). It is known that emotions of guilt or shame are related to negative self-representations, and can interfere with the individual's affect regulation and capacity to handle painful emotions. Especially in the case of interpersonal trauma, attachment anxiety might be considered as a mechanism of effect on PTSS (Sandberg et al., 2010). Thus, in the midst of the rapid transformations that occur during the developmental phase of adolescence, exposure to traumatic events can deepen adolescents' inner experience of self-doubt and ambivalence. Being less confident in oneself and less inclined to be supported by internal experiences of security, might increase the probability of psychological distress (Ein-Dor & Doron, 2015).

Our results also indicated that participants' low perceived social support was associated with both PTSS and general psychiatric symptoms. However, contrary to our hypothesis, perceived social support did not mediate the link between polyvictimization, PTSS and psychiatric symptoms. The connection between perceived social support and PTSD is consistent with empirical literature and is
one of the stable links in traumatology literature. Indeed, a number of meta-analyses among adults (Xue et al., 2015), children and adolescents (Trickey et al., 2012) found that individuals with low social support are more likely to experience traumatic events and develop PTSD (Nooner et al., 2012). As the current study examined a national representative sample of adolescents, this finding strengthens the validity of the aforementioned link.

The non-significant indirect effect through perceived social support is probably the result of the lack of association between the sum of traumatic events and social support. The social support deterioration model posits that trauma exposure may indirectly relate to PTSS and distress by causing social interactions to deteriorate (Norris & Kaniasty, 1996). It is possible that because most of adolescents in our sample were living with their parents and engaged in the educational system, the effect of polyvictimization on their perception of social support was not as profound compared to adults after traumatic events such as natural disasters (Norris & Kaniasty, 1996).

Importantly, a two-step indirect mediation effect was found between traumatic events exposure, PTSS and psychiatric symptoms through attachment anxiety and perceived social support. This conclusion is consistent with the results of empirical studies among clinical samples of treatment-seeking adults (Cloitre et al., 2008), and Israeli citizens under threat of missile attacks (Besser & Neria, 2012), that found the relation between anxious attachment and PTSS was mediated by lower perceived social support. As far as we are aware, this is the first effort to document this set of mediators among adolescents following polyvictimization.

It is possible that following exposure to traumatic events, adolescents characterized by high attachment anxiety tend to adopt hyper-activating attachment and emotion regulation strategies, such as repeated attempts to attain care and support from others (Mikulincer & Shaver, 2010). However,
when hyper-activating strategies do not provide a sense of security and serenity, these adolescents may perceive others as less responsive, supportive or understanding of their needs (Ein-Dor & Doron, 2015). It is suggested that this process might increase adolescents' feelings of loneliness and isolation as a result of their inability to use social networks as possible coping resources (Varvin & Rosenbaum, 2014). Furthermore, negative social support increases the probability that adolescents will engage in risky behaviors that may lead to revictimization (Collishaw et al., 2007). This process is liable to be more profound, given the special character of this developmental stage, such as separation and individuation from parents who might hamper the demand for care and support (Pat-Horenczyk et al., 2009).

**Limitations of study**

First, since this study is cross-sectional, it is not possible to show causality from of the serial mediation analyses. Second, the study uses self-reporting measures in which a reporting bias is a major caveat. Third, although regularly used in other countries (e.g., Bödvarsdóttir & Elklit, 2007), the traumatic life-event questionnaire has yet to be validated. Fourth, the low Cronbach alpha value of the attachment closeness dimension requires replication using other validated attachment measurements. Fifth, Parents' education level was selected as an approximate measure of socioeconomic status, which could bias true representation of participants' socioeconomic status. Sixth, the data were collected in 2001, and the generalizability of findings might be limited, as it may not reflect current adolescent populations or adolescents from different cultures. Seventh, although exposure to multiple traumas was assessed, understanding whether a particular event had reoccurred (i.e., repeated trauma) was not possible. Last, polyvictimization may be associated with a wide
spectrum of psychological difficulties, and not only PTSS. Thus, examination of links between polyvictimization and disorders such as depression, anxiety, somatic and others are highly needed.

