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Latent Classes of Exposure to Potentially Traumatic and Stressful Life Events in a Sample of Young Predominantly Ethnic Minority Women

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Latent Classes of Exposure to Potentially Traumatic and Stressful Life Events in a Sample of
Young Predominantly Ethnic Minority Women

A Thesis

Presented in

Partial Fulfillment of the

Requirements for the Degree of

Master of Arts

By

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Biography

The author was born in Peoria, Illinois. She received her Bachelor of Arts degree in Psychology and English from the University of Notre Dame in 2014. She began the doctoral program in clinical psychology at DePaul University in 2016.

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Abstract

Women are disproportionately affected by specific types of potentially traumatic and stressful life events that are strongly linked to PTSD and depressive symptoms (Tolin & Foa, 2006; U.S. Census Bureau, 2016). Yet, while many studies have investigated patterns of potentially traumatic events (PTEs) and their associations with clinical outcomes, few have assessed PTE typologies with exclusively female samples (e.g., Cavanaugh et al., 2013). This study examined profiles of childhood and adulthood potentially traumatic and stressful life events in a predominantly ethnic minority, community sample of 191 young women. Using latent class analysis, we found four distinct profiles of exposure to PTEs and stressful life events: a Minimal risk class (51.3% of the sample), a Family conflict/moderate risk class (19.9%), a Chronic abuse/polyvictimization class (14.7%), and an Adulthood abuse/polyvictimization class (14.1%). The Adulthood abuse/polyvictimization class displayed significantly higher levels of PTSD symptoms than the Minimal risk class. Additionally, both the Adulthood abuse/polyvictimization and Chronic abuse/polyvictimization classes had significantly higher estimated probabilities of endorsing elevated depressive symptoms in comparison to the Minimal risk class. Results illustrate the importance of multidimensional assessment of potentially traumatic and stressful life event exposures and their impact on young ethnic minority women.

Introduction

Potentially Traumatic Events

According to the *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition*'s Criterion A for PTSD, a PTE may consist of a serious injury, actual or threatened death, or sexual violation (*DSM-5*; American Psychiatric Association, 2013). Prevalence estimates of PTEs have varied widely in national and transnational surveys (Darves-Bornoz et al., 2008), with approximately 60% of children and 50-90% of adults in the U.S. reporting a lifetime PTE exposure (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Kilpatrick et al., 2013; McLaughlin et al., 2013). As traumatic stress research has progressed, studies have shown that polyvictimization, or exposure to multiple PTEs, is relatively common (Finkelhor, Ormrod, & Turner, 2007). For example, the National Survey of Children's Exposure to Violence found that within the previous year alone, 38.7% of children reported more than one direct victimization, with a significant minority of youth (10.9%) experiencing five or more direct exposures to violence within the past year (Finkelhor, Turner, & Hamby, 2011).

PTEs and Mental Health

PTEs have been linked to increased risk for multiple adverse mental health outcomes (Christoffersen, Poulsen, & Nielsen, 2003; Neria, Bromet, Carlson, & Naz, 2005; Read, Os, Morrison, & Ross, 2005), and events involving direct, violent victimization have been shown to engender an especially high risk for both Major Depressive Disorder (MDD) (Duncan, Saunders, Kilpatrick, Hanson, & Resnick, 1996; Fowler, Allen, Oldham, & Frueh, 2013; McCutcheon et al., 2009; Molnar, Buka, & Kessler, 2001) and PTSD (McLaughlin et al., 2013). Additionally, research shows that sexual violence is an exceptionally strong predictor of PTSD symptoms (Frans, Rimmo, Aberg, & Frederikson, 2005; Hapke, Schumann, Rumpf, John, & Meyer, 2006;

Shakespeare-Finch & Armstrong, 2010). The reasons for the unique effects of nonsexual physical and sexual violence on posttraumatic stress are not well understood, but researchers have suggested that such events especially challenge individuals' existing worldviews, sense of optimism, and trust in others (Alisic et al., 2014).

In addition to PTE subtype, the developmental window in which PTEs occur is an important predictor of clinical outcomes. Research has consistently shown that childhood PTE exposure is predictive of adulthood PTE exposure (e.g., LaNoue, Graeber, Urquieta de Hernandez, Warner, & Helitzer, 2012), and individuals who experience PTEs early in life are at an increased risk for developing psychopathology following further PTEs in adulthood (Keane, Magee, & Kelly, 2016; LaNoue et al., 2010; McLaughlin, Conron, Koenen, & Gilman, 2010). "Stress sensitization" effects are hypothesized to account for the latter finding (for a review, see McLaughlin et al., 2010). Thus, while further research is needed to better understand how the developmental window of PTE exposure contributes to subsequent psychopathology, assessing exposure to both childhood and adulthood PTEs is imperative for investigations of mental health outcomes.

PTEs and Gender

Among women, lifetime PTSD prevalence is estimated to be approximately 10%, which is roughly twice the rate among men (Kessler et al., 1995; Kessler et al., 2005). MDD, the most common disorder comorbid with PTSD (Creamer, Burgess, & McFarlane, 2001; Kessler et al., 1995) has a lifetime prevalence among females of 17%, nearly twice that of the rate among males (Hasin, Goodwin, Stinson, & Grant, 2005). One potential explanation for the gender disparity in PTSD is that women may be at greater risk for experiencing PTE subtypes that are more strongly linked to PTSD (Kilpatrick, Badour, & Resnick, 2017). This explanation has been

partially supported by meta-analytic work demonstrating that men are more likely to experience nonsexual violence, accidents, and disasters, and witness death or injury, while women are at greater risk for experiencing any kind of sexual assault in both childhood and adulthood (Tolin & Foa, 2006). However, even when research has adjusted for women's higher rates of experiencing sexual assault, gender differences in conditional PTSD risk have remained (Kessler et al., 1995; McLaughlin et al., 2013). Accordingly, Kilpatrick and colleagues (2017) advise that a multidimensional approach, that incorporates assessment of the contexts and frequency of types of violence exposure and their co-occurrences, is ideal for research on PTEs and PTSD prevalence among women. This suggestion echoes a general trend in PTE research, wherein researchers have increasingly utilized person-oriented methods in order to understand not just how the total number or separate characteristics of PTEs impact mental health, but instead how *profiles* of PTE exposure correlate with clinical outcomes.

Person-oriented Techniques and PTE Exposure

Individuals are the unit of analysis in person-oriented methods, whose goal is to identify the underlying, homogeneous subgroups from a heterogeneous population based on participants' responses to a set of observed variables (Berlin, Williams, & Parra, 2014). Person-oriented methods possess significant clinical utility and theoretical appeal in the field of traumatic stress research due to the complexity of the relation between PTEs and mental health, along with the relatively high prevalence of polyvictimization (Hagan, Sulik, & Lieberman, 2016). Whereas traditional analytic methods (e.g., the use of scores representing total PTE exposures) may negate the unique PTE profiles of participants, person-oriented methods, such as latent class analysis (LCA), capture their multidimensionality (Berzenski & Yates, 2011).

Two systematic reviews of the growing body of research utilizing person-oriented methods to examine PTEs have recently been conducted (Contractor, Caldas, Fletcher, Shea, & Armour, 2017; O'Donnell et al., 2017). O'Donnell and colleagues (2017), who used broader inclusion criteria, identified 17 studies meeting criteria; Contractor et al. (2017) limited their review to studies assessing exposures in both childhood and adulthood, and identified nine studies. Both reviews accentuated that in addition to being a highly empirically valid technique for assessing relations between PTEs and psychological functioning, person-oriented methods yield practical clinical information, such as identifying vulnerable subgroups, providing insight into their unique needs, and suggesting potential exposures to screen for based on the endorsement of specific PTEs (Hagan et al., 2016). Contractor et al. (2017) emphasized that person-oriented methods are inherently well-suited to assessing lifespan trauma.

