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Adverse childhood experiences (ACEs), excessive alcohol use and intimate partner violence (IPV) perpetration among Black men: A latent class analysis

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Abstract

**Background:** Adverse childhood experiences (ACEs) have been linked to subsequent intimate partner violence (IPV) perpetration and alcohol use. Although higher rates of ACEs are found in racial/ethnic minority populations, there is a paucity of research examining ACEs patterns and risk for IPV perpetration and excessive alcohol use among Black men.

**Objective:** To identify homogeneous subgroups based on ACEs among Black men using latent class analysis and assessing risk for later IPV perpetration and excessive alcohol consumption in adulthood.

**Methods:** Using a sample of Black men \((n = 2,306)\) from Wave 2 of the National Epidemiologic Survey of Alcohol and Related Conditions (NESARC), we conducted latent class analysis (LCA) to examine their ACEs patterns based on 10 domains. ACE classes were used in logistic regression models to predict IPV perpetration and unhealthy alcohol use.

**Results:** LCA revealed three classes: (1) *High Household Dysfunction & Physical Neglect;* (2) *Physical/Emotional Abuse;* and (3) *Low ACEs.* Men in the *High Household Dysfunction & Physical Abuse* \((OR = 3.95, p < 0.001)\), and *Physical/Emotional Abuse* \((OR = 2.37, p < 0.001)\) classes had increased risk for IPV perpetration (ref: *Low ACEs class*) controlling for sociodemographic factors. No significant association was found between class membership and unhealthy alcohol use.

**Conclusions:** Our findings highlight the need for interventions aimed at addressing ACEs among Black boys as they increase risk for negative outcomes in adulthood. Future research should explore heterogeneity in ACEs among youth and risk of IPV and explore possible causal mechanisms in the development of IPV among adults who have experienced ACEs.

**Keywords:** Adverse childhood experiences; Alcohol use; Intimate partner violence; Black men; Latent Class Analysis
1. Introduction

Adverse childhood experiences (ACEs) are harmful and often traumatic events that occur prior to age 18 and include emotional and physical neglect; verbal, physical, and sexual abuse; and household dysfunction (i.e., substance abuse, mental illness, domestic violence, and incarceration) (Anda et al., 2002; Anda et al., 2006; Centers for Disease Control [CDC], 2010; Felitti et al., 1998). In the United States, an estimated 45% of children experience one or more ACEs (Sacks & Murphy, 2018). Black children are disproportionately affected by ACES, representing 17.4% (6 in 10) of all children exposed to one or more adversities in childhood (Bethell et al., 2017). Exposure to stress and traumatic events resulting from ACEs is associated with myriad of problems in health and social functioning (Danese & McEwen, 2012; Shern et al., 2016).

1.1. Effects of adverse childhood experiences on health and well-being

ACEs are associated with numerous physical and mental health consequences in childhood and adulthood. Exposure to adversity in childhood is associated with learning and behavior problems, obesity, and decrements in mental, cognitive and socioemotional health in children (Burke et al., 2011; Center on the Developing Child, 2007; Larsonet al., 2008; Romano et al., 2014; Slopen et al., 2014). ACEs may increase risk for psychosis (Varese et al., 2012), personality disorders (Afifi et al., 2010), suicide (Blasco-Fontecilla et al., 2013; Lopez-Castroman et al., 2012), aggression, anxiety, and depression (Nurius et al., 2015; Turner et al., 2006); a range of general health problems in adulthood (e.g., obesity, hypertension, type 2 diabetes etc.; Felitti & Anda, 2010); behavioral disorders (McLaughlin et al., 2012; Sharma & Sacco, 2015); and illicit drug use (Dube et al., 2002; Nomura et al., 2012) in adults.
ACEs have also been linked to increased risk of IPV perpetration (Anda et al., 2006; Cui et al., 2010; Fonseka et al., 2015; Franklin et al., 2012; Lee, Bright & Betz, 2020) and adult alcohol use (Brady & Backs, 2012; Fuller-Thompson et al., 2016). Researchers have found a graded (i.e., dose-response) relationship between ACEs and IPV perpetration, such that higher exposure to adversity in childhood is associated with greater risk for IPV perpetration (Anda et al., 2006; Fonseka et al., 2015). Additionally, research dating back almost four decades (Straus et al., 1980; Straus & Gelles, 1986) to present (Cunradi et al., 2013; Schafer et al., 2004) have implicated Black men as having higher rates of violence perpetration when compared to their White or other ethnic counterