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Lifetime interpersonal victimization profiles and mental health problems in a nationally representative panel of trauma-exposed adults from the United Kingdom

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Abstract

Exposure to traumatic events has been associated with negative psychological outcomes. There is, however, a dearth of research on revictimization (i.e., experiences of victimization during both childhood and adulthood). The current study examined different patterns of *lifetime* interpersonal victimization based on six types of childhood maltreatment, physical and sexual assault, and assault with a weapon during adulthood via latent class analysis (LCA) with gender as covariate. Using a 3-step approach the study assessed differences across the latent classes in symptoms and diagnosis of depression, anxiety, and DSM-5 posttraumatic stress disorder. An adult sample representative of the United Kingdom population with exposure to trauma ($N = 1,051$) was recruited online through a research panel. Mean age of the sample was 47.18 years ($SD = 15.00$, range = 18-90 years; 68.4% female). LCA identified five classes, namely, lifetime polyvictimization (8.3%; 69.5% female), sexual revictimization (13.7%; 96.5% female), physical revictimization (12.5%; 1.5% male), childhood trauma (25.9%; 85.6% female), and limited victimization (39.7%; 40.3% female). The revictimization class had elevated scores in anxiety, depression, and posttraumatic stress symptoms, followed by the childhood trauma class compared to the other classes. The polyvictimization class had nearly a 9 to 33-fold increase in risk of a diagnosis of depression, anxiety and PTSD, compared to the limited victimization class. Findings facilitate the identification of individuals at risk for revictimization and indicate that evidence-based clinical interventions should be targeted towards those with exposure to revictimization and childhood trauma to alleviate symptoms of posttraumatic stress, depression, and anxiety.

Keywords. childhood adversities; revictimization; depression, anxiety, posttraumatic stress disorder; Latent class analysis; United Kingdom

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Interpersonal victimization, defined as violence perpetrated by another person on an individual, is pervasive across developmental periods (e.g., childhood, adulthood) and includes forms such as childhood abuse and neglect and adult sexual and physical assault (Charak, Ford, Modrowski, & Kerig, 2019; Lagdon, Armour, & Stringer, 2014; Rivera, Fincham, & Bray, 2018). Exposure to lifetime interpersonal victimization can result in a myriad of negative psychological consequences, such as posttraumatic stress disorder (PTSD), personality pathology, depression, anxiety, and suicidal behavior (Ford, Charak, Modrowski, & Kerig, 2018; McElroy et al., 2016). Prior studies have indicated a robust association between experiences of childhood maltreatment and adolescent and/or adulthood victimization where exposure to childhood maltreatment increases the risk of victimization during the succeeding developmental stages (i.e., adolescence and adulthood) -- a phenomenon referred to as revictimization (Charak, DiLillo, Messman-Moore, & Gratz, 2019; Messman-Moore & Long, 2003). However, most of the studies examining patterns of lifetime interpersonal victimization and revictimization are from North America (Houston, Shevlin, Adamson, & Murphy, 2011). Thus, in order to develop effective, generalizable preventative and intervention strategies, there is a need to examine the impact of lifetime victimization in other regions of the world. With this in mind, the present study aimed to investigate patterns of child- and adulthood interpersonal victimization, and their association with psychological problems in a nationally representative panel of trauma-exposed adults from the United Kingdom.

A popular theory that aids in our understanding of the phenomenon of revictimization is the Traumagenic Dynamics model (Finkelhor & Browne, 1985). In particular, the model suggests that the negative outcomes of childhood sexual abuse (CSA), such as traumatic sexualization (e.g., rewarding a child for sexual activity) may be associated with an increase in

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risky sexual behavior, and experiencing powerlessness may lead to impaired coping strategies, that in turn can lead to revictimization. Based on the Traumagenic Dynamics model, Messman-Moore and Long (2003) suggested that the risk for revictimization is increased among CSA survivors as a result of two mechanisms (i) engaging in higher rates of risky behavior (e.g., risky sexual activity), and (ii) psychological vulnerability as a result of traumatic stress symptoms, including domains of PTSD, dissociation, depression, and other impairments. In support, longitudinal studies indicate that symptoms of depression mediate the association between CSA and sexual assault during adulthood (Culatta, Clay-Warner, Boyle, & Oshri, 2017; Miron & Orcutt, 2014), as do anxiety and posttraumatic stress symptoms (Ullman, Najdowski, & Filipas, 2009).

A second theoretical framework that informs the psychological sequelae of revictimization is the cumulative trauma theory. It postulates that as exposure to different types of trauma and victimization increases (e.g., revictimization), these experiences accumulate to exert an additive and detrimental effect on mental health problems. For example, in a community sample of men it was found that those with revictimization experiences exhibited greater anger and higher alcohol-and drug use, compared with those identified as being victimized in only a single developmental stage (e.g., childhood maltreatment; Charak et al., 2019b). Together the above two theoretical frameworks suggest that psychological vulnerabilities, such as symptoms of depression, anxiety, and posttraumatic stress as a result of childhood trauma, can lead to sexual revictimization experiences, which in turn can result in elevated symptoms of mental health problems (Filipas & Ullman, 2006; Kimerling et al., 2007; Walsh et al., 2012).