For example, in a large study ($N = 1,424$) of patterns of violence exposure among adult women employed in a nursing profession, Cavanaugh et al. (2012) identified a low risk class (63.1% of the sample), a class with high probabilities of psychological and physical abuse by an intimate partner (15.6%, "IPV"), a workplace violence class with high probabilities of experiencing psychological and physical violence at work (12.4%, "workplace violence victimization"), and a class with moderate to high risk for different forms of childhood abuse (9.0%, "childhood abuse"). Relative to the low risk class, women in the IPV and childhood abuse classes were more likely to screen positive for depression, and women in the IPV class were also more likely to screen positive for PTSD. In another study examining violence exposure among adult women participating in the National Epidemiologic Study on Alcohol and Related Conditions (NESARC; $N = 19,816$), Cavanaugh, Martins, Petras, and Campbell (2013) identified three subgroups: a polyvictimization class (with especially high likelihoods of childhood

physical abuse, witnessing childhood domestic violence, and lifetime sexual assault; 6.7% of the sample), a class with high risk for lifetime sexual assault and low risks for all other violence exposures (21.8%) , and a low risk class (71.5%). All classes significantly differed from each other in rates of MDD and PTSD diagnoses. Relative to the low risk class, members of the polyvictimization class were approximately 5 and 7.5 times as likely to be diagnosed with MDD and PTSD, respectively, while members of the sexual assault class were approximately 3 and 3.5 times as likely to be diagnosed with MDD and PTSD.

In a study on a wider range of PTEs and stressful life events in men and women (participants aged 15-54, $N = 5,873$) using data from the National Comorbidity Survey, Houston, Shevlin, Adamson, and Murphy (2011) derived four classes. In line with previous findings with an adolescent sample (Shevlin & Elklit, 2008), a minimal risk and a polyvictimization class were identified. The other two classes were primarily distinguished by their likelihoods of nonsexual physical and sexual violence exposure. The nonsexual violence class had heightened probabilities of physical assault, witnessing violence, and non-interpersonal PTEs such as witnessing accidents, while the intermediate risk/sexual abuse class was qualified by elevated risks of sexual molestation and rape, and intermediate risks of most other PTEs. Members of the polyvictimization class were approximately seven times more likely, members of the nonsexual physical violence class were over twice as likely, and members of the sexual abuse class were nearly five times more likely to be diagnosed with depression relative to the low risk class.

Several observations can be made from reviewing the growing body of PTE typology research. Firstly, person-oriented research has consistently identified unique typologies conferring differential risks for specific symptoms of psychopathology (O'Donnell et al., 2017). Secondly, the nature and number of PTE typologies vary across samples, and classes with

elevated probabilities for highly specific PTE subtypes are often identified (e.g., a community violence class described by Ford, Elhai, Connor, & Frueh, 2010; Contractor et al., 2017). At the same time, several typologies are fairly consistent across studies: minimal risk, polyvictimization, sexual violence, and nonsexual physical violence (Contractor et al., 2017; O'Donnell et al., 2017). These typologies tend to emerge even when a wider range of Criterion A events is included in analyses. Finally, polyvictimization and sexual or nonsexual physical violence victimization typologies are strongly associated with psychiatric disorders, including PTSD and MDD (Contractor et al., 2017; O'Donnell et al., 2017).

Another critical observation is that with few exceptions (e.g., Karsberg, Armour, & Elklit, 2014), research examining gender as a predictor of class has shown that females are at a greater risk of belonging to sexual violence victimization classes (Armour, Elklit, & Christoffersen, 2014; Ballard et al., 2015; Ford et al., 2010; Houston et al., 2011; Keane et al., 2016; O'Donnell et al., 2017). While these findings are consistent with prior research showing a greater prevalence of sexual violence exposure among women (Breslau et al., 1998; Finkelhor, Shattuck, Turner, & Hamby, 2014; Kessler et al., 1995; McLaughlin et al., 2013), they underscore the importance of better understanding women's experiences of gender-based violence, the complexity and severity of which is not always well-understood or acknowledged.

Research Gaps

While almost all person-oriented studies have included women in their samples, only a handful (Cavanaugh et al., 2012; Cavanaugh et al., 2013; Hebert, Rose, Rosengard, Clarke, & Stein, 2007) have examined PTE typologies in an exclusively female sample. Yet, significant gender disparities in PTSD and MDD prevalence clearly argue for increased research on PTE typologies among women. Additionally, research using national probability-based samples has

provided mixed evidence regarding PTE exposure and ethnicity (Breslau et al., 1998, Breslau, Wilcox, Storr, Lucia, & Anthony, 2004; Norris, 1992; Roberts, Gilman, Breslau, Breslau, & Koenen, 2011), but some studies have indicated that individuals of ethnic minority backgrounds are at higher risk for certain types of assaultive violence in particular (Breslau et al., 1998; Breslau et al., 2004; Roberts et al., 2011). These findings indicate that better understanding PTE typologies among ethnic minority women, which may allow for more informed clinical care and preventive efforts, is crucial.

Another notable limitation of the extant literature with female samples is that stressful life events have not been assessed or included in statistical analyses. While many of these experiences do not meet the criteria for PTEs, they are nonetheless key predictors of mental health. Meta-analytic work has indicated that although individuals experiencing Criterion A events have higher levels of PTSD symptoms than those experiencing non-Criterion A events (e.g., divorce, job loss), the effect size of this difference is small (Larsen & Pacella, 2016). Stressful life events are also well-established to increase risk for depression (Risch et al., 2009). Experiencing divorce oneself (Yan, Huang, Huang, Wu, & Qin, 2011) or parental divorce in early childhood, for instance, has been associated with greater risk for depression in one's lifetime (Gilman, Kawachi, Fitzmaurice, & Buka, 2003). Experiences that disproportionately impact ethnic minority women, including experiences of poverty (U.S. Census Bureau, 2016), are particularly important to incorporate in analyses, both due to their direct effects on women's health and their patterns of co-occurrence with other PTEs.

Finally, in light of findings from the broader evidence base on PTEs, there is a need for additional studies including both childhood and adulthood PTE exposures in women (Cavanaugh et al., 2012; Cavanaugh et al., 2013; Hebert et al., 2007). From a developmental

psychopathology perspective, employing a life-course approach to examining PTE typologies is integral to advancing our understanding of the pathways connecting PTEs to clinical symptomatology (Jenness & McLaughlin, 2015).

Research Aims and Hypotheses

The primary aim of the current study was to examine what profiles of PTEs emerge when childhood PTEs, adulthood PTEs, and life stressors are considered in a sample of young, predominantly ethnic minority women. Given that this aim was essentially exploratory, we did not formulate specific hypotheses regarding the subgroup formations, but we did anticipate that our results would align with previous research identifying a minimal risk class alongside higher risk classes defined by violence exposure. Our secondary aim was to assess the conceptual validity of these profiles by exploring their relation to sociodemographic factors, PTSD symptoms, and clinically significant levels of depression. Due to the characteristics of our sample and the inconsistency of research on PTE exposure and ethnicity, we did not have a priori hypotheses regarding ethnicity and age, but we expected that lower education would predict membership in higher risk classes. We also expected that classes with high probabilities of PTE exposure would demonstrate the greatest levels of PTSD and depressive symptoms.

Method

Participants and Procedures

The current study used data obtained from two studies conducted in Chicago, IL. While each study had a different focus, both assessed the relation between different forms of life stress and PTE exposure and psychosocial functioning, as well as risk and protective factors influencing mental health outcomes. The Better Outcomes in Neurodevelopment Study (hereafter Study 1) included a cross-sectional evaluation of an ethnically diverse community sample of mother infant dyads ($N = 101$). Participants were recruited from urban community and

neighborhood centers. Flyers and brochures aimed at recruiting women who may have experienced prenatal intimate partner violence were posted and/or left in social service agencies such as Women Infant Child (WIC) centers, as well as laundromats, public libraries, pediatricians' offices, daycare centers, other local businesses, CTA trains, and electronic ads through Craigslist and Facebook. Women interested in participating contacted the project office via phone or email. Eligibility criteria were: being older than 18 years old, without a history of schizophrenia, having a healthy infant between 11-14 months old, and having full custody of their infant. Eligibility was determined by a brief phone screen with a trained undergraduate research assistant, in which participants received additional information about the study.

Interested mothers who met criteria participated in a 2.5 to 3 hour long in-person assessment with their child at DePaul University. After consent procedures, mothers and infants engaged in a series of dyadic tasks, such as free play and the Strange Situation (Ainsworth & Bell, 1970). After these tasks were finished, mothers completed self-report questionnaires on demographics, parenting, maternal PTE exposure, experiences of prenatal intimate partner violence, infant health and temperament, maternal depressive and PTSD symptoms, and resilience. After completing the interview, participants were monetarily compensated and received a small toy for their infant. Women expressing significant psychological distress were referred to social service agencies.

