

# Indirect effects of PTSD and complex PTSD in the relationship of polyvictimization with intimate partner violence victimization and perpetration among men in mandated treatment

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## ABSTRACT

**Background:** Polyvictimization is associated with posttraumatic stress disorder (PTSD), severe impairment, and re-victimization, including due to intimate partner violence (IPV), but polyvictimization's role in the perpetration of IPV is less clear.

**Objective:** To examine the indirect effect of PTSD and complex PTSD in the relationship between polyvictimization and IPV perpetration.

**Method:** Polyvictims were identified by cluster analysis of self-reported lifetime victimization history data in a random national sample ( $N = 234$ ) of men at 66 clinical treatment centers for domestic violence perpetrators in Israel.

**Results:** Four sub-groups were identified: low exposure to abuse and physical neglect (C1,  $N = 105$ ), and three polyvictim sub-groups characterized by multiple forms of past exposure to neglect and verbal abuse (C2,  $N = 38$ ), to verbal and physical abuse without neglect (C3,  $N = 46$ ), or to neglect and both verbal and physical abuse (C4,  $N = 28$ ). Participants also were characterized as having low exposure to traumatic events across the lifespan (cluster L5,  $N=156$ ), or high exposure to traumatic events across the lifespan (cluster L6,  $N=78$ ). Complex PTSD symptoms had an indirect effect in the relationship between membership in the C3 and C4 polyvictimization clusters ( $\beta=.45, p<.05, \beta=.60, p<.05$ ; respectively) and severity of psychological IPV victimization, as well as between C3 polyvictimization cluster membership and severity of psychological IPV perpetration ( $\beta=.32, p<.05$ ). In contrast, PTSD symptoms had no indirect effect in any relationship between cluster membership and IPV outcomes. High lifetime trauma exposure also was directly associated with sexual IPV victimization.

**Conclusions:** Complex PTSD may be a mechanism linking polyvictimization to the severity of both IPV victimization and perpetration. Clinical implications are discussed.

## Efectos indirectos del trastorno de estrés postraumático y el trastorno de estrés postraumático complejo en la relación de la polivictimización con la violencia de pareja y perpetración en hombres en tratamiento obligatorio

**Antecedentes:** La polivictimización (PV) está asociada con el trastorno de estrés postraumático (TEPT), discapacidad grave y revictimización, incluso debido a la violencia de pareja (IPV, en su sigla en inglés), pero el rol de la PV en la perpetración de IPV es menos claro.

**Objetivos:** Examinar el efecto indirecto del TEPT y el TEPT complejo en la relación entre la PV y la perpetración de IPV.

**Método:** las polivíctimas fueron identificadas por análisis de grupos de datos de historial de victimización autoinformado en una muestra nacional aleatoria ( $N = 234$ ) de hombres que reciben tratamiento en 66 centros clínicos para violencia doméstica en Israel.

**Resultados:** Se identificaron cuatro subgrupos: baja exposición a violencia y negligencia física (C1,  $N = 105$ ), y tres subgrupos polivictimizados caracterizados por múltiples formas de exposición en el pasado a negligencia y violencia verbal (C2,  $N = 38$ ), a violencia verbal y física sin negligencia (C3,  $N = 46$ ), o exposición a negligencia y violencia tanto verbal como física (C4,  $N = 28$ ). Los participantes también se caracterizaron por tener una baja exposición a eventos traumáticos a lo largo de la vida (grupo L5,  $N = 156$ ) o alta exposición a eventos traumáticos a lo largo de la vida (grupo L6,  $N = 78$ ). Los síntomas de TEPT complejo tuvieron un efecto indirecto en la relación entre la pertenencia a los grupos de polivictimización C3 y C4 ( $\beta = .45, p <.05, \beta = .60, p <.05$ ; respectivamente) y la gravedad de la victimización psicológica por IPV, así como entre el grupo de PV C3 y la gravedad de la perpetración psicológica de IPV ( $\beta = .32, p <.05$ ). Por el contrario, los síntomas de TEPT no tuvieron ningún efecto indirecto en ninguna relación entre la pertenencia a un grupo y los resultados de IPV. La alta exposición a trauma durante la vida también se asoció directamente con la victimización por IPV sexual.

## ARTICLE HISTORY

Received 26 February 2020

Revised 17 June 2020

Accepted 27 June 2020

## KEYWORDS

Polyvictimization; posttraumatic stress disorder; complex PTSD; disturbances of self organization; intimate partner violence

## PALABRAS CLAVE

Polivictimización; Trastorno de estrés postraumático; violencia de pareja; perturbaciones de autoorganización; TEPT complejo

## 关键词

多重伤害; 创伤后应激障碍; 亲密伴侣暴力; 自组织障碍; 复杂性PTSD

## HIGHLIGHTS

- Complex PTSD symptoms, but not PTSD's traditional symptoms, may be a link between childhood 75 polyvictimization and interpersonal partner violence (IPV) victimization and perpetration among men mandated for IPV 80 treatment.
- Additionally, high lifetime trauma exposure, may increase these men's risk of being a victim of sexual IPV.

**Conclusiones:** El trastorno de estrés postraumático complejo, puede ser un mecanismo importante que vincula la polivictimización tanto con la gravedad de la victimización como de la perpetración de la IPV. Se discuten las implicaciones clínicas.

### 强制治疗中男性PTSD和复杂性PTSD对多重伤害与亲密伴侣暴力受害和犯罪间关系的间接作用

**背景:** 多重伤害（即暴露于多种伤害），包括由于亲密伴侣暴力（IPV）的伤害，与创伤后应激障碍（PTSD）、严重损伤和再次伤害相关。但多重伤害在IPV犯罪中的作用尚不清楚。

**目的:** 考查PTSD和复杂性PTSD对多重伤害和IPV犯罪间关系的间接作用。

**方法:** 本研究从以色列66个临床治疗中心的家庭暴力施暴者中随机抽取的男性国家样本（ $N = 234$ ）中，通过对自我报告终生受害史数据进行聚类分析识别出了多重受害者。

**结果:** 分析确定了四个亚组：虐待和躯体忽视低暴露组（C1,  $N = 105$ ），和多种形式伤害为特征的两个亚组：忽视和言语虐待暴露组（C2,  $N = 38$ ），无忽视的言语和躯体虐待暴露组（C3,  $N = 46$ ），以及忽视与言语和躯体暴力同时暴露组（C4,  $N = 28$ ）。参与者还被刻画为：终身创伤事件低暴露组（L5组,  $N = 156$ ），以及终身创伤事件高暴露组（L6组,  $N = 78$ ）。复杂性PTSD症状间接影响C3、C4多重伤害分组（分别为 $\beta = .45, p < .05$ ;  $\beta = .60, p < .05$ ）和IPV心理受害严重程度之间的关系，以及C3多重伤害组与IPV犯罪严重程度之间的关系（ $\beta = .32, p < .05$ ）。PTSD症状对分组与IPV结果之间的任何关系均无间接影响。高的终生创伤暴露也与IPV性受害直接相关。