It is additionally relevant that the literature on revictimization mostly focuses on the homotypic continuity between CSA and adult sexual assault (e.g., Charak et al., 2019a; Messman-Moore & Long, 2003) despite demonstration of heterotypic continuity (wherein CSA is associated with adult physical and sexual assault; Kimerling et al., 2007). For instance, a

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population-based study of 11,056 women from the United States indicated that exposure to childhood sexual abuse lead to adult physical and sexual assault, although the association with adult sexual assault was significantly stronger than the association with adult physical assault. Notably these studies examined the role of one specific child maltreatment type (e.g., CSA) despite a plethora of work indicating that different types of childhood maltreatment often co-occur and have a cumulative negative effect on the survivor's mental health, including depression, posttraumatic stress symptoms, anxiety, and suicidal behavior (Charak, Koot, Dvorak, Elklit, & Elhai, 2015; Charak et al., 2016; McLafferty et al., 2015; Rivera et al., 2018).

Additional research has demonstrated that exposure to multiple types of childhood maltreatment increases the risk for revictimization during adulthood (Charak, Eshelman, & Messman-Moore, 2019; Classen, Paresh, & Aggarwal, 2005; Widom, Czaja, & Dutton, 2008). For example, in a large sample of college-going women, it was found that those with exposure to two or more types of childhood maltreatment types were three-times more likely to be sexually revictimized (Jankowski, Leitenberg, Henning, & Coffey, 2002). However, no study to date has simultaneously examined patterns of lifetime victimization based on exposure to diverse childhood maltreatment types and different types of adulthood victimization, and their differential effect on psychological problems. The present study aimed to bridge this gap in the literature to facilitate the development of effective procedures for responding to reports of (re)victimization and related psychological sequelae.

The past decade has witnessed a surge in literature using advanced statistical analysis, such as latent class analysis (LCA), to examine the cumulative effect of exposure to multiple types of victimization (e.g., Armour & Sleath, 2014; Charak & Koot, 2015). LCA is a person-centered statistical approach (Nylund, Asparouhov, & Muthén, 2007), focusing on identification of subgroups of individuals with similar victimization profile. Separately, researchers have recommended the use of LCA when investigating co-occurring types of child maltreatment

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(Rivera et al., 2018) and different characteristics of victimization or types of interpersonal victimization occurring in adults (Charak et al., 2019a). LCA is of further applicability here given that additional studies have indicated differences in the distribution of men and women across latent classes of childhood maltreatment and trauma (Ballard et al., 2015; Charak et al., 2019a) with national surveys suggesting differences in prevalence of interpersonal victimization among men and women (Black et al., 2010). For instance, based on nine types of childhood traumatic experiences, three latent classes were found wherein the class characterized by sexual assault comprised primarily of female participants, the class with violence exposure comprised primarily of male participants, and the low childhood trauma class had equal distribution of male and female participants (Ballard et al., 2015). Similarly, the National Intimate Partner and Sexual Violence Survey from the United States, indicated that women report higher rates of sexual and physical victimization (Black et al., 2010).

Furthermore, studies using LCA have indicated heterogeneity in patterns of exposure to childhood maltreatment and interpersonal victimization during adulthood (see Contractor, Caldas, Fletcher, Shea, & Armour, 2018; O'Donnell et al., 2017). Notably, a majority of the study samples were limited to women except for the study by Houston et al. (2011) where four latent classes were identified from lifetime traumatic experiences. These were labelled high risk, exposure to non-sexual adult interpersonal/non-interpersonal trauma, intermediate risk/sexual abuse, and low risk class, in a nationally representative sample of adults from the United States. Furthermore, they found that male participants were more likely to be in the class with exposure to non-sexual adult interpersonal/non-interpersonal trauma, and female participants were more likely to be in the intermediate risk/sexual abuse class (Houston et al., 2011). Cognizant of gender differences in exposure to lifetime victimization, in the present study the effect of gender was additionally controlled for when examining patterns of victimization across the lifespan.

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The current study thus employed LCA to identify patterns of lifetime victimization in a nationally representative panel of trauma-exposed adults from the United Kingdom. Based on prior studies (Messman-Moore & Long, 2003; O'Donnell et al., 2017; Widom et al., 2008), it was hypothesized that there would be varying patterns/latent classes of lifetime interpersonal victimization with at least one class with exposure to interpersonal victimization during the developmental stages of childhood and adulthood—revictimization class—after controlling for the effect of gender (Hypothesis 1). Drawing from the psychological vulnerability hypothesis of the Traumagenic Dynamics model and in accordance with the cumulative trauma framework, it was additionally hypothesized that latent classes characterized by revictimization experiences would score greater on symptoms of depression, anxiety, and posttraumatic stress, compared to other classes with victimization experiences in a single developmental phase or with minimal victimization across the lifespan (Hypothesis 2).

Method

Participants and Procedure

An adult sample of the United Kingdom (UK) population was drawn from an existing online research panel representative of the entire UK adult population. An aggregated panel of respondents whose GEO-IP address was based in the UK were randomly recruited through probability-based sampling in order to recruit approximately 1,000 participants. Invitations were sent out in waves and the take-up rate was monitored in the field. Respondents then went through pre-screening criteria check where they were asked about their age and gender. This was done to gain a nationally representative sample based on two inclusion criteria: (a) the participant was born in the UK and (b) the participant was 18 years or older at the time of the survey. If these criteria were met a third inclusion criterion, screening positive for at least one traumatic event in their lifetime, was applied using the Life Events Checklist (LEC; Weathers et al., 2013a). Participants who endorsed any item on the LEC then completed the remaining battery of

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measures in the survey. In total 2,653 panel members were contacted, and 1,051 people qualified for inclusion in the final analyses (selection rate = 39.6%). The National College of Ireland granted the ethical approval for the present study. No incentives were offered for participation. Informed consent was taken starting the survey.