**Theoretical implications and directions for future research**

Future studies should revisit this mediation hypothesis among other groups of adolescents in different cultures, following specific major traumatic events. Furthermore, the reported pattern of associations should be revalidated in future prospective studies among adolescents. Moreover, future studies should replicate the proposed mediation model among today's adolescents. This would allow scholars in this field to infer similarities and differences in attachment and social support roles over the years. Theoretically, the lack of a significant indirect path between perceived social support and PTSD may suggest that other variables, such as emotional regulation, might take part in this chain of reactions. For example, Zhou, Wu, and Zhen (2017) found that following Ya’an earthquake, adolescents' social support was not significantly related to PTSD but rather was indirectly related through an increase of cognitive reappraisal coping mechanisms. Thus, future studies should further elaborate not only the direct model of social support on psychopathology but especially the more complicated indirect models of social support. In the same vein, our two-step mediation of attachment anxiety and social support might support the established mediation of social-cognition abilities in the link between insecure attachment and PTSD among inpatient adolescents (e.g., Venta et al., 2017). Thus, it might be that between high attachment anxiety and low levels of perceived social support there is an impairment in the developing capacity to process social information- i.e., social-cognition- that, in turn, affects the odds of getting actual social support when facing polyvictimization (Sharp et al., 2012).

**Conclusions**
Our results pointed to the early adolescence as a risky period for exposure to stressful events, as well as mental health problems closely related to polyvictimization. Thus, clinicians should pay attention not only to highly publicized index traumas such as sexual abuse, but to the clients' entire traumatic history. Thus, raising awareness of polyvictimization and its consequences might inform clinicians toward more direct questions regarding clients' traumatic experiences. Moreover, our results indicate the centrality of attachment orientations and perceived social support as inter-psychic and inter-personal mechanisms, in the connection between polyvictimization and psychological distress. Mental health professionals need to pay attention to the links between an internal experience of lack of security and the difficulties in seeking external help and gaining needed support. Thus, it is possible that those adolescents who have experienced multiple traumatic events might 'slip under the radar' and be less fortunate in receiving the help they need in order to process their traumatic events and adapt to possible psychopathological symptoms. Promising therapies such as Attachment-Based Family Therapy (ABFT) for depressed adolescents (e.g., Diamond et al., 2010) and their families could strengthen the arguments based on the indirect links of attachment anxiety and perceived social support, specifically regarding adolescents' difficulties in approaching parents to gain crucial support following traumatic events, when they most need it.
References


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, 179-191.


Table 1.

<table>
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<th>1. Exposure to traumatic events</th>
<th>4</th>
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</table>
### PTSD symptoms (HTQ)

<table>
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<th></th>
<th>Point estimate</th>
<th>SE</th>
<th>BCa 95% CI (lower, upper)</th>
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<tr>
<td>Direct effect of exposure</td>
<td>1.67</td>
<td>.74</td>
<td>(.96, 2.45)**</td>
</tr>
<tr>
<td>Indirect via anxiety attachment</td>
<td>.49</td>
<td>.18</td>
<td>(.24, .84)**</td>
</tr>
<tr>
<td>Indirect via perceived social support</td>
<td>-.01</td>
<td>.04</td>
<td>(-.09, .05)</td>
</tr>
<tr>
<td>Indirect via anxiety attachment and perceived social support</td>
<td>.09</td>
<td>.06</td>
<td>(02, .24)*</td>
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</table>

### Psychiatric symptoms (TSC)

<table>
<thead>
<tr>
<th></th>
<th>Point estimate</th>
<th>SE</th>
<th>BCa 95% CI (lower, upper)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct effect of exposure</td>
<td>.84</td>
<td>.33</td>
<td>(.32, 1.42)*</td>
</tr>
<tr>
<td>Indirect via anxiety attachment</td>
<td>.69</td>
<td>.35</td>
<td>(.11, .41)**</td>
</tr>
<tr>
<td>Indirect via perceived social support</td>
<td>-.01</td>
<td>.05</td>
<td>(-.08, .07)</td>
</tr>
<tr>
<td>Indirect via anxiety attachment and perceived social support</td>
<td>.07</td>
<td>.04</td>
<td>(.02, .14)*</td>
</tr>
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</table>

BCa=bias corrected and accelerated; CI= Confidence Intervals; Confidence intervals that do not include 0 (null association) are significant. *p<.05; **p<.01; ***=p<.001.
Figure 1.

A serial mediational integrated model for posttraumatic symptoms and psychiatric symptoms (TSC) by attachment anxiety and perceived social support. Rectangles indicate measured variables and small circles reflect residuals (e). Bold numbers above or near endogenous variables represent the amount of variance explained (R²). Unidirectional arrows depict hypothesized directional links. Standardized maximum likelihood parameters are used. Bold line estimates are statistically significant and dashed lines are insignificant.  \( R^2 = .390; \* < .05, \*\* < .01, \*\*\* < .001 \)
Attachment and Social Support Mediate Associations Between Polyvictimization and Psychological Distress in Early Adolescence

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