**结论:** 因此复杂性PTSD可能是将多重伤害与IPV受害和犯罪的严重程度联系起来的重要机制。文中讨论了临床意义。

Intimate partner violence (IPV) is a major public safety and health problem worldwide for which there are limited evidence-based approaches to primary, secondary, or tertiary prevention (Bott, Guedes, Ruiz-Celis, & Mendoza, 2019; Elghossain, Bott, Akik, & Obermeyer, 2019; Sanz-Barbero, Lopez Pereira, Barrio, & Vives-Cases, 2018). Cumulative exposure to traumatic stressors and victimization beginning in childhood and continuing across the lifespan are associated with IPV victimization (Dugal et al., 2018; Godbout et al., 2019). Victims of childhood trauma who subsequently perpetrate IPV have been described as ‘perpetrator victims’ (Hamby & Grych, 2016), following research examining the specific association between childhood victimization with IPV perpetration (Gilbar, Dekel, Hyland, & Cloitre, 2019; Kimber, Adham, Gill, McTavish, & MacMillan, 2018; Maguire et al., 2015;) as well as with both IPV perpetration and victimization (Caetano, Ramisetty-Mikler, & Field, 2005; Li, Zhao, & Yu, 2019; Richards, Tillyer, & Wright, 2017; Richards, Tomsich, Gover, & Jennings, 2016).

Studies of childhood victimization suggest that it may increase the risk of IPV victimization among women (Bensley, Van Eenwyk, & Wynkoop Simmons, 2003; Brassard et al., 2019) and the vulnerability to re-victimization in adult relationships among men (Berzenski & Yates, 2010; Cook et al., 2005; Gratz, Paulson, Jakupcak, & Tull, 2009). Several studies suggest that various types of childhood victimization (e.g. physical abuse, sexual abuse) may influence subsequent IPV victimization, perpetration, and combined victimization-perpetration in adulthood (Delsol & Margolin, 2004; Dugal et al., 2018; Dugal, Goudbout, Bélanger, Hébert, & Goulet, 2018; Godbout, Runtz, MacIntosh, & Briere, 2013; Godbout et al., 2019; Kimber et al., 2018; Wekerle et al., 2001; Widom, Czaja, & Dutton, 2014). However, mixed results have been reported: one study found that only

childhood physical abuse was associated with IPV perpetration (Caetano et al., 2005) and another study demonstrated that child sexual abuse, witnessing violence inside the home during childhood, and witnessing violence outside the home during childhood were uniquely related to IPV perpetration and victimization (Richards et al., 2016). Another study found that for males, physical maltreatment was related only to IPV victimization, and a combination of physical, sexual, and emotional maltreatment was related to both IPV victimization and perpetration (Richards et al., 2017).

Other studies have suggested that cumulative exposure to traumatic stressors across the lifespan may increase the risk of IPV perpetration. Men who perpetrate IPV report higher levels of exposure to traumatic stressors than other men (Bell & Orcutt, 2009; Hoyt, Wray, Wiggins, Gerstle, & Maclean, 2012). A link has also been found between the severity of men’s lifetime traumatic experiences and the severity of perpetration of violence in adulthood (Maguire et al., 2015; Taft, Schumm, Marshall, Panuzio, & Holtzworth-Munroe, 2008).

Consistent with findings regarding lifetime trauma history, posttraumatic stress disorder (PTSD) has been shown to be related to men’s IPV perpetration (Maguire et al., 2015; Taft, Murphy, & Creech, 2016; Taft et al., 2008). PTSD has been hypothesized, but not empirically demonstrated, to be a mediator of the association between past exposure to traumatic events and IPV perpetration. One study that found that PTSD did not mediate the relationship between childhood maltreatment and IPV victimization, did not test whether PTSD mediated the relationship between childhood maltreatment and IPV perpetration (Gobin, Iverson, Mitchell, Vaughn, & Resick, 2013).

Thus, the relationships between both childhood victimization and lifetime exposure to traumatic events with men’s involvement in IPV perpetration

and their victimization by IPV, and the role of PTSD as a potential link in those relationships, remain uncertain. Two possible sources of clarification of these relationships are explored in the current study.

First, there is evidence that exposure to multiple types of maltreatment in childhood – described as polyvictimization by Finkelhor, Ormrod, and Turner (2007) – places children (Finkelhor, Ormrod, & Turner, 2009) and adolescents (Ford, Elhai, Connor, & Frueh, 2010; Ford, Charak, Modrowski, & Kerig, 2018) at risk for chronic mental health and behavioural problems over and above the risk conferred by single types of maltreatment or exposure to traumatic stressors. Rather than examining the effects of putatively separate (but actually highly interrelated; Finkelhor et al., 2009) types of childhood maltreatment, it may be more informative to identify sub-groups of adults who experienced multiple types of maltreatment in order to determine if they are at highest risk of either IPV perpetration or victimization. Childhood polyvictimization and lifetime cumulative trauma exposure tend to be correlated (Ford et al., 2010), and therefore it also is important to determine whether childhood polyvictimization has a distinct association with adult IPV independent of the effects of lifetime cumulative trauma exposure. The current study takes an empirical approach (i.e. cluster analysis; Ford, Connor, & Hawke, 2009) to identifying men who were childhood polyvictims, and examines their involvement in IPV as perpetrators and victims while also testing whether those relationships can be accounted for by cumulative lifetime trauma exposure in a single statistical model. We hypothesize that childhood polyvictimization will be associated with both IPV perpetration and victimization in adulthood, independent of the effects of cumulative lifetime trauma exposure.