The mean age of the sample was 47.18 years ($SD = 15.00$; range = 18-90 years), and 68.4% ($n = 719$) of participants were female. The majority of individuals indicated that they were “in a committed relationship” (70.4%; $n = 740$), did not have children under the age of 16 years (67.5%; $n = 709$), had completed a college or university education (62.7%; $n = 659$), and were in full or part time employment (58.5%; $n = 615$). A number of participants indicated that they had emigrated at some point in their lifetime (17.8%; $n = 187$).

Measures

Interpersonal victimization. Participants were asked to provide information on childhood and adulthood victimization using the Adverse Childhood Experiences questionnaire (ACE) and a modified version of the Life-Events Checklist (LEC-5). The ACE is a 10-item self-report measure of three types of childhood adversity, namely, abuse, neglect, and household dysfunction (Felitti et al., 1998). The modified LEC-5 is a 17-item, self-report screening tool for lifetime exposure to 16 potentially traumatizing events plus one open-ended question for respondents to indicate any other traumatic event not listed (Weathers et al., 2013a). The modified version asked participants to respond ‘Yes’ or ‘No’ to each item to indicate if it “Happened in childhood (before age 18)” or “Happened in Adulthood (at or after age 18).” Six types of childhood trauma were assessed using items from both the ACE and LEC. The ACE was used to assess neglect (2 items: no one loved me/made me feel special; didn’t have enough to eat/had to wear dirty clothes/no one to protect me), emotional abuse (1 item: parent swear/insult/humiliate you/afraid that you may be physically hurt) and witnessing interpersonal violence (1 item: kick/bite/hit each other/threaten with a weapon), and the LEC was used to

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assess sexual victimization (2 items: rape/attempted rape/sexual acts through force or threat to harm, other unwanted/uncomfortable sexual experience), physical assault (1 item: being attacked/hit/slapped/kicked) and assault with a weapon (1 item; being shot/stabbed/threatened with weapon) before the age of 18. Three types of adult victimization were assessed using the LEC: exposure to sexual victimization (2 items), physical assault (1 item) and assault with a weapon (1 item) after the age of 18. All variables were dichotomized with a type of victimization regarded as present if respondents endorsed a minimum of 1 item within the category.

Depression. The Patient Health Questionnaire-9 (PHQ-9, Kroenke, Spitzer, & Williams, 2001) was used to assess symptoms of depression. The PHQ-9 is a 9-item self-report measure scored on a 4-point Likert scale ('Not at all' (0) to 'nearly every day' (3)) developed as part of the Primary Care Evaluation of Mental Health Disorders (PRIME-MD) initiative to diagnose depression in primary health care settings. Higher scores indicate higher severity with a cut-off of 10 indicating moderate levels of depressive symptomatology. The total scores range from 0 to 27. The internal reliability of the scale in prior studies was found to be high (Cronbach's $\alpha = 0.89$; Kroenke et al., 2001) and was similarly high in the current study ($\alpha = .94$).

Anxiety. The Generalized Anxiety Disorder-7 (GAD-7, Spitzer, Kroenke, Williams, & Löwe, 2006) was used to assess symptoms of generalized anxiety and was developed as part of the PRIME-MD initiative to diagnose anxiety in a primary health care setting. The GAD-7 is a 7-item self-report measure scored the same way as the PHQ-9. Higher total scores indicate higher severity of anxiety with a cut-off score of 10 and 15 indicating moderate and severe levels of anxiety respectively. The total scores on the GAD-7 range from 0 to 21. Internal reliability of the scale in prior studies was found to be high (Cronbach's $\alpha = .92$; Spitzer et al., 2006) and was maintained in the current study ($\alpha = .95$).

Posttraumatic stress disorder. The PTSD-Checklist for DSM-5-Civilian Version (PCL-5, Weathers et al., 2013b) was used to assess symptoms of post-traumatic stress disorder

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associated with the worst trauma from the LEC-5. The PCL-5 is a 20-item, self-report measure scored on a 5-point Likert-scale (0-4). A total score above 33 points indicates probable PTSD. The PCL-5 has demonstrated acceptable reliability and validity in previous studies (see Bovin et al., 2016). In the current sample, the reliability of the total scale ($\alpha = .97$) and the subscales, namely, re-experiencing ($\alpha = .94$), avoidance ($\alpha = .91$), negative alterations in cognition and mood (NACM, $\alpha = .94$) and arousal ($\alpha = .91$) were high. In the present study, the total score of the PCL-5 was used.