The Stress, Parenting, and Child Development Study (hereafter Study 2) consisted of a longitudinal evaluation of a sample of predominantly Latina caregivers ($N = 90$) recruited from three Head Start centers. Study 2 participants were recruited from three El Valor Head Start Preschool Centers serving predominantly Latino, low-income neighborhoods. All children at the centers received recruitment flyers, and interested caregivers returned signed consent forms.

Caregivers were mostly biological mothers. Inclusion criteria were that the caregiver could read and write in English or Spanish, and the child had not been previously diagnosed with autism or schizophrenia. Caregivers were then provided with a packet containing questionnaires. They completed the questionnaires at home and mailed them to the project office or left them in a confidential bin at their El Valor Head Start. Questionnaires involved paper-and-pencil measures on demographic information, acculturative stress, emotion regulation, parenting, child externalizing and internalizing problems, maternal depressive symptoms, and maternal and child PTE exposure. Caregivers and children were scheduled for in-person assessments via phone. The in-person assessment included dyadic tasks (such as free play) and a semi-structured clinical interview of child symptomatology. Upon completion of the in-person assessment, children were offered a toy of their choice (e.g., Slinkys, bouncy balls) from a prize box. Caregivers received financial remuneration for all parts of the study they participated in. Children demonstrating significant levels of behavioral or emotional issues were provided with information regarding mental health services.

Participants in Study 1 completed the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977), whereas participants in Study 2 completed the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983), so clinical cutoffs from both measures were used to determine risk for depression in the combined sample. Additionally, unlike participants in Study 1, participants in Study 2 did not complete the PTSD Checklist—Civilian Version (PCL-C; Weathers, Litz, Herman, Huska, & Keane, 1994), so PTSD symptomatology was only examined in the sample from Study 1. The final pooled sample of the current study consists of 191 caregivers; two cases, one from each study, were excluded due to missing data on > 50% of the items on the Life Stressor Checklist-Revised. Demographic and clinical characteristics of the

combined sample (from Studies 1 and 2) and the subsamples from both studies is presented in Table 1.

Measures

PTSD Checklist—Civilian Version (PCL-C; Weathers, Litz, Herman, Huska, & Keane, 1994). The PCL-C, administered in Study 1, was used to evaluate the severity of PTSD symptomatology. The PCL-C is comprised of 17 questions that ask participants to rate, on a 5-point Likert scale (ranging from *not at all* to *extremely*), the extent to which they are bothered by a variety of symptoms (e.g., "...Feeling very upset when something reminded you of a stressful event from the past?"). The PCL-C is a well-validated measure that has been used with many different populations (e.g., Miles, Marshall, & Schell, 2008; Pinto, Correia-Santos, Levendosky, & Jongenelen, 2016). Previous research has demonstrated that the PCL-C has high internal consistency ($\alpha = .94$) (Conybeare, Behar, Solomon, Newman, & Borkovec, 2012), with good test-retest reliability after a two-week interval ($r = .66$) (Conybeare et al., 2012). The PCL-C has also shown good convergent and discriminant validity (Conybeare et al., 2012). A total score representing PTSD symptom severity was obtained by summing all item ratings on the PCL-C. Scores on the PCL-C range from 17 to 85. The U.S. Department of Veterans Affairs recommends cut points of 30-35 for PTSD screening in general population samples (VA National Center for PTSD, 2012). The internal consistency of the PCL-C in Study 1 was excellent ($\alpha = .91$, $M = 31.6$, $SD = 11.4$).

Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) and Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983). Clinical cutoffs from the CES-D (administered in Study 1) and BSI-Depression subscale (administered in Study 2) were used as the measure of depressive symptoms in this study. The CES-D is an extensively used,

well-validated measure consisting of 20 items assessing the frequency of depressive symptoms, including loss of appetite, insomnia, lethargy, and feelings of helplessness, hopelessness, guilt and worthlessness (e.g., “I thought my life had been a failure”). Participants use a 4-point Likert scale to select the degree to which they have been affected by a particular symptom (ranging from *rarely or none of the time (less than 1 day)* to *most or all of the time (5-7 days)*). The CES-D has demonstrated good internal consistency (with Cronbach’s $\alpha > .80$) and moderate test-retest reliability ($r = .51-.67$), which is understandably lower because the temporal focus of this scale is restricted to symptoms occurring within the past week (Radloff, 1977). The CES-D also shows good convergent validity with other measures of depression (Radloff, 1977; Milette, Hudson, Baron, & Thombs, 2010). To prevent response bias, the CES-D includes a few positive items (e.g., “I was happy,”) and these items are reverse-scored prior to the calculation of a total score. A total score (with possible values ranging from 0 to 60) representing the severity of depression was calculated by summing all item ratings. Based on a meta-analysis indicating that a cutoff of 20 may offer the optimal balance between sensitivity and specificity for detecting cases of probable depression (Vilagut, Forero, Barbaglia, & Alonso, 2016), a cutoff of 20 was used to classify cases with clinically significant depressive symptoms in the current study. The CES-D showed good internal consistency in our sample ($\alpha = .87$, $M = 10.8$, $SD = 8.4$).

The BSI is a widely used mental health screening instrument comprised of 53 items assessing depression and eight other dimensions of psychopathology. The depression subscale includes six items that ask respondents to rate the extent to which they have experienced loneliness, loss of interest, negative mood, hopelessness, worthlessness, and suicidal thoughts on a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*extremely*). The BSI depressive symptoms subscale has demonstrated acceptable internal consistency (e.g., De Los Reyes, Goodman,

Kliwer, & Reid-Quinones, 2009; Derogatis & Melisaratos, 1983; Lamers, Westerhof, Bohlmeijer, Klooster, & Keyes, 2011; Ruipérez, Ibáñez, Lorente, Moro, & Ortet, 2001), test-retest reliability (Derogatis & Melisaratos, 1983; Zautra, Guenther, & Chartier, 1985), and convergent validity with other measures of depression (Bromberg, Beasley, D'Angelo, Landzberg, & DeMaso, 2003). Although there is not a standard cutoff for identifying probable clinical depression on the BSI (Ornstein, Gaugler, Zahodne, & Stern, 2014), other studies have used a T-Score of 63 on the depression subscale, based on Derogatis' guideline of a T-Score of 63 and above for identifying cases with clinically significant general mental health issues (e.g., Aisenberg, 2001; Thompson et al., 2015; Zabkiewicz, 2010). Respondents were thus classified as cases with clinically significant depression if they obtained a T-Score greater than or equal to 63 on the depression subscale. The internal consistency of the BSI depression subscale in Study 2 was very good ($\alpha = .86$, $M_{raw\ score} = .50$, $SD = .72$).

Life Stressor Checklist-Revised (LSC-R; Wolfe, Kimerling, Brown, Chrestman, & Levin, 1996). The LSC-R was used to evaluate exposure to potentially traumatic and other stressful life events. The LSC-R consists of 30 items and asks respondents to indicate whether they have or have not experienced events including physical and sexual assault, the unexpected loss of a loved one, natural disasters, and accidents. For each event, participants first provide a dichotomous, yes/no response; if participants indicate that they have experienced an event, they are also asked a number of follow-up questions, including their age at its occurrence. The LSC-R has demonstrated good construct validity (Humphreys et al., 2011). The temporal stability of the LSC-R has been found to be relatively high (mean kappa = .65) and the LSC-R has shown excellent convergent validity with other measures of stressful life events (Choi et al., 2017). The LSC-R has also consistently demonstrated good criterion validity in terms of its ability to predict

psychopathology (Schumacher et al., 2010), and has been used with a wide range of different populations (e.g., Humphreys et al., 2011; O'Donovan et al., 2011).