Second, the linkage between childhood victimization and adult IPV perpetration (Briere, 2002) and/or victimization (Godbout et al., 2019) may involve problems that are sequelae of victimization but that differ from PTSD. Several factors – including interpersonal problems (LaMotte, Meis, Winters, Barry, & Murphy, 2018; LaMotte, Taft, Weatherill, & Eckhardt, 2017) and emotion dysregulation (Miles, Menefee, Wanner, Teten Tharp, & Kent, 2016) – have been suggested together with PTSD to explain the association between childhood victimization and adult IPV victimization and perpetration (Briere, 2002; Dugal et al., 2018; Godbout et al., 2019). However, research in this area is nascent and requires substantial clarification of the relevant constructs and their operational definitions and measurements. As a unifying framework, these problems have been described and operationalized as Disturbances of Self Organization (DSO) that characterize a complex form of PTSD (Cloitre et al., 2018). In contrast to the intrusive re-experiencing, avoidance, and hyperarousal

symptoms that are the hallmark of traditional PTSD, complex PTSD and its constituent DSO involve problems with emotion dysregulation, conflict and instability in relationships, and confusion and fragmentation of the individual's core sense of self and identity (Cloitre et al., 2018). A volatile mix of alternating turmoil and disengagement in emotions, relationships, and fundamental sense of self are involved in DSO, and this is strongly associated with both traumatic childhood victimization and adult interpersonal problems (Brewin et al., 2017). Thus, complex PTSD – and specifically the DSO symptoms – could plausibly leave men highly vulnerable to either IPV perpetration or victimization. We hypothesize that DSO will mediate the relationship between childhood polyvictimization and both IPV perpetration and victimization, independent of the effects of traditional PTSD symptoms and cumulative exposure to traumatic events.

## 1. Method

### 1.1. Participants and procedures

Participants were randomly-drawn from a cohort of Israeli Jewish men who received mandated treatment at centres for domestic violence prevention. The inclusion criterion was: men who had received at least two treatment sessions – of any type – at the centre. Exclusion criteria were: men who had been diagnosed with any type of psychosis, or who had been professionally assessed as presenting a high risk to their partner if they participated in the study. Two hundred and thirty-four men completed the full version of the questionnaires. They comprise about 14% of the 1600 Jewish males who were treated at 66 centres for domestic violence prevention during the year 2016 (Hasherut Lerevahat Haprat VeHamishpaha [The service for the welfare of the individual and the family], 2016). The sociodemographic characteristics of the sample is presented in a Table 1. A post-hoc power assessment based on modelling results (Preacher & Coffman, 2006) ranged from .810 to .911.

This study was conducted in collaboration with Israel's Ministry of Social Affairs and Social Services, and ethical approval was received from both Bar-Ilan University's institutional review board (IRB ethical approval reference number: 021604) and the abovementioned Ministry's research department. Data collection took place from February-August, 2016. Social workers at the centres presented the study to those men who had been randomized to participate in the study, during the process of their therapy. Participation was voluntary and unremunerated, and informed consent was obtained from all participants. Either a member of the research team or a social worker in the centre then administered a battery of self-report measures. The overall response rate was approximately 70%. Of those who did not respond, 10% ( $N = 24$ ) could not complete the

**Table 1.** Demographics/background characteristics.

Demographics	<i>N</i>	Levels	<i>N</i>	%
Religious type	234	Secular	108	45.6%
		Traditional	88	37.1%
		Religious	28	11.8%
		Ultraorthodox	13	5.5%
High school certification	229	No	100	38.7%
		Partial	58	23.6%
		Received	77	36.2%
Relationship status	234	In relationship	138	58.3%
		Not in relationship	98	41.7%
Income	228	\$10k	21	10.2%
		\$10-20\$	56	23.8%
		\$20-30\$	56	23.8%
		\$30\$-40\$	52	20.4%
		\$40k+	50	22.6%
Job status	224	Full-time	175	74.6%
		Part-time	25	10.3%
		Unemployed	35	15.2%
Type of profession	214	Administrator	17	9.3%
		Skilled worker – excluding agriculture	80	35.5%
		Skilled agricultural worker	13	7.9%
		Agent, salesperson, and service worker	37	15.9%
		Academic/Professional	30	13.7%
		Professional and technical workers	8	7%

questionnaires due to language issues; 15% ( $N = 36$ ) declined to participate because they were suspicious of the research purpose; and 5% ( $N = 12$ ) had attention deficit problems which prevented them from completing the questionnaires.

## 1.2. Measures

*Exposure to victimization in childhood: CTS2 Conflict Tactics Scale* (Straus, Hamby, Buncy-McCoy, & Sugarman, 1996) and *Conflict Tactics Scale (CTS) – Parent–Child (PC) Short Form Version* (Straus & Mattingly, 2007).

This adapted version of the CTS2 was constructed from four items that were used in a previous study regarding exposure to intra-family abuse (Lee, Walters, Hall, & Basile, 2013). The CTS2 is a well validate measurement (Straus, Hamby, Buncy-McCoy, & Sugarman, 1996). Findings that it is associated with IPV perpetration in adulthood suggested the use of this adapted measurement (Lee et al., 2013). In addition, all of the items from the original *Conflict Tactics Scale (CTS) – Parent–Child* (Straus & Mattingly, 2007) scale for measuring physical neglect were used in their adapted version, arrived at by asking the study participants to report the history of neglect from an adult perspective. The validation of the original scale has been supported by the demonstration of elicits from 80% to 96% of the maltreatment disclosure elicited by the full scale of PC (for the full scale see: Straus, & Hamby, 1997). For both scales, respondents were asked to rate the frequency, until they reached the age of 18, with which their father/male guardian or mother/female guardian used specific conflict tactics against (a) each other, and (b) the respondent (e.g. hitting or throwing something).

Exposure to abuse in childhood was measured by asking four items, one item was used for measuring exposure to verbal abuse and three items were used for measuring exposure to physical abuse. Sample items measuring exposure to abuse were: ‘Hitting or throwing something’ and ‘Swore or cursed at you.’ Physical neglect in childhood was measured by asking two items: 1) about ‘the number of occasions on which your parents did not take care of your basic needs, i.e. did not attend to matters of your basic cleanliness or obtain the food and/or clothing you needed’ and 2) about ‘the number of times you were left alone when an adult should have been present.’ Respondents rated the frequency with which each tactic was used by their parents or step-parents during what they defined as the worst year of their life before the age of 18 on a 7-point scale (0 = *never* to 6 = *more than 20 times*). All 6 items of all types of exposure to victimization in childhood were used together to calculate the clusters of childhood victimization. The Cronbach’s alpha in this study for exposure to victimization in childhood was .85. This measure was translated into Hebrew according to the WHO criteria, which includes reverse-translation (Gilbar, Hyland, Cloitre, & Dekel, 2018).

### 1.2.1. Exposure to traumatic events: life events checklist (LEC-5) (Weathers et al., 2013)

The LEC-5 is a 17-item self-report measure designed to screen for potentially traumatic events (PTEs) in a respondent’s lifetime. The LEC was originally used to assess criteria A for PTSD in ‘The Clinician-Administered PTSD Scale’ (CAPS) (Blake et al., 1990). The validation of the LEC has been supported by the demonstration of adequate temporal stability, and shows good convergence with an established measure of trauma



history (Gray, Litz, Hsu, & Lombardo, 2004). We used the original measure, which does not include childhood trauma, to assess lifetime exposure to 15 traumatic events (e.g. natural disaster, sexual assault, life-threatening illness/injury). For each item, the respondent checks, in regard to the event: (1) *happened to me*, to (6) *doesn't apply to my experience*. In order to create a summed total that represents the number of different life events that the respondent has experienced, the items are re-coded into binary variables with *happened to me* responses being coded as 1 and all other responses coded as 0. This coding produces a single total cumulative index variable with possible scores ranging from 0 to 17. In the current study, we used the formal Hebrew translation of this scale, which has been used in many studies conducted in Israel. The Cronbach's alpha in this study for exposure to victimization in a respondent's lifetime was .85.

### 1.2.2. CPTSD and PTSD symptoms: International Trauma Questionnaire (ITQ) (Cloitre et al., 2018; ITQ, n.d.)

The final version of the ITQ is a 12-item self-report measure for screening ICD-11 PTSD and CPTSD symptomatology. The measure demonstrates good construct, factor, and discriminant validity (Hyland et al., 2016; Karatzias et al., 2016, 2017; Shevlin et al., 2017). Six items represent the three clusters of PTSD: that is, two items of re-experiencing in the here and now (Re); two items of avoidance (Av); and two items of sense of threat (Th). Symptom endorsement is scored on a Likert-type scale, indicating how bothersome a symptom has been over the past month with scores ranging from 0 (*not at all*) to 4 (*extremely*). In addition, six items represent the three DSO clusters – that is, two items of affective dysregulation (AD); two items of negative self-concept (NSC); and two items of disturbances in relationships (DR) – where endorsement of items indicates how typical the problem is to the individual, with scores ranging from 0 (*not at all*) to 4 (*extremely*). Cronbach's alpha reliability estimates for the PTSD indicators in the current sample were acceptable for the PTSD cluster = .75, and for DSO = .91. In this study, this measure was translated into Hebrew according to the WHO criteria, which includes reverse-translation. Its construct validity was confirmed in our previous study (Gilbar et al., 2018) and in an Israeli national community sample (Ben-Ezra et al., 2018). A preliminary measurement model was built to test for construct validity, see Table 2. For the two latent factors we found a high goodness-of-fit (CFI = .99, TLI = .99, RMSEA = .01, SRMR = .04), and another confirmation for internal consistency by means of composite reliability (Composite Reliability Alphas: PTSD = .79; DSO = .92).

*Intimate partner violence: CTS2S Conflict Tactics Scale, Short Form* (Straus & Douglas, 2004). Three subscales of this measure were used in this study The

**Table 2.** The measurement model results, factor loadings for first and second latent factors.

	Item	Loading Estimate	S.E.
PTSD 1 <sup>st</sup> order latent factors			
RE	RE1_TQ	.77***	.10
	RE2_TQ	.75***	.10
AV	AV1_TQ	.92***	.05
	AV2_TQ	.7***	.06
TH	SOT1_TQ	.60***	.08
	SOT2_TQ	.65***	.09
PTSD 2 <sup>nd</sup> order latent factors			
PTSD	RE	.48***	.10
	AV	.82***	.07
	TH	.90***	.10
Composite Reliability =.79			
DSO 1 <sup>st</sup> order latent factors			
AD	AD_2	.43***	.08
	AD_6	.58***	.09
NSC	NSC_1	.90***	.03
	NSC_2	.86***	.04
DR	DR_1	.88***	.04
	DR_2	.79***	.05
DSO 2 <sup>nd</sup> order latent factors			
DSO	AD	.99***	.14
	NSC	.75***	.05
	DR	.93***	.06
Composite Reliability =.92			
Correlation			
DSO with PTSD		.69***	.08
CFI=.999, TLI=.998, RMSEA=.008, Chi-Square=47.72, df=47, p=.44, SRMR=.040			
***p<.001.			

validation of the CTS2S has been supported by the demonstration that the short form is comparable in validity to the full CTS2 (Straus & Douglas, 2004), for the full measurement see: Straus, Hamby, Buncy-McCoy, & Sugarman, 1996). The questionnaire asks respondents to recall the number of IPV acts that occurred during the previous 12 months assesses perpetration and victimization of psychological and physical violence both victimization and perpetration for each type. Two items of each subscale for victimization and two items of each subscale for perpetration; in total, four items of physical IPV, four items of psychological IPV, and four items of sexually coercive IPV were examined via this scale. The instrument has eight response categories: 0 (*has never happened*), 1 (*once in the past year*), 2 (*twice in the past year*), 3 (*3–5 times*), 4 (*6–10 times*), 5 (*11–20 times*), 6 (*more than 20 times in the past year*), 7 (*happened more than one year ago*). We then used the summed scores of each type of violence which took place within the past year (item responses 1–6). The standardized Cronbach's coefficient alpha in this study for psychological IPV perpetration was .88, for physical IPV perpetration it was .79, and for sexually coercive IPV it was .88. In addition, the inter-correlations between the IPV items types were .65, ( $p < 0.01$ ) .74, ( $p < 0.01$ ), and .75 ( $p < 0.01$ ). The standardized Cronbach's alpha coefficient for psychological IPV victimization was .94, for physical IPV victimization it was .64, and for sexually coercive IPV it was .79. In addition, the inter-correlations between

the IPV item types were .85, ( $p < 0.01$ ) .49, ( $p < 0.01$ ), and .63 ( $p < 0.01$ ). We used the formal Hebrew translation of this subscales in this study (Yassour-Borochowitz, 2002) which have been used in many studies in Israel (For example: Zamir & Lavee, 2014).

### 1.3. Analysis plan

Descriptive statistics and the correlations between the PTSD and DSO symptom variables and the adult IPV perpetration and victimization variables were computed using IBM SPSS version 23 (Table 3).

Sub-groups were identified by a k-means cluster analysis, applying the relocating algorithm based on group centroids (Everitt, Landau, Leese, & Stahl, 2011). The K-means cluster analyses were conducted based on: (1) childhood victimization in the family, using CTS-PC sub-scales, and (2) lifetime exposure to traumatic events other than adult IPV using LEC dichotomous items. The two sets of clusters were not mutually exclusive: each participant was assigned to one cluster in each of the two cluster analyses. Cluster analysis methods were used rather than latent class or latent profile analyses in order to empirically identify polyvictim sub-groups because this method is simple and efficient when a relatively simple grouping is necessary and may substitute for an unweighted count. Cluster analysis has been used in prior studies to investigate the association of polyvictimization with violent behaviour (Turner, Shattuck, Finkelhor, & Hamby, 2016) and with behavioural and relational impairment (Ford et al., 2009).

Structural equation modelling (SEM) analysis was used to test how the cluster analytically-derived sub-groups defined by history of childhood victimization and by lifetime cumulative trauma were related to IPV victimization and preparation, including indirect effects of PTSD and complex PTSD (i.e. DSO) symptoms, in a single statistical model.

The sub-groups were dummy-coded in a study model (Figure 3), and structural equation modelling (SEM) was applied using Mplus version 7 (Muthén & Muthén, 2013). Clusters representing the lowest extent of exposure to victimization or traumatic stressors were used as the reference group and compared to the other clusters. Indirect effects analysis was carried out to evaluate PTSD and DSO symptom severity of the effects

of class membership on physical, psychological, and sexual IPV perpetration and victimization. To assess this association, we used the weighted least squares means and variance adjusted (MLR) estimators based on the polychoric correlation matrix of latent continuous response variables. Other methods of analysis, such as maximum likelihood estimation, tend to produce incorrect standard errors, attenuate the relationships between observed variables, and produce possible pseudo-factors when using categorical indicators (Brown, 2006). The WLSMV estimator has been shown to produce correct parameter estimates, standard errors, and test statistics (Flora & Curran, 2004). Unstandardized regression coefficients ( $B$ ), standard errors ( $SEs$ ), and standardized regression coefficients ( $\beta$ ) were reported for all analyses. The 95% confidence intervals ( $Cis$ , resulted from the bootstrapping resampling techniques,  $n = 2,000$ ) of the  $B$  estimates were used to test the hypothesized the indirect effect relationships. Goodness of fit for each model was assessed with a range of fit indices including the chi-square, the comparative fit index (CFI), and the Tucker-Lewis Index (TLI). A non-significant  $\chi^2$  and values greater than .90 for the CFI and TLI are considered to reflect acceptable model fit. Additionally, the root mean square error of approximation (RMSEA) was reported with a value less than .05 indicating close fit, and with values up to .08 indicating reasonable errors of approximation (Hu & Bentler, 1999).

## 2. Results

### 2.1. Bivariate correlations among study variables

Bivariate correlations are presented in Table 3. PTSD symptoms were correlated only with DSO and psychological IPV perpetration. DSO exhibited positive associations with psychological and physical IPV perpetration and psychological IPV victimization. As expected, psychological and physical IPV perpetration were strongly and significantly correlated with psychological and physical IPV victimization. Sexual IPV perpetration was significantly correlated with psychological IPV victimization and sexual IPV victimization was significantly correlated with psychological and physical IPV victimization.

**Table 3.** Correlations of PTSD, DSO, and IPV perpetration and victimization.

	M	SD	1	2	3	4	5	6	7
(1) PTSD	.82	.72							
(2) DSO	.98	.70	.57**						
(3) Physical violence perpetration	.74	.90	.03	.14*					
(4) Psychological violence perpetration	2.05	1.50	.13*	.34**	.49**				
(5) Sexually coercive IPV perpetration	.31	.50	.03	.11	-.01	.10			
(6) Physical violence victimization	1.18	1.56	.08	.05	.42**	.20**	.05		
(7) Psychological violence victimization	2.40	1.80	.12	.22**	.27**	.52**	.23**	.61**	
(8) Sexually coercive IPV victimization	.34	.84	.05	.01	.03	.01	.09	.24**	.25**

PTSD = posttraumatic stress disorder symptoms, IPV = intimate partner violence, \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

## 2.2. Cluster analysis results

The first cluster analysis indicated a four-cluster solution of childhood victimization: low exposure to abuse and physical neglect (C1,  $N = 105$ ), exposure to neglect and verbal abuse (C2,  $N = 38$ ), exposure to verbal and physical abuse without neglect (C3,  $N = 46$ ), and exposure to neglect and both verbal and physical abuse (C4,  $N = 28$ ). Clusters C2, C3, and C4 were identified as representing variations of polyvictimization based on having average scores for at least 50% (three of six) of the victimization variables that statistically significantly exceeded those of the low exposure cluster (see Figure 1). In a second cluster analysis, two other cluster sub-groups were identified: low exposure to traumatic events across the lifespan (cluster L5,  $N = 156$ ), and high exposure to traumatic events across the life span (cluster L6,  $N = 78$ ). Cluster L1 represents men with high lifetime cumulative trauma exposure (see Figure 2). A complementary analysis of cluster association with cluster items was performed, see Table 4. We applied a one-way univariate ANOVA to test differences between clusters on each cluster item. These resulted in clear cluster differences ( $p < .001$ ), which confirmed the use of these four clusters in our further analysis.

## 2.3. Multivariate SEM analyses

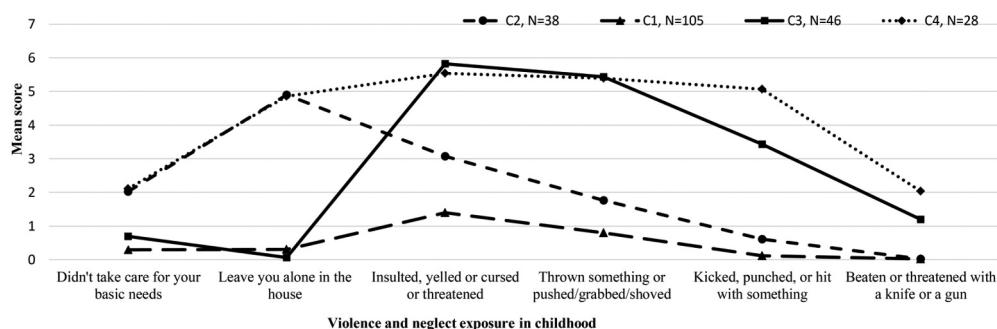
SEM analysis was used to study the indirect path from traumatic childhood events in the family and cumulative exposure to traumatic events in the life span clusters to IPV perpetration and victimization via PTSD and DSO. The SEM model included the six empirically defined clusters as observed independent variables as well as six observed dependent variables: physical, psychological and sexual IPV perpetration and victimization. The SEM model also included one latent variable representing the hypothesized indirect effect, which is comprised of a PTSD variable identified by three latent indicators (i.e. re-experiencing (Re), avoidance (Av), and threat (Th) symptom scores) and a DSO variable identified by three latent indicators (i.e. affective dysregulation (AD), negative self-concept (NSC), and disturbances in relationships (DR) symptom scores).

Six variables were treated as observed variables and two were latent: The model designated the low neglect and low exposure to abuse class (C1) as the reference group (coded 0) for three other victimization clusters: exposure to high neglect and verbal abuse (cluster C2), exposure to low neglect and high verbal and physical abuse (cluster C3), and exposure to high neglect and verbal and physical abuse (cluster C4). In addition, the model designated the low cumulative exposure to traumatic events class as the reference group (cluster L5, coded 0) as the reference group class for the high cumulative exposure to traumatic events in life span class (cluster L6).

Model fit indices showed that the data fit the model well,  $\chi^2 (147, N = 217) = 158.48, p = .24$ , RMSEA = 0.019 90% [.000, .038]; CFI = 0.989, TLI = 0.983. The results (see Figure 3) showed that the direct effect of class membership on IPV victimization and perpetration was significant only between lifetime trauma exposure and sexual IPV victimization. Class membership also was associated with PTSD symptom severity only for the neglect and verbal abuse cluster (C2). However, all three polyvictimization clusters were associated with DSO, and DSO had a significant direct effect on psychological and sexual IPV perpetration and psychological IPV victimization. The indirect association (see Table 5) showed between membership in polyvictimization clusters C3 and C4 and psychological IPV victimization via DSO symptoms was significant ( $\beta = .45, p < .05, b = .60, p < .05$ , respectively). The indirect association between polyvictimization cluster C3 membership and psychological IPV perpetration via DSO symptoms also was significant ( $\beta = .32, p < .05$ ). None of the paths from the cumulative lifetime trauma cluster (L6) via DSO showed an indirect effect on IPV, and PTSD symptoms did not have indirect effect of any association between polyvictimization or lifetime cumulative trauma exposure and IPV.

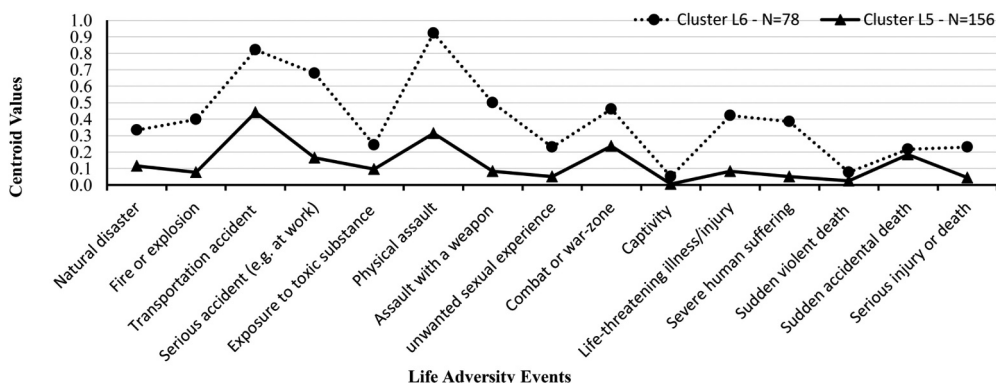
## 3. Discussion

Study findings, although based on cross-sectional retrospective data, provide an increasingly nuanced

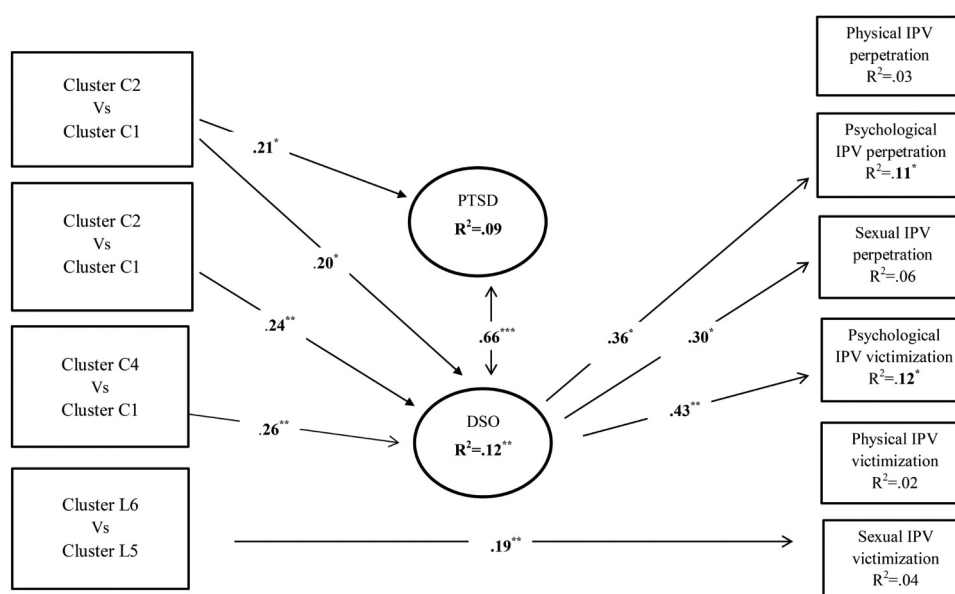


**Figure 1.** Four-cluster solution of childhood victimization.

Cluster C1=Low neglect and low violence, cluster C2= High neglect and high verbal violence, cluster C3=Low neglect and high verbal and physical violence, Cluster C4=High neglect and verbal and physical abuse.



**Figure 2.** Two-cluster solution of exposure to traumatic events across the lifespan. Cluster L5= low cumulative exposure to traumatic events cluster, Cluster L6= High cumulative exposure to traumatic events in life span class.



**Figure 3.** SEM model. Cluster C1=Low neglect and low violence, cluster C2= High neglect and high verbal violence, cluster C3=Low neglect and high verbal and physical violence, Cluster C4=High neglect and verbal and physical abuse, cluster L5= low cumulative exposure to traumatic events cluster L6= High cumulative exposure to traumatic events in life span class. PTSD=Posttraumatic stress symptoms, DSO= Disturbance in self organization. Standardized Mplus structural equation modelling results; CFI = 0.989, TLI = 0.983, RMSEA = 0.018 90% [.000,.033], The solid lines represent significant effects. Rectangles indicate measured variables, and circles indicate latent variables. \**p* <.05. \*\**p* <.01. \*\*\**p* <.001.

**Table 4.** Victimization cluster decomposition - cluster association with cluster items.

		Clusters of childhood victimization				F	η <sub>p</sub> <sup>2</sup>
		High Neglect and high verbal violence	Low neglect and low violence	Low neglect and high verbal and physical violence	high neglect and violence all		
Left alone at home without an adult care	Neglect2	38	105	46	28	367.32***	.84
Offended, shouted at, beaten, or Threatened	Abuse1	4.89 <sup>b</sup> (1.37)	0.30 <sup>a</sup> (0.82)	0.07 <sup>a</sup> (0.44)	4.86 <sup>b</sup> (1.27)	111.62***	.61
Pushed, slapped, pulled	Abuse2	3.08 <sup>b</sup> (2.07)	1.40 <sup>a</sup> (1.76)	5.83 <sup>c</sup> (0.53)	5.54 <sup>c</sup> (0.88)	230.71***	.77
Kicked, punched, or beaten	Abuse3	1.76 <sup>b</sup> (1.46)	0.80 <sup>a</sup> (1.20)	5.43 <sup>c</sup> (0.96)	5.39 <sup>c</sup> (0.96)	144.90***	.67
Threatened with a knife or a gun	Abuse4	0.61 <sup>a</sup> (1.15)	0.11 <sup>a</sup> (0.45)	3.43 <sup>b</sup> (2.41)	5.07 <sup>c</sup> (1.25)	20.48***	.22
		0.03 <sup>a</sup> (0.16)	0.02 <sup>a</sup> (0.14)	1.20 <sup>b</sup> (2.29)	2.04 <sup>b</sup> (2.59)		

\*\*\**p*<.001. Latin letters for sub-mean ranking, 'a' for the lowest and so on.



**Table 5.** Standardized Indirect Effects of Model Predictors on Psychological, Physical, and Sexual IPV Perpetration and Victimization in the Structural Model.

Pathways	B	SE	b	CI
Cluster 3 vs. Cluster 1 $\leq$ DSO $\leq$ psychological IPV perpetration	.32	.15	.08*	95% [0.062, 0.582]
Cluster 4 vs. Cluster 1 $\leq$ DSO $\leq$ psychological IPV perpetration	.42	.23	.09	95% [0.041, 0.817]
Cluster 3 vs. Cluster 1 $\leq$ DSO $\leq$ psychological IPV victimization	.45	.20	.10*	95% [0.113, 0.791]
Cluster 4 vs. Cluster 1 $\leq$ DSO $\leq$ psychological IPV victimization	.60	.29	.11*	95% [0.112, 1.093]

Unstandardized regression coefficients (B) and standardized regression coefficients (b) are reported. low-exposure to abuse and physical neglect (cluster 1), exposure to high neglect and verbal abuse (cluster 2), exposure to low neglect and high verbal and physical abuse (cluster 3), and exposure to high neglect and verbal and physical abuse (cluster 4). In addition, there were two more cluster solutions: low exposure to traumatic events in life span (cluster 5), and high exposure to traumatic events in life span (cluster 6). DSO= Disturbance in self organization symptoms. IPV = intimate partner violence, \* $p < .05$ .

understanding of the relationship between childhood victimization and lifetime trauma exposure with IPV perpetration and victimization in a high risk sample of men in treatment for perpetrating IPV. Disorders of Self Organization (DSO) symptoms appear to have a more prominent role than PTSD symptoms for these men, as sequelae of childhood victimization and indirect effects of childhood victimization on their psychological and sexual IPV perpetration and also their psychological IPV victimization. These findings are consistent with, and extend, research findings demonstrating an association between childhood exposure to interpersonal trauma in general, and intra-familial victimization more specifically, with subsequent affect and relational dysregulation and self-disorganization (D'Andrea, Ford, Stolbach, Spinazzola, & van der Kolk, 2012; Karatzias et al., 2017).

Specifically, DSO impairments may be associated with severe problems in intimate partner relationships including psychological IPV both as a victim and as a perpetrator and the perpetration of sexual IPV (Richards et al., 2017). The relationship of DSO with psychological IPV perpetration could reflect a tendency for DSO's emotional and relational dysregulation to spill over into psychological violence in intimate partner relationships in the form of emotional abuse and alternating relational volatility and disengagement (Taft et al., 2016). DSO's deficits in self coherence could lead to (or stem from) disorganized attachment working models that might further increase a male intimate partner's tendency to be psychologically coercive in an attempt to compensate for identity confusion and diffusion (Liotti, 2017). On the other hand, the DSO features could lead to vulnerability to being psychologically victimized by an intimate partner as a result of feeling unable to cope with emotional distress, relationally powerless, and having little or no self-worth. The physical vulnerability and harm conferred by physical IPV may develop in relationships in which one or both partners have a history of exposure to physical violence or maltreatment (Richards et al., 2016, 2017), but this appears to be more likely due to modelling of aggression in formative relationships than to maltreatment-related DSO.

The relationship between DSO and the perpetration of sexual IPV suggests that sexual violence by men in intimate partner relationships may be due in part to aspects of the person and the relationship that are not solely sexual. Sexual IPV perpetration can be understood as involving a power dynamic equally or even more than sexuality *per se* (Taft et al., 2016). For men who experience their own and their partners' emotions as overwhelming, damaging, or uncontrollable (i.e. the emotional and relational dysregulation components of DSO), and who feel inadequate or damaged as a person (i.e. DSO's self/identity disturbances), gaining a sense of control and power through sexual coercion or domination could lead to sexual IPV. Childhood victimization could play a role in sexual IPV perpetration, but the connection between DSO and sexual IPV perpetration appears to involve factors other than (or in addition to) the effects of childhood victimization in this sample of men. One possible explanation for how DSO might be related to sexual IPV perpetration independent of childhood polyvictimization is that DSO's relationship to psychological IPV victimization might lead indirectly to sexual IPV perpetration – given the significant correlation between sexual IPV perpetration and psychological IPV victimization. Thus, in some cases, DSO might be more immediately related to psychological IPV victimization than to childhood victimization, and this could lead to a victim-perpetrator dynamic in which the psychological IPV victim retaliates or attempts to restore a balance of power by perpetrating sexual IPV.

Another complex path to sexual IPV is suggested by study findings of a direct relationship between *lifetime* trauma exposure (rather than childhood victimization alone) and sexual IPV victimization. That finding stands out in contrast to the absence of any association between both lifetime trauma exposure and sexual IPV victimization with any other variables in this dataset. From a *lifetime* (rather than only childhood) polyvictimization perspective, this finding suggests vulnerability to sexual victimization by men who have extensive lifetime exposure to multiple forms of traumatic stressors and victimization. The men in this sample also were

identified as IPV perpetrators, so the possibility that a sub-group may also be at risk for sexual IPV victimization suggests that assessment of male IPV perpetrators should identify those who are lifetime polyvictims and give special attention to their possible vulnerability to sexual IPV victimization (Buller, Devries, Howard, & Bacchus, 2014; Kuijpers, van der Knaap, & Lodewijks, 2011; Neal & Edwards, 2017).

The most consistent indirect relationships were found for men who reported high levels of exposure to physical and verbal abuse in childhood, with or without additional exposure to high levels of neglect. This corresponds to empirically supported theoretical models of polyvictimization in childhood (Charak, Ford, Modrowski, & Kerig, 2018; Turner et al., 2016) and specifically intrafamilial polyvictimization (Chan, 2015). The indirect effects were specific to psychological IPV, suggesting that childhood victimization and subsequent DSO may be of particular concern for psychological violence by male IPV perpetrators, especially when they are psychologically victimized as well. This victim-perpetrator combination thus may be understood as a form of multiple re-victimization in which childhood polyvictimization leads to affective, relational, and self dysregulation (i.e. DSO), which in turn leads to emotional and behavioural disturbance in intimate partner relationships that can culminate in the infliction of and submission to psychological harm.

The absence of a relationship between PTSD symptoms and both childhood family victimization or lifetime trauma exposure, as well as with any of the IPV sequelae, suggests that DSO may play a greater role than PTSD in both the psychosocial impairments experienced by male IPV perpetrators and in their IPV perpetration and victimization. However, the clear linkage between childhood victimization and DSO suggests that DSO's psychosocial impairments nevertheless are trauma-related – and specifically associated with polyvictimization in childhood family contexts – and not endogenous (e.g. personality disorders) (Hyland, Karatzias, Shevlin, & Cloitre, 2019). Therefore, in addition to intervening to reduce established risk factors for IPV (e.g. anger dysregulation, impulsivity, hostile relational attributions, substance-related disinhibition) it may be important to assess and provide educational and therapeutic interventions for male IPV perpetrators to address trauma-related coping patterns (e.g. reactive aggression, isolation, externalizing blame) and dysregulation of emotions, interpersonal security and communication, and sense of self, consistent with evidence-informed therapy for complex PTSD/DSO (Ford & Courtois, 2020).

Limitations of the study include the reliance on self-report for all variables Taft et al. (2016), which may have led to either over-reporting or under-reporting in the context of mandated involvement in treatment for IPV perpetration (Heckert & Gondolf, 2000). The sample

was limited to men mandated to receive treatment for IPV perpetration, which may not be representative of all male IPV perpetrators and cannot be generalized to other men or women who are perpetrators (nor victims) of IPV. Polyvictimization was assessed only in terms of direct intra-familial childhood victimization, whereas other studies often include an assessment of victimization in other contexts (e.g. in the community or schools) and witnessed victimization (e.g. impaired parent/caregivers). The indirect relationship paths were based on cross-sectional retrospective data and thus require validation with longitudinal prospective data in order to determine chronological and predictive relationships with certainty. Finally, the absence of a relationship between childhood victimization or DSO with sexual IPV victimization may be an artefact of reluctance by the men in this sample to report sexual victimization, although there was sufficient variance in the reporting of sexual IPV victimization to show a significant relationship between it and cumulative lifetime trauma exposure.

Despite these limitations, study findings suggest that childhood polyvictimization within the family may be associated with both psychological and sexual – but not physical – IPV perpetration among men who are identified as in need of treatment for IPV perpetration. Moreover, polyvictimization may have a profound and lasting adverse effect on these men's ability to regulate emotions, engage in relationships, and have a realistic and positive sense of self, and these disturbances of self-organization may play a role in their tendency to perpetrate psychological and sexual IPV. In addition, although PTSD symptoms did not appear to be associated with polyvictimization or IPV perpetration, when these men had high levels of cumulative lifetime trauma exposure they were at risk as victims of sexual IPV. Thus, both polyvictimization and cumulative lifetime trauma exposure warrant careful attention, along with interventions for DSO, with men who are identified as IPV perpetrators.

## Disclosure statement

The first author declares that he has no conflicts of interest. Julian Ford is a consultant to Advanced Trauma Solutions Professionals, Inc., the sole licensee by the University of Connecticut for the distribution of the TARGET® therapeutic intervention.

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