Data Analysis

Analyses were conducted in three linked phases. First, a multivariate logistic regression was specified and estimated with binary variables representing probable diagnostic status for anxiety, depression, and PTSD as dependent variables, and age, gender, and total number of trauma types in childhood and in adulthood as predictors. Second, a latent class analysis (LCA) including gender as a covariate was conducted to determine the number of classes of victimization. LCA is a statistical method used to identify homogeneous groups or classes from categorical multivariate data. It is used to assess and summarize unobservable patterns in data that influence the relation between predictor and criterion-variables beyond observable quantitative variation. This is done by estimating a number of latent classes of respondents (1-6) that differ qualitatively in their response-patterns on predictor-variables. In the present study, LCA was employed to determine the number and nature of patterns in response to the nine victimization variables. The fit of six models (1-class through 6-class model) was assessed. The models were estimated using robust maximum likelihood (MLR; Yuan & Bentler, 1997). The relative fit of the models was compared by using three information theory-based fit statistics, namely, the Akaike Information Criterion (AIC), the Bayesian Information Criterion (BIC) and the sample size-adjusted Bayesian Information Criterion (ssaBIC; Nylund et al., 2007). The model that produces the lowest values can be judged as the best model provided that classes are

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meaningful and interpretable. In addition, the Lo-Mendell-Rubin adjusted likelihood ratio test (LRT) was used to compare models with increasing numbers of latent classes. When a non-significant value ($p > 0.05$) occurs, this suggests that the model might not fit the data better than the previous model. The entropy of the latent class models was examined with values closer to 1 suggestive of better group classification (Nylund et al., 2007).

Finally, using the three-step latent class approach, the relation between class membership and total scores on symptoms of anxiety, depression, and posttraumatic stress was computed using the DE3STEP command (Asparouhov & Muthén, 2014). This approach estimates the relation between class-membership and outcomes while taking into account the imperfection of classification as indicated by the entropy-values. The DE3STEP procedure is analogous to a multivariate ANOVA where class-membership is the independent variable and total scores are the dependent variables. A logistic regression analysis was also conducted using the AUXILIARY command to determine the likelihood of a probable diagnosis of PTSD, anxiety, and depression based on class-membership using the auxiliary DCAT command. All analyses were conducted using *Mplus* 8.1, and there were no missing data. A Kolmogorov-Smirnoff test indicated that data were nonnormally distributed on all outcome variables (Depression: $D(1,051) = 0.147, p < .001$, Anxiety: $D(1,051) = 0.161, p < .001$, PTSD: $D(1,051) = 0.175, p < .001$) followed by a visual examination of data that indicated that data were right-skewed. Robust maximum likelihood estimation produces correct point estimates, standard errors, and test statistics under conditions of non-normality (Finney & DiStefano, 2006).

Results

The frequencies of victimization experiences are presented in Table 1.

Approximately two-thirds of the male (68.7%) and 73.4% of the female participants had experienced at least one interpersonal trauma throughout life. The most frequently reported childhood trauma was neglect, and the most frequently reported adulthood trauma was physical

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assault. Female participants were significantly more likely to report neglect and sexual abuse in childhood, and male participants were significantly more likely to report assault with weapon in childhood. In adulthood, male participants were significantly more likely to report physical assault and assault with weapon, and female participants were significantly more likely to report sexual assault. Mean score (standard deviation) on PTSD, anxiety, and depression for the total sample were 19.02 (20.31), 13.41 (6.47), and 17.02 (7.65), respectively. Table 2 displays the results from the multivariate logistic regression predicting probable diagnostic status on anxiety, depression, and PTSD predicted by age, gender and total number of traumas across childhood and adulthood. Younger age and higher levels of childhood and adult trauma exposure were all significantly associated with an increased risk of PTSD, anxiety, and depression. Being female participants was associated with an increased risk of depression.

The fit statistics for the LCA are presented in Table 3. Simulation studies suggest that the BIC is the best indicator of goodness-of-fit, signifying that model 5 had the best fit for the data in the current study (Nylund et al., 2007). The LRT-statistics and ssaBIC indicated that the six-class solution was statistically superior to the five-class solution, but upon inspection of the 6-class solution, the additional class resembled the pattern observed in an existing class and differed only quantitatively in probability of endorsing the individual trauma-types, therefore not satisfying the criterion of qualitative difference (Debowska, Willmott, Boduszek & Jones, 2017). Taken together, the five-class solution was judged as the best fitting model. The average posterior probabilities ranged from .769 (class 3) to .892 (class 1). The profile plot and probabilities for the five-class solution are shown in Figure 1.

Class 1 ($n = 87$, 8.3%) was characterized by the highest probabilities of all victimization-types both during childhood and adulthood, apart from emotional abuse in childhood. This class encompassed 69.5% women ($n = 57$) with a mean age of 41.3 years ($SD = 13.6$) and was labelled 'lifetime polyvictimization' (POL). Class 2 ($n = 144$, 13.7%) was characterized by elevated