For the sake of model parsimony, indicators were selected based on theoretical interest and endorsement rates. With the exception of sexual violence exposure, items with fewer than 15% endorsement rates were omitted or consolidated with items of similar content. The LSC-R has questions assessing exposure to physical abuse/assault before age 16, physical abuse/assault after age 16, sexual abuse and rape before age 16, sexual assault and rape after age 16, and witnessing violence between family members before age 16. Participants' responses to the follow-up questions regarding the age at occurrence of the event were used to derive dichotomous variables reflecting exposure to emotional abuse/neglect and physical neglect before 16 ("childhood"), or 16 and older ("adulthood"). These dichotomous variables and the variables reflecting the primary, yes/no responses for the other selected items (e.g., having been separated or divorced) were used as indicators in an exploratory latent class analysis. The internal consistency of the final LSC-R item set was adequate in the pooled ($\alpha = .78$, $M = 3.3$, $SD = 2.8$), Study 1 ($\alpha = .70$, $M = 3.7$, $SD = 2.6$), and Study 2 ($\alpha = .85$, $M = 2.8$, $SD = 3.0$) samples.

Results and Analyses

Data Analysis Plan

An exploratory LCA was estimated with Mplus 8.1, using the robust maximum likelihood estimator (Muthén and Muthén, 2012). The model used 12 LSC-R items. Due to the large number of possible response patterns, bivariate item fit statistics were used to evaluate the absolute model fit (as recommended by Rupp, Templin, & Henson, 2010). The Overall Bivariate Pearson Chi-Square (33.32) and Overall Bivariate Log-Likelihood Chi-Square (33.36) statistics fell below their expected value of 66.00 ($I^*(I-1)/2$, the total pairs of items in the test), indicating

that the model fit the data well. We used the goodness-of-fit indices that simulation studies have deemed to be most accurate, i.e., the Bayesian information criterion (BIC; Schwarz, 1978), the sample-size-adjusted BIC (ssaBIC; Sclove, 1987), and the Bootstrap Likelihood Ratio Test with 500 bootstrap draws (BLRT; McLachlan & Peel, 2000). We also examined entropy values (Ramaswamy, DeSarbo, Reibstein, & Robinson, 1993) and conceptual validity and interpretability when assessing the optimal number of classes. The BIC and ssaBIC information statistics compare alternative models, with lower values indicating better fit. The BLRT compares a model with K classes to a model with $K-1$ classes, yielding a significant p -value when adding a class results in a significant improvement. Entropy measures, which describe the accuracy of participant classification, can have values ranging from 0 to 1, with greater values indicative of better classification. After determining the optimal number of latent classes, we then examined demographic predictors and associated clinical outcomes of class membership. Due to significant differences between samples, we controlled for study in all analyses. When examining class-specific clinical outcomes, we also controlled for relevant demographic predictors of PTSD and depression.

To investigate associations between demographic and clinical characteristics and class membership, we utilized the three-step approach promoted by Asparouhov and Muthen (2014). In the first step, the LCA was conducted without including distal outcomes or demographic predictors. In the second step, individuals were assigned to their most likely class. In the third step, the relation between class membership and the predictor or outcome variable of interest was estimated while accounting for classification uncertainty (the R3STEP command was used for demographic predictors, BCH was used for the continuous outcome variable, PTSD symptomatology, and DCAT was used for the dichotomous outcome variable, clinically

significant depression). As the DCAT command cannot accommodate covariates, we conducted a follow-up analysis using the traditional most-likely class method in SPSS to examine the effect of class on clinically significant depression while including relevant control variables. The three-step approach is recommended because it both accounts for measurement error and prevents distal variables from affecting the latent class formation, which is problematic when the distal variables are hypothesized to temporally precede or result from the latent variable. Provided that class separation is good (entropy $>.6$), three-step methods perform very well (Asparouhov & Muthén, 2014; Bakk et al., 2013; Bakk & Vermunt, 2016).

Treatment of missing data. Missing data were minimal ($< 2\%$) across each indicator except for the emotional abuse and/or physical neglect in childhood or adulthood variables, which each had missing data for 3.7% of cases. The full information maximum likelihood approach (FIML), which has been shown to produce less biased parameter estimates even under missing not at random conditions (Graham, 2009) was used, so parameters were estimated without missing data imputation on the indicators in the LCA. Missing data on items related to the clinical outcomes ($< 1\%$ on both the PCL-C and CES-D; 0% on the BSI depression subscale) were addressed by person-level mean imputation.

Descriptive Statistics and Measures of Association

The study samples differed with regard to education, ethnicity, age and total LSC-R events endorsed (Table 1). In the Study 2 sample, 77 (85.6%) women identified as Hispanic/Latina, 7 (7.8%) identified as Black/African American, and 6 (6.7%) women identified as White/Caucasian. Among women in the Study 2 sample who identified as Hispanic/Latina, 68 (91.9%) were of Mexican, 2 (2.7%) were of Puerto Rican, 1 (1.4%) was of Central American, 1 (1.4%) was of South American, and 2 (2.2%) were of other heritage.

In the Study 1 sample, 41 (40.6%) of women identified as Hispanic/Latina, 34 (33.7%) identified as Black/African American, 14 (13.9%) identified as White/Caucasian, 8 (7.9%) identified as Multiracial, 1 (1.0%) identified as Native American, 1 (1.0%) identified as Asian/Asian American, and 2 (2.0%) were of other backgrounds. Due to the small number of women not identifying as Hispanic/Latina or Black/African American in the full sample, ethnic backgrounds were collapsed into three categories (Hispanic/Latina, Black/African American, and Other) for analytic purposes.

The Study 1 sample was two years younger on average; had larger proportions of participants identifying as Black/African American and of Other ethnic backgrounds and fewer identifying as Hispanic/Latina; and had a greater proportion of participants with some college education, and a smaller proportion with a high school education or less. Participants from Study 1 also endorsed exposure to approximately one more adverse life event on average.

Table 1.
Demographic and Clinical Statistics across Samples

	Full sample		Study 1		Study 2		
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Education							$\chi^2 = 14.88, <.01$
High school or less	73	38.2	27	26.7	46	51.1	
Some college	66	34.6	46	45.5	20	22.2	
Bachelors or higher	51	26.7	27	26.7	24	26.7	
Missing	1	.5	1	1.0			
Ethnicity							$\chi^2 = 40.77, <.001$
Black/African American	41	21.5	34	33.7	7	7.8	
Other	32	16.8	26	25.7	6	6.7	
Hispanic/Latina	118	61.8	41	40.6	77	85.6	
Clinically Significant Depression							$\chi^2 = .30, n.s.$
	31	16.2	15	14.9	16	17.8	

	<i>M(SD), range</i>			
Age	30.6(6.6), 19-47	29.6 (6.7), 19-45	31.8 (6.2), 21-47	$t = 2.35, p < .05$
PTEs/Stressful Life Events	3.3(2.8), 0-11	3.7 (2.6), 0-9	2.8 (3.0), 0-11	$t = -2.37, p < .05$
PTSD Symptoms		31.6 (11.4), 17-81		
Total participants	191	101	90	

In the full sample, women experienced 3.3 adverse life events on average ($SD = 2.8$, range = 0-11). The most common experiences were witnessing violence between family members as a child, serious money problems, bereavement, and parental separation or divorce when living with one's parents (Table 2).

Table 2.

Frequencies of Stressful and Potentially Traumatic Life Events

Event	%
Emotional abuse/neglect or physical neglect in childhood	20.9
Physical abuse/assault in childhood by someone the participant knew	16.8
Sexual abuse/rape in childhood	19.4
Witnessing violence between family members in childhood	45.0
Parents separated/divorced when participant was living with parents	35.6
Emotional abuse/neglect or physical neglect in adulthood	30.4
Physical abuse/assault in adulthood by someone the participant knew	30.9
Sexual assault/rape in adulthood	12.6
Separation/divorce	22.5
Sexual harassment	19.9
Bereavement (unexpected; e.g., sudden heart attack, murder, or suicide)	36.1
Serious money problems (e.g., not enough money for food or shelter)	37.2

Thirty-three (32.7%) women from Study 1 exhibited at-risk PTSD symptoms when using a cutoff of 35. One outlier on the PCL-C was identified and winsorized (set at $M + 3SD$). Thirty-one (16.2%) women met criteria for experiencing clinically significant depression based on their CES-D or BSI score. Clinical levels of depression did not differ by study. PTSD symptoms, clinically significant depression, and PTEs/stressful life events were all significantly positively correlated (Table 3).