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reports of sexual assault in both child and adulthood. It had 96.5% ($n = 139$) women with a mean age of 44.6 years ($SD = 13.9$), and the class was labelled 'sexual revictimization' (SV). Class 3 ($n = 131$, 12.5%) was characterized by elevated reports of physical assault in both child and adulthood and was labelled 'physical revictimization' (PV). It comprised primarily of men ($n = 129$, 98.5%) with a mean age of 42.8 years ($SD = 13.8$). Class 4 ($n = 272$, 25.9%) was characterized by elevated probabilities of emotional abuse, neglect, physical, and sexual abuse in childhood compared to the other classes except for class 1. This class encompassed 85.6% women ($n = 230$) with a mean age of 42.8 years ($SD = 13.8$) and was labelled 'childhood trauma' (CT). Class 5 ($n = 417$, 39.7%) was the largest class and was characterized by lowest probabilities of any form of victimization. This class had 40.3% women ($n = 290$) with a mean age of 50.4 years ($SD = 15.5$) and was labelled 'limited victimization' (LV). Male and female participants were equally represented in the LV ($\chi^2(1) = 0.33, p = .57$) and POL class ($\chi^2(1) = 0.24, p = .627$), whereas there were significantly more males in the PV class ($\chi^2(1) = 59.54, p < .001$), and significantly more female participants in the SV ($\chi^2(1) = 299.28, p < .001$) and CT ($\chi^2(1) = 43.28, p < .001$). There was a significant difference between average age of the observed groups with a one-way ANOVA using a Welch-correction identifying two homogenous subsets consisting of groups LV and PV; and POL, SV and CT, respectively ($F_{Welch}(4, 342.5) = 22.12, p < .01$).

Table 4 shows the mean scores and standard deviations for depression, anxiety, and PTSD in each victimization class. Overall, the LV class reported the lowest severity of all clinical outcomes. Furthermore, participants in the LV class differed significantly from all other groups in their reporting of symptoms, apart from the PV class on measures of depression. The POL class and CT class reported the highest and second-highest mean-scores, respectively, on all clinical measures and differed significantly from all other latent classes including each other. The mean-scores reported by participants in the PV and SV class did not differ significantly from

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each other on depression, but the SV class reported significantly higher scores on anxiety and posttraumatic stress disorder than the PV class.

Finally, Table 4 also displays the results of the auxiliary logistic regression testing the relation between class-membership and probable diagnostic status. Overall, 24.6% of the participants meet criteria for probable PTSD using a cut-off score of 33 on the PCL-5 as recommended by Weathers et al (2013a), 81.4% met the criteria for depression, and 61.1% met the criteria for anxiety using cut-off scores of 10 as per existing recommendations (Kroenke, Spitzer, & Williams, 2001; Spitzer, Kroenke, Williams, & Löwe, 2006). The LV class was used as a reference class for comparison. Overall, the results from Table 4 were replicated in that the LV class had the lowest percentage of participants endorsing a probable diagnosis of any disorder and differed significantly from all other classes. Likewise, the POL class reported the highest risk of endorsing any disorder and differed significantly from all other classes. Notably, the CT class reported the second highest risk for endorsing any diagnosis and differed significantly from all other classes on PTSD, from all other classes apart from the SV class on anxiety, and only from the LV-class on depression. Any differences in odds-ratios for the PV and SV classes were statistically not significant.

Discussion

The present study aimed to examine patterns of lifetime interpersonal victimization based on exposure to childhood interpersonal trauma, and physical and sexual victimization, and assault with a weapon during adulthood in a nationally representative panel of trauma-exposed adults from the United Kingdom. Furthermore, the current study examined whether individuals with different patterns of victimization differ in symptoms of anxiety, depression, and posttraumatic stress. Findings supported Hypothesis 1 as three revictimization classes—POL, PV, and SV—emerged based on the exposure to (multiple) victimization types across the developmental stages of childhood and adulthood (Charak et al., 2019a; Miron & Orcutt, 2014).

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Additionally, there was a class with predominant exposure to childhood interpersonal trauma and another with low victimization (LV). Findings also indicated that male participants were more likely to be in the physical revictimization class and female participants were more likely to be in the sexual revictimization and childhood trauma classes. In line with the Traumagenic Dynamics model and the cumulative trauma framework, it was found that symptoms of anxiety, depression, and posttraumatic stress were greater among those exposed to lifetime revictimization (POL class) with multiple types of victimization (physical and sexual) during childhood and adulthood. Notably, the other two revictimization classes that demonstrated higher probabilities of homotypic continuity of victimization—SV and PV—scored lower on anxiety, depression, and posttraumatic stress symptoms, compared to the CT class (partial support for Hypothesis 2). Overall, all latent classes with substantial victimization experiences—POL, CT, PV and SV—had higher scores on anxiety, depression, and posttraumatic stress symptoms compared to the limited victimization class.

The present finding of a POL class comprising multiple types of childhood maltreatment histories and adulthood physical and sexual victimization is consistent with the literature that indicates that exposure to more types of childhood traumatic experiences increases the likelihood of adulthood revictimization (Charak et al., 2019b; Classen et al., 2005; Widom et al., 2008). The presence of SV and PV classes attests the presence of homotypic continuity of childhood sexual abuse and childhood physical abuse into adulthood sexual revictimization and physical revictimization, respectively. While prior studies have demonstrated these findings, they have done so when examining the effect of childhood maltreatment types separately (rather than simultaneously as done here) for physical and sexual revictimization (Kimerling et al., 2007; Widom et al., 2008). The present findings suggest that even within revictimization experiences there are different patterns ranging from homotypic continuity to higher probabilities of type-specific revictimization (i.e., CSA into adulthood sexual assault; childhood physical abuse into

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adulthood physical assault), to exposure to multiple childhood interpersonal trauma along with an increased probability of exposure to different types of adulthood interpersonal trauma.

The CT class had higher probabilities of childhood interpersonal trauma types than the PV and SV class, while the latter two had higher probabilities of adult physical and sexual assault, respectively, compared to the CT class. This finding is in line with two recent systematic review studies examining latent classes of lifetime traumatic events that indicated the presence of specific trauma classes of revictimization, and latent classes with exposure to childhood trauma (Contractor et al., 2018; O'Donnell et al., 2017). Additionally, a class with low probabilities of exposure to victimization was also found; however, a separate class comprising mainly of adulthood assault did not arise. The latter finding stands in contrast to previous literature that suggest the presence of experiences of sexual revictimization, childhood trauma, and adulthood assault among those with exposure to victimization across developmental stages (Charak et al., 2019a; Walsh et al., 2012). Replication of current findings is warranted and future studies focusing on samples from the United Kingdom should continue to explore classes of lifetime interpersonal victimization.

Findings also demonstrated that the POL class was higher on symptoms and probable diagnosis of mental health problems, namely, depression, anxiety, and posttraumatic stress than the other four classes. These findings support prior studies, which indicate that those with revictimization experiences (Classen et al., 2005; Walsh et al., 2012) report greater psychological problems. However, it was the CT class with exposure to predominantly childhood trauma types that emerged as the next at-risk class for mental health problems compared to the two-revictimization classes of PV and SV, and the LV class. Taken together, these findings suggest that early experiences of interpersonal trauma may disrupt the development of adaptive coping strategies (Cicchetti, Ganiban, & Barnett, 1991), thus increasing the risk of mental health problems in adulthood.

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The SV class was higher than the PV class on symptoms of anxiety and posttraumatic stress. This adds to the extant literature suggestive of sexual revictimization experiences leading to psychological sequelae of higher intensities. While it may as well be that exposure to childhood sexual abuse (a precursor for revictimization) more likely elicits feelings of betrayal and mistrust of others at a younger age, which can exacerbate mental health problems (Gobin & Freyd, 2009), it is important to be mindful that severity of abuse/assault—nature of the act, number of perpetrators, age of onset—also play an important role in determining mental health problems (Charak et al., 2019a). Future studies should take into account the various characteristics that increase the severity of abuse/assault during childhood and adulthood.

The present findings also indicated a higher likelihood of receiving a PTSD diagnosis for participants in the POL class followed by the CT, and SV/PV classes. Notably, the LV class had 8.9% respondents with PTSD that is similar to the 8.3% reported by a national sample of U.S. adults (Kilpatrick et al., 2013). A diagnosis of PTSD was slightly higher in the SV class compared to the PV class (20.8% vs. 17.6%), although these findings were not significantly different. The current findings add to the literature that primarily focuses on sexual revictimization in women, and states that it is exposure to multiple types of victimization across childhood and adulthood (POL) that is associated with greater posttraumatic stress symptoms. Whether the higher scores on depression, anxiety and posttraumatic stress are a long-term consequence of childhood maltreatment and subsequently a risk factor for revictimization (i.e., psychological vulnerabilities model; Culatta et al., 2017), or are a sequelae of revictimization (i.e., cumulative trauma model; O'Donnell et al., 2017), or both can only be answered with the help of longitudinal research that can parse out the risk factors from the consequences.

The present findings should be interpreted with the following limitations in mind. First, the present study relied on self-reports to measure interpersonal victimization and related outcomes that can lead to response bias as a result of one's ability to accurately recall the

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incident and/or willingness to report experiences. Notably, prior studies suggest that when behaviorally specific questions are used to assess victimization (as done in the present study), the accuracy of reporting increases (Fricker, Smith, Davis, & Hanson, 2003). Additionally, some variables measuring interpersonal trauma type (e.g., physical assault) were assessed using a single item and this may have underestimated the prevalence of that trauma type. Second, data were collected through an online forum and pertains to individuals currently residing in the U.K. with exposure to lifetime traumatic event. This may limit the generalization of findings to other samples. On the other hand, the use of online data collection forums may increase the likelihood of reporting sensitive information in the absence of an interviewer (Tourangeau & Smith, 1996) for the sample under study. Third, the cross-sectional design limits conclusions regarding the temporal relation among variables gauging revictimization and symptoms of depression, anxiety, and posttraumatic stress. Fourth, LCA is a data driven analysis and hence has limited generalizations. Fifth, the present study did not examine the different patterns of victimization across gender and age, as the rates of certain types of victimization were very low for both female and male participants (e.g., assault with a weapon; 4.2% vs. 8.7%) and across age. In such cases, the application of mixture models becomes difficult as the expectation is to find more than one class, and simulation studies suggest that latent classes with less than 5% of the sample cause problems with model convergence (Nylund et al., 2007). Nonetheless, future studies should attempt to investigate the different patterns of victimization across gender and age or developmental stages. Sixth, the present study did not take into consideration other characteristics of childhood or adulthood assault, such as, age of onset (Kaplow & Widom, 2007), and nature of the acts (Charak et al., 2019a) that have important implications in terms of the psychological consequences associated with victimization across the lifespan. This is important as previous research has identified that there are many different forms of sexual abuse that can co-occur (Shevlin, Murphy, Elklit, Murphy, & Hyland, 2018) and have complex

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associations with adult psychopathology (McElroy et al., 2016). Finally, no information on race or ethnicity was collected.

Nonetheless, the present findings add to the extant literature by going beyond the assessment of sexual revictimization and finding patterns of victimization reflective of latent classes of revictimization, childhood trauma, and limited exposure to victimization in a large sample of trauma-exposed individuals from United Kingdom. While all forms of abuse and assault can be potentially harmful, recognizing the heterogeneity in victimization experiences (in childhood and adulthood) may inform clinical interventions, as different types of victimization may be differentially associated with negative outcomes. For example, those with higher probabilities of childhood interpersonal trauma types (i.e., POL and CT) were at greater risk of depression, anxiety, and PTSD than the other classes. In such instances, cognitive behavioral therapies (CBT), such as Trauma-focused CBT have been found to effectively reduce symptoms of PTSD, depression, and anxiety in children and youth with traumatic experiences (Cohen, Mannarino, & Deblinger, 2012). Adult survivors of revictimization experiences may benefit from other CBT-based therapies, like prolonged exposure and cognitive processing therapy to help create a new understanding and conceptualization of the traumatic event in order to alleviate PTSD, depression, anxiety and guilt (Foa, Rothbaum, Riggs, & Murdock, 1991; Resick, Williams, Sovak, Monson, & Gradus, 2012). Although histories of trauma and victimization are a part of clinical assessment for PTSD, present findings suggest that trauma histories should be routinely inquired from clients seeking treatment for other mental health problems, including depression, anxiety. Early identification of traumatic events in children is important and calls for educational programs directed at creating awareness regarding screening and assessment of childhood trauma, among medical and other health care professionals.

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Table 1

Frequency of Interpersonal Trauma-types in UK Community Sample

Trauma-type	Total (<i>N</i> = 1,051)	Males (<i>n</i> = 332)	Females (<i>n</i> = 719)	χ^2 (df), <i>p</i>
	% (<i>n</i>)			
<i>During childhood</i>				
Emotional abuse	36.2 (380)	32.2 (107)	38 (273)	3.24 (1), .083
Emotional or physical neglect	37.2 (391)	30.7 (102)	40.2 (289)	8.32 (1), .004
Witnessing domestic violence	15.6 (164)	13.9 (46)	16.4 (118)	0.94 (1), .332
Physical assault	32.4 (340)	33.4 (111)	31.8 (229)	0.19 (1), .660
Assault with a weapon	5.6 (59)	8.7 (29)	4.2 (30)	8.08 (1), .004
Sexual abuse/assault	27.3 (287)	19 (63)	31.2 (224)	16.36 (1), .001
<i>During adulthood</i>				
Physical assault	28.1 (295)	33.1 (110)	25.7 (185)	5.80 (1), .016
Assault with a weapon	8.9 (94)	13.6 (45)	6.8 (49)	11.85 (1), .001
Sexual abuse/assault	24.6 (259)	12.0 (40)	30.5 (219)	40.47 (1), .001

Table 2

Odds ratios from the multivariate logistic regression for age, gender and total number of traumas

	PTSD	Anxiety	Depression
	<i>OR (SE)</i>		
Age	0.964 (.006) ***	0.970 (.005) ***	0.982 (.006) ***
Gender	1.227 (.237)	1.320 (.201)	1.492 (.269) *
Total childhood trauma	1.484 (.143) ***	1.277 (.123) *	1.361 (.179) ***
Total adulthood trauma	1.593 (.082) ***	1.434 (.076) ***	1.517 (.116) *

Note. * $p < .05$

** $p < .01$

*** $p < .001$

Table 3

LCA Fit Statistics for Interpersonal Child and Adult Victimization and Gender as Covariate (N = 1,051)

Classes	Log Likelihood	AIC	BIC	ssaBIC	LRT (<i>p</i>)	Entropy
2	-4,335.583	8,711.166	8,810.316	8,746.793	1,052.755(.0001)	.774
3	-4,247.498	8,556.996	8,710.678	8,612.217	173.898(.006)	.783
4	-4,194.100	8,472.201	8,680.416	8,547.017	105.417(.031)	.747
5	-4,144.222	8,394.443	8,657.191	8,488.855	98.471(.109)	.717
6	-4,119.708	8,367.416	8,684.696	8,481.422	48.395(.024)	.729

Note. AIC = Akaike Information Criteria, BIC = Bayesian Information Criteria, ssaBIC = Sample-size adjusted Bayesian Information Criteria, LRT = Lo-Mendell-Rubin adjusted likelihood ratio test.

Table 4

Mean Score and Standard Errors on Clinical Disorder Symptoms, and Odds-ratio (95% CI) and Percentage of PTSD, Anxiety, and Depression Qualifying for a Probable Diagnosis across the Classes compared to the LV Class (reference group)

Class	Symptoms			Probable Diagnosis		
	Anxiety	Depression	PTSD	Anxiety	Depression	PTSD
	<i>(Mean/S.E.)</i>			<i>(OR [95% CI])</i>		
POL ^e	19.35 ^{abcd} (1.02)	25.34 ^{abcd} (1.10)	51.34 ^{abcd} (3.93)	12.11 ^{abcd} (5.36-27.36) 86.2%	9.48 ^{abcd} (3.34 – 26.87) 94.3%	33.63 ^{abcd} (16.35-69.43) 62.1%
SV ^c	13.28 ^{abde} (0.70)	17.12 ^{ade} (0.89)	16.04 ^{abde} (2.00)	3.58 ^{ae} (1.99 – 6.44) 68.8%	4.54 ^{ae} (1.86-11.12) 84.7%	4.09 ^{ade} (1.8-9.32) 20.8%
PV ^b	11.3 ^{cde} (0.52)	15.05 ^{ade} (0.72)	11.01 ^{cde} (1.57)	1.90 ^{ade} (1 – 3.47) 49.6%	2.26 ^{ade} (1.07-4.75) 78.6%	3.64 ^{ade} (1.47-9.04) 17.6%
CT ^d	16.51 ^{abce} (0.64)	20.40 ^{abce} (0.75)	27.39 ^{abce} (2.41)	4.59 ^{abe} (3.06 – 6.90) 76.1%	6.13 ^a (3.39-11.09) 91.2%	10.64 ^{abce} (5.81-19.47) 42.3%
LV ^a	10.73 ^{cde} (0.28)	13.39 ^{bcde} (0.32)	9.43 ^{cde} (0.77)	- 47%	- 71.9%	- 8.9%

Note. POL = Lifetime polyvictimization ($n = 87$). SV = Sexual revictimization ($n = 144$). PV = Physical revictimization ($n = 131$). CT = Childhood trauma ($n = 272$). LV = Limited victimization ($n = 417$). ^{abcde} Indicates the classes from which the respective class-scores on clinical outcomes differs significantly.

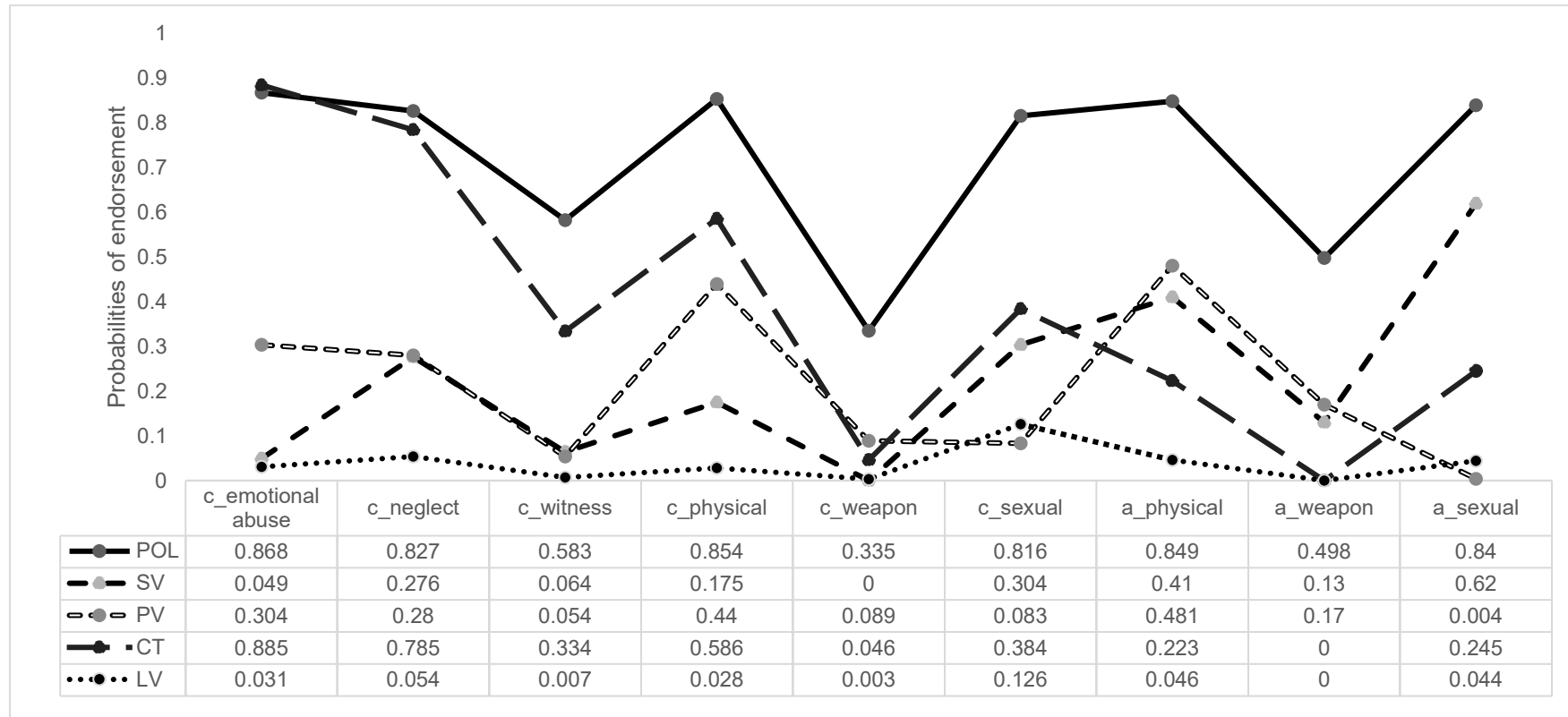


Figure 1

Profile Plot and Probabilities from LCA of Victimization Variables

Note. c_emotional abuse = childhood emotional abuse. C_neglect = childhood neglect. c_physical = childhood physical abuse. c_weapon = threatened by a weapon during childhood. c_sexual = childhood sexual abuse. a_physical = adulthood physical assault. A_weapon = threatened by a weapon during adulthood. A_sexual = adulthood sexual assault. POL = Lifetime polyvictimization. SV = Sexual revictimization. PV = Physical revictimization. CT = Childhood trauma. LV = Limited victimization.