Table 3.
Correlations among Key Study Variables

	2	3
1. Total LSC-R Items Endorsed	.32**	.23*
2. Clinically Significant Depression		.51**
3. PTSD Symptoms		

Note. For the dichotomous variable Clinically Significant Depression, 0 = no, 1 = yes.

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

Tests of association between clinical and demographic variables (displayed in Table 4) revealed that clinically elevated depressive symptoms were significantly associated with education; whereas 22.7% of individuals with some college education and 19.2% of individuals who obtained a high school education or less qualified as having clinically elevated depression, only 3.9% of individuals with a Bachelors or higher did. The number of PTEs/stressful life events endorsed was also significantly related to ethnicity, such that women identifying as Hispanic/Latina endorsed fewer adverse life events than women identifying as Black/African American or of Other ethnic backgrounds. Finally, age was significantly negatively correlated with PTSD symptoms. No other relations between demographic and clinical variables were significant.

Table 4.
Tests of Association between Ethnicity, Education, Age, and Key Study Variables

	PTSD Symptoms	PTEs/Stressful Life Events	Clinically Significant Depression (% of women of educational/ethnic background endorsing)
Education			
High school or less	34.1 (11.6)	3.0 (2.9)	19.2
Some college	32.7 (12.8)	3.7 (2.8)	22.7
Bachelors or higher	27.7 (7.4)	3.1 (2.7)	3.9
F/ χ^2	2.53, $p = .09$	1.41, n.s.	8.16, $p < .05$
Ethnicity			
Black/African American			
American	30.5 (11.9)	4.1 (3.3)	14.6
Other	31.1 (8.1)	4.1 (2.4)	12.5
Hispanic/Latina	32.9 (13.0)	2.8 (2.6)	17.8
F/ χ^2	.43, n.s.	4.92, $p < .01$.62, n.s.
Age			

r $-.29, p < .01$ $-.07, n.s.$ $-.07, n.s.$

Tests of association between demographic variables (see Table 5) showed that women with some college education were younger than those in both other categories, women with a Bachelors or higher were older than those in both other categories, and women with a high school education or less were older than women with some college education but younger than those with a Bachelors or higher. Additionally, ethnicity and education were associated, such that a greater proportion of Hispanic/Latina women possessed a high school education or less as compared to Black/African American women and women of Other ethnic backgrounds; a smaller proportion of Hispanic/Latina women held some college education as compared to Black/African American women; and smaller proportions of Hispanic/Latina and Black/African American women held a Bachelors or higher as compared to women of Other ethnic backgrounds.

Table 5.

Mean Age across Education/Ethnicity and Percentage of Women within Ethnicity Obtaining Education

Education	Age	Black/African American (%)	Other (%)	Hispanic/Latina (%)
High school or less	30.5 (7.1)	24.4	18.8	48.7
Some college	27.9 (5.4)	56.1	34.4	27.4
Bachelors or higher	34.3 (5.5)	19.5	46.9	23.9
	$F = 15.57, p < .001$	$\chi^2 = 21.75, p < .001$		
Ethnicity				
Black	30.5 (6.4)			
Other	32.3 (7.1)			
Hispanic	30.2 (6.4)			
	$F = 1.22, n.s.$			

Exploratory Latent Class Analysis

Twelve potentially traumatic and stressful events were entered into iterative latent class analyses ranging from 1 to 5 classes (Table 6). We determined that the 4-class solution provides the best description of the typologies, based on both the BLRT, which indicated that the 4-class

solution was significantly better than the 3-class solution, and the ssaBIC, which was lowest overall for the 4-class solution. We did not rely on the BIC because it typically fails to identify the correct solution in modeling situations with a combination of categorical indicators, small sample sizes ($n \leq 200$), and unequal class sizes (Nylund et al., 2007). Adequate classification accuracy of the 4-class solution was indicated by high average probabilities within each class of belonging to that class (ranging from .89 to .98).

Table 6.

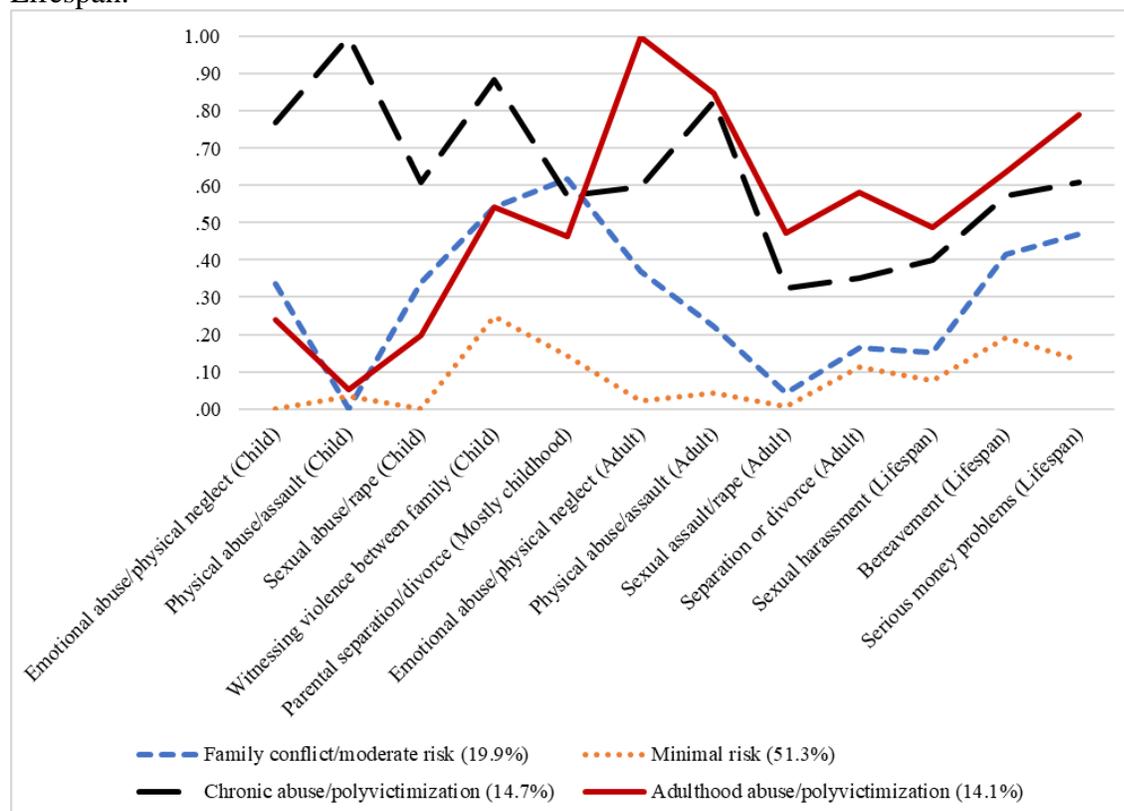
Latent Class Model Characteristics and Fit Statistics

Model	Log likelihood	BIC	ssaBIC	Entropy	BLRT	<i>p</i> -value
2	-1124.32	2379.95	2300.76	.85	317.24	<.001
3	-1104.49	2408.56	2288.19	.89	39.67	<.01
4	-1086.44	2440.75	2279.21	.84	36.08	<.05
5	-1074.83	2485.81	2283.08	.89	23.22	.73

A conditional response probability (CRP) is the probability that an individual will endorse a particular item provided that they are a member of a given class. CRPs that are close to 0 and 1 and vary substantially across classes allow for clear interpretations of the latent classes.

Figure 1 displays the CRPs for the final model.

Figure 1. Conditional Response Probabilities of Latent Classes of Potentially Traumatic and Stressful Life Events in Childhood (before age 16), Adulthood (16 and after), and Across the Lifespan.



One class, accounting for 14.7% of the sample, was characterized by the highest probabilities of experiencing different types of childhood abuse, including emotional abuse/neglect or physical neglect, physical abuse/assault, rape or other sexual abuse, and witnessing violence between family members (“Chronic abuse/polyvictimization”). This class also had high probabilities of experiencing most other events, especially physical abuse/assault in adulthood. This class was thus characterized by polyvictimization and chronic abuse. Another class had the highest relative probabilities of experiencing all forms of adulthood abuse. This class was also the most likely class to experience separation or divorce and serious money problems. This class was thus termed “Adulthood abuse/polyvictimization;” it was nearly equivalent in size (14.1%) to the Chronic abuse/polyvictimization class. Another class consisted of 19.9% of the sample and was defined by moderate risk of experiencing parental separation, witnessing violence between

family members in childhood, bereavement, serious money problems, and other interpersonal PTEs (“Family conflict/moderate risk”). Finally, a fourth class had low probabilities (< 10%) of experiencing most events, with somewhat higher probabilities of experiencing serious money problems, bereavement, separation or divorce, parental separation, and violence between family members. However, these probabilities were still substantially lower than those of all other classes. This class accounted for approximately half of the sample (51.3%) and was termed “Minimal risk.”

Demographic Characteristics and Class Membership

Table 7 displays the results of multinomial regressions assessing relations between age, education, ethnicity, and class membership. Regressions for each predictor were conducted separately while controlling for study. The Minimal risk class was treated as the reference group.

Table 7.

Odds Ratios (95% Confidence Intervals) of the Association between Demographic Predictors and Class Membership, with All Latent Classes Compared to the Minimal Risk Class

	Family conflict/ moderate risk (<i>n</i> = 38)	Chronic abuse/ Polyvictimization (<i>n</i> = 28)	Adulthood abuse and stress (<i>n</i> = 27)
Age	.89 (.80, .98)*	.97 (.90, 1.04)	.96 (.90, 1.02)
Education			
Some college	1.91 (.64, 5.72)	2.36 (.76, 7.29)	2.00 (.52, 7.73)
BA	.46 (.12, 1.75)	1.24 (.39, 3.95)	1.03 (.27, 3.86)
Ethnicity			
Black/African American	.87 (.25, 3.05)	2.17 (.67, 7.11)	2.33 (.58, 9.42)
Other	1.34 (.31, 5.74)	1.77 (.44, 7.07)	3.53 (.89, 14.00)
Study	1.88 (.74, 4.78)	2.07 (.84, 5.07)	3.43 (1.21, 9.73)*

Note. Reference groups are High school education or less, Hispanic/Latina, and Study 2.

**p* < .05

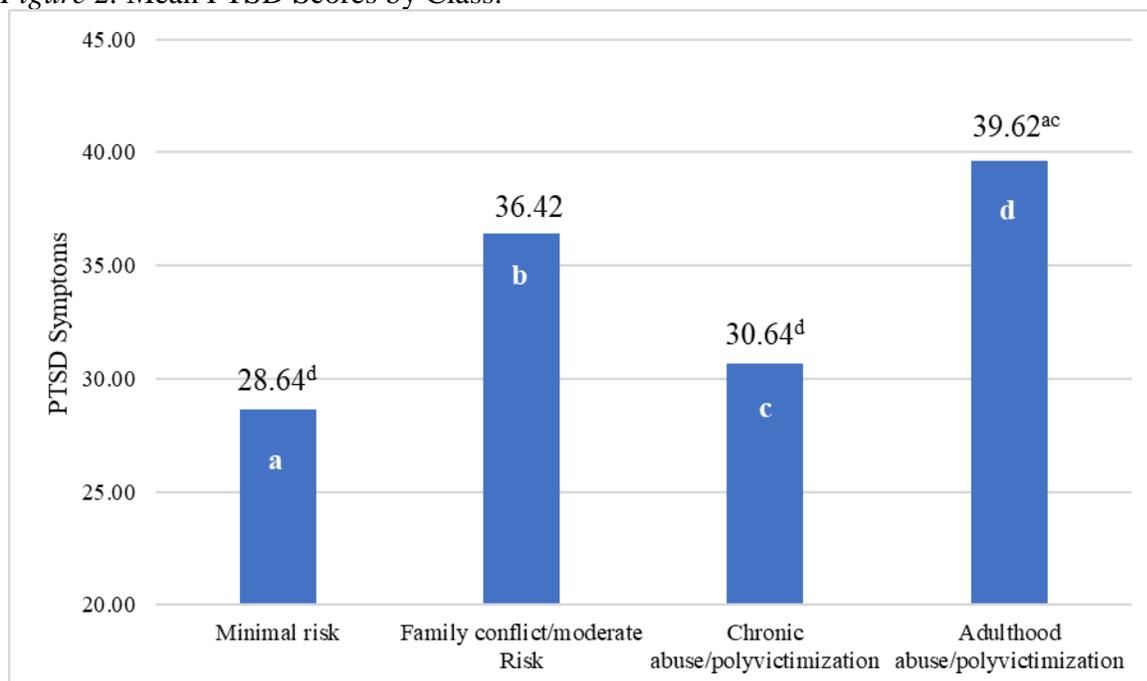
Membership in Study 1 was associated with a three-fold increase in the odds of being in the Adulthood abuse/polyvictimization as opposed to the minimal risk class. Additionally, greater

age significantly decreased the likelihood of being in the Family conflict/moderate risk class. No other associations between demographic variables and class membership were significant.

Prediction of PTSD and Depressive Symptoms

Results demonstrated significant between-class differences in PTSD ($\chi^2(df = 3) = 15.57$, $p < .01$) and depressive symptoms ($\chi^2(df = 3) = 15.81$, $p < .01$) (Figures 2 and 3). When controlling for age, ethnicity, and education, specific contrasts showed that the difference in mean PTSD symptoms between the Family conflict/moderate risk and Minimal risk class trended toward significance ($\chi^2(df = 1) = 3.82$, $p = .05$). Additionally, the Adulthood abuse/polyvictimization class had significantly higher PTSD symptoms than both the Minimal risk class ($\chi^2(df = 1) = 14.22$, $p < .001$) and the Chronic abuse/polyvictimization class ($\chi^2(df = 1) = 5.43$, $p < .05$). No other contrasts in PTSD symptoms were significant.

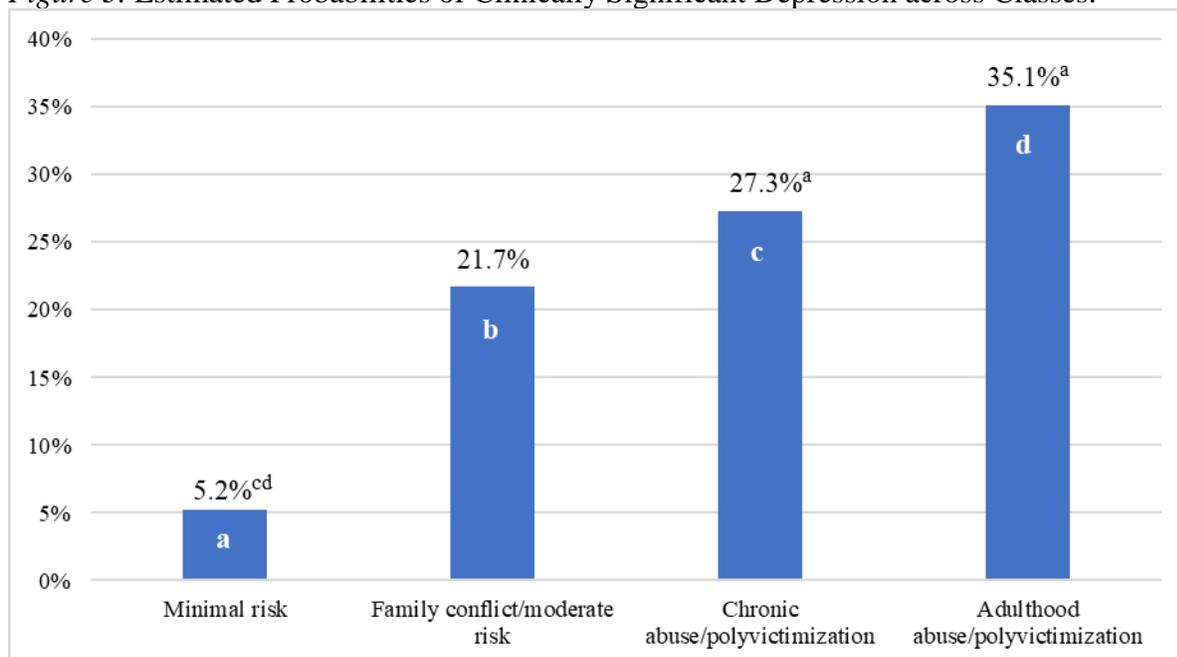
Figure 2. Mean PTSD Scores by Class.



Note. Superscripts indicate which columns are significantly different; for example, column *c* (Chronic abuse) is significantly different from column *d* (Adulthood abuse) at $p < .05$.

Results for depression indicated that members of the Chronic abuse/polyvictimization class ($\chi^2(df = 1) = 5.76, p < .05$) and Adulthood abuse/polyvictimization class ($\chi^2(df = 1) = 5.69, p < .05$) were significantly more likely than those of the Minimal risk class to qualify as having clinically elevated depressive symptoms. The contrast between the Minimal risk class and Family conflict/moderate risk class also trended toward significance ($\chi^2(df = 1) = 3.63, p = .06$), with members of the Family conflict/moderate risk class having higher probabilities of endorsing clinically significant depressive symptoms. No other contrasts in the probabilities of depression were significant.

Figure 3. Estimated Probabilities of Clinically Significant Depression across Classes.



Since the DCAT command cannot accommodate covariates, a binary logistic regression was conducted in SPSS to replicate the effect of class on depression while controlling for study and education. Education, study, and dummy-coded class (with Minimal risk and Study 2 as the reference groups) were entered. Due to the small number of participants with clinically significant depression ($n = 31$), education was collapsed into two levels, Bachelors or higher versus less than Bachelors obtained (reference group) in order to minimize the number of

independent variables in the analysis. When controlling for study and education, class remained a significant predictor of clinically elevated depressive symptoms (Table 8). Additionally, membership in each of the three moderate to high risk classes significantly increased the odds of high levels of depression.

Table 8.

Binary Logistic Regression with Most Likely Class, Education, and Study Predicting Clinically Significant Depression

	OR (95% CI)
Bachelors or higher	.14 (.03, .64)*
Study	.48 (.20, 1.16)
Family conflict/moderate risk	3.98 (1.23, 12.87)*
Chronic abuse/polyvictimization	7.81 (2.26, 27.02)**
Adulthood abuse/polyvictimization	10.36 (2.95, 36.35)***

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

Discussion

Person-oriented research has made a significant contribution toward our understanding of how PTEs co-occur and how patterns of life events relate to PTSD and depressive symptoms. However, an important gap in this literature is that, while many person-oriented studies have included female participants, few have investigated PTE typologies in an exclusively female sample. Poverty, which is known to co-occur with certain life stressors and PTEs (Beyer, Wallis, & Hamberger, 2015), disproportionately affects ethnic minority women (U.S. Census Bureau, 2016), and some research has found that ethnic minorities are more likely to experience specific types of assaultive violence (McLaughlin et al., 2013; Roberts et al., 2011). The lifetime prevalence of nonsexual physical violence by an intimate partner, for example, is estimated at 35.2% among Hispanic, 40.9% among Black, 45.9% among American Indian or Alaska Native, 50.4% among non-Hispanic multiracial women, and 31.7% among White women (Black et al., 2010). Research providing a more comprehensive picture of PTE typologies in ethnic minority women is therefore particularly critical, as it may enhance prevention and intervention efforts.

This study aimed to extend previous research by utilizing a lifespan approach and examining a wider range of PTEs and stressful life events, including childhood and adulthood abuse/assault subtypes, childhood witnessing of violence between family members, parental divorce/separation, divorce/separation, sexual harassment, bereavement, and serious money problems in a sample of predominantly ethnic minority young women.

PTE and Stressful Life Event Typologies

We identified four distinct PTE typologies in our sample: 1) a Minimal risk class defined by relatively low risks of exposure to all PTEs and stressors; 2) a Family conflict/moderate risk class defined by intermediate risks of witnessing violence between family members in childhood, parental separation, bereavement, serious money problems, and other interpersonal PTEs; 3) a Chronic abuse/polyvictimization class defined by extremely high probabilities of childhood abuse (emotional abuse/neglect or physical neglect, physical abuse/assault, rape or other sexual abuse), and witnessing violence between family members in childhood, as well as high probabilities of most other PTEs and stressful life events, especially physical abuse/assault in adulthood; and 4) an Adulthood abuse/polyvictimization class, defined by extremely high probabilities of emotional abuse and physical abuse/assault in adulthood, and the highest between-class probabilities of sexual assault, separation or divorce, sexual harassment, bereavement, and serious money problems.

These subgroups are consistent with the larger body of PTE typology research (Houston et al., 2011; Shevlin & Elklit, 2008; Sullivan, Contractor, Gerber, & Neumann, 2017) as well as the results of the few studies that have examined PTEs in exclusively female samples (Cavanaugh et al., 2012; Cavanaugh et al., 2013). Typologies defined by adulthood abuse (Cavanaugh et al., 2012), childhood family conflict (Armour & Sleath, 2014), intermediate risk

(Shevlin & Elklit, 2008), chronic abuse/polyvictimization (Armour & Sleath, 2014; Cavanaugh et al., 2013), and minimal risk have previously been identified in separate studies (e.g., Armour & Sleath, 2014; Ballard et al., 2015; Cavanaugh et al., 2012; Cavanaugh et al., 2013; Houston et al., 2016). The replication of similar typologies in our study reinforces their conceptual validity. Additionally, the proportions of the Minimal risk (51.3%) and Adulthood abuse/polyvictimization (14.1%) typologies in our study align with those identified by Cavanaugh et al. (2012), who found that 63.1% of women in their sample fell in the minimal risk class, and 15.6% fell in the IPV class. The replication of Adulthood abuse and Chronic abuse/polyvictimization typologies in our sample is especially notable given that previous studies identifying these typologies among women were conducted with a nationally representative sample (Cavanaugh et al., 2013) and a predominantly White sample of women employed in nursing professions (Cavanaugh et al., 2012).

Our study also extends the prior literature by examining how previously identified typologies intersect with a broader range of adverse life events. Cavanaugh et al. (2012), who identified an adulthood abuse typology, limited their investigation to patterns of violence exposure. In our study, the Adulthood abuse typology was also defined by other experiences of PTEs and life stress, including divorce, sexual harassment, bereavement, and serious money problems. Similarly, while prior research has identified profiles defined by chronic abuse beginning in early childhood (Armour & Sleath, 2014; Cavanaugh et al., 2013), we found that the Chronic abuse/polyvictimization profile was further defined by substantial risk for sexual harassment, bereavement, and serious money problems. Finally, the class characterized by high risk for witnessing domestic violence and parental separation in childhood also had moderate risk for serious money problems and bereavement, which provides further insight into profiles

that have previously been defined solely by exposure to domestic violence in childhood (Armour & Sleath, 2014).

One notable finding from our study pertains to the general relation between lifespan severe financial stress and PTE typology severity; while the Minimal risk class had a 13% conditional probability of experiencing serious money problems, the probabilities in the other classes were 47% (Family conflict/moderate risk), 61% (Chronic abuse/polyvictimization), and 79% (Adulthood abuse/polyvictimization). Although research has shown that poverty is a risk factor for depression (Riolo, Nguyen, Greden, & King, 2005), and that higher income decreases conditional PTSD risk in Latina women (Rodriguez et al., 2008), experiences of poverty have not often been incorporated as a variable in PTE typology research. In our study, we specifically assessed money problems that were serious enough to interfere with acquiring food and shelter. In the U.S., an estimated 1.5 million families live in “extreme” or “deep” poverty (Acri et al., 2017). Women are more likely to live below the federal poverty line than men, and ethnic minority women are overrepresented among those living below the federal poverty line (U.S. Census Bureau, 2016). The current findings therefore illustrate how the study of PTE typologies cannot be isolated from the larger landscape of systemic inequalities in U.S. society. Furthermore, these findings support the need for integrative approaches to mental healthcare that provide case management in addition to psychotherapy services.

Clinical Outcomes

PTSD symptoms. In order to validate the class formation against well-known clinical correlates, we conducted analyses examining PTSD and MDD symptomatology. In line with previous research (Armour & Sleath, 2014; Cavanaugh et al., 2012), we found that the Adulthood abuse/polyvictimization class displayed significantly higher PTSD symptoms than the

Minimal risk class, and the difference in mean PTSD symptoms between the Family conflict/moderate risk class and Minimal risk class was marginally significant. We also found that the Adulthood abuse/polyvictimization class demonstrated significantly higher PTSD symptoms than the Chronic abuse/polyvictimization class. No other contrasts in PTSD symptoms across classes were significant.

Person-oriented studies have generally found that PTSD symptom severity and prevalence rates increase incrementally with the severity of the identified PTE typologies (Contractor et al., 2017; O'Donnell et al., 2017). Studies identifying profiles with high risks of exposure to intimate partner violence in adulthood (Cavanaugh et al., 2012; Armour & Sleath, 2014) have revealed robust associations with PTSD. Cavanaugh et al. (2012) found that in comparison to the low risk class, membership in the IPV class was associated with a four-fold increase in the odds of screening positive for PTSD. In a predominantly (81.8%) female sample of university students, Armour and Sleath (2014) identified a "parental victimization" profile, with high levels of exposure to witnessing domestic violence in childhood, but low levels of exposure to intimate partner violence in adulthood. This profile bears some resemblance to the Family conflict/moderate risk typology identified in our study, in which experiences of abuse were largely confined to childhood. Our finding of elevated PTSD symptoms in the Family conflict/moderate risk typology is consistent with Armour and Sleath's finding that the parental victimization profile displayed significantly higher PTSD symptoms than the lowest risk profile they identified.

While associations between PTSD symptoms and class membership were generally in line with our expectations, the lack of elevated PTSD symptoms in the Chronic abuse/polyvictimization class conflicts with the results of studies finding that membership in

polyvictimization classes is associated with greater risk for PTSD (e.g., Armour & Sleath, 2014; Cavanaugh et al., 2013; Ford et al., 2010; Shevlin & Elklit, 2008). In addition to the parental victimization profile, Armour and Sleath (2014) identified a profile with high exposure to domestic violence in childhood and intimate partner violence in adulthood, which is conceptually most similar to the Chronic abuse/polyvictimization typology class in our study. The chronic abuse and parental victimization profiles in Armour and Sleath's study both had significantly higher PTSD symptoms than the lower risk profile, but did not differ significantly from each other. It is possible that the Chronic abuse/polyvictimization class in our study underreported PTSD symptoms, but it is also possible that this finding stems from the small subsample size, as data regarding PTSD symptoms were only available from the 17 Study 1 participants in the Chronic abuse/polyvictimization class. At the same time, it is worth noting that even in studies of posttraumatic stress conducted with very large samples, unexpected findings are not entirely uncommon. For example, in the subsample of Black women ($n = 743$) participating the National Survey of Violence Against Women, physical abuse by an intimate partner was not associated with depression, but was associated with substance use (Lacey, McPherson, Samuel, Powell Sears, & Head, 2013). Given that the Chronic abuse/polyvictimization class did display high levels of clinically significant depression, our results, like those of Lacey et al. (2013), show how assessing only one indicator of mental health problems could have been misinterpreted as a sign of resilience, and speak to the importance of examining multiple clinical outcomes.

Clinically significant depression. We also found differences in class-specific probabilities of clinically significant depression. Both the Adulthood abuse/polyvictimization class and Chronic abuse/polyvictimization class had significantly higher estimated probabilities of clinically elevated depression than the Minimal risk class. The difference in estimated

probabilities of depression between the Family conflict/moderate risk class and Minimal risk class was marginally significant. Probabilities of depression in the Family conflict/moderate risk, Chronic abuse/polyvictimization, and Adulthood abuse/polyvictimization classes did not differ significantly from each other.

A growing number of studies have shown that high risk PTE typologies are related to increased likelihood of major depressive episodes as well as higher symptom severity (Contractor et al., 2017; O'Donnell et al., 2017). While the Family conflict/moderate risk class represents a less common typology in research with adult samples, the marginally significant difference in estimated depression between the Family conflict/moderate risk and Minimal risk classes is in line with Armour and Sleath's (2014) finding that a profile characterized by childhood-limited exposure to witnessing domestic violence between parents had elevated depressive symptoms when compared to the lowest risk profile identified. With regard to polyvictimization, prior research has found that relative to low risk classes, membership in polyvictimization typologies is related to a five- to seven-fold increase in the odds of a lifetime major depressive episode diagnosis (Cavanaugh et al., 2013; Houston et al., 2011). Specifically, in a nationally representative sample of women from the National Epidemiologic Study on Alcohol and Related Conditions, Cavanaugh and colleagues (2013) found rates of past-year major depressive episodes of 28.0% in a chronic polyvictimization class, as compared to 7.3% in a low risk class. These rates are highly similar to the clinically significant depression prevalence estimates of 27.3% in the Chronic abuse/polyvictimization class and 5.2% in the Minimal risk class estimated in our study.

Our results are also consistent with the well-established effect of adulthood experiences of PTEs and stressful life events, including bereavement, divorce, sexual harassment (e.g.,

Kendler et al., 1995; Kendler, Karkoswki, & Prescott, 1999; Muazzam, Qayyum, & Cheng, 2016) and abuse (Lacey et al., 2013), on depressive symptoms in women (Cavanaugh et al., 2012). Depression is one of the most frequent mental health problems related to intimate partner violence (Golding, 1999), and membership in the “IPV” typology of women identified by Cavanaugh et al. (2012) was associated with a two-fold increase in the odds of screening positive for depression. In our study, the Adulthood abuse/polyvictimization class had an even stronger relationship with clinically significant depression, which might potentially be explained by women’s high risk for a wide range of both Criterion A and stressful life events.

Limitations and Strengths

This study possesses several notable limitations. One of its most important limitations is that analyses were constrained by small subgroup sizes. Another important limitation is that our ability to examine demographic associations with class membership was restricted due to significant relations between age, ethnicity, and education, as well as demographic differences across the pooled samples. Class membership was not related to education or ethnicity, but higher age significantly decreased the likelihood of membership in the Family conflict/moderate risk class. Notably, the relation between age and the Family conflict/moderate risk class persisted when controlling for study, but could also have been confounded by the multiple interdependencies between sociodemographic variables. Additionally, we relied on retrospective self-report measures of PTE and stressful life event exposures, PTSD, and depression. Our assessment of the context of sexual and physical violence was also limited because, while the questions assessing nonsexual physical violence asked whether participants had been abused or assaulted by someone they knew (e.g., a parent, boyfriend, or husband), none of the violence exposure questions specified the exact context of the victimization (e.g., an intimate partner

relationship). Further assessment of the context of violence against women is critical. Finally, both samples come from predominantly low-income communities in a large midwestern city in the U.S., and as such, results may not be generalizable to other populations. Recruitment procedures in Study 1 targeted women who may have experienced prenatal intimate partner violence (although women without IPV histories were also included).

Notwithstanding these limitations, this study has several strengths. Person-oriented research has underscored some of the conceptual issues with relying only on cumulative, variable-centered models of PTEs—which assume that the consequences of any two PTEs, regardless of their specific nature, are equivalent—and highlighted the need for complementary statistical approaches (Berzenski & Yates, 2011; Keane et al., 2016). The current study is one of the first to examine patterns of PTEs and stressful life events in a sample of young predominantly ethnic minority women, providing further information regarding existing subgroups and clinical profiles. Secondly, we assessed the developmental window in which PTEs occurred, including childhood and adulthood violence exposures. We also assessed a wider range of life events than has typically been included in PTE typologies, including lifespan exposures to bereavement, sexual harassment, and serious money problems, which showed unique associations with class membership, providing a more in-depth picture of previously identified typologies. Finally, we assessed both PTSD and depressive symptoms, allowing us to obtain a more comprehensive understanding of women’s psychological functioning.

Violence against women is a pervasive and toxic cultural problem in the U.S., and nationally representative research has shown that ethnic minority women are at even higher risk for experiencing certain forms of violence (Black et al., 2010). The results of the current study emphasize the utility of person-oriented methods for identifying particularly vulnerable

subgroups of young predominantly ethnic minority women with high probabilities of exposure to violence. Our results reinforce the argument that clinicians and researchers assessing posttraumatic stress should routinely incorporate a broad evaluation of PTE and stressful life event exposures (Dhingra, Boduszek, & Sharratt, 2016), as well as mental health outcomes. Findings also underscore the importance of holistic conceptualizations of posttraumatic stress that consider how sociocultural factors, including gender, ethnicity, and poverty, may intersect and interact with PTEs and stressful life events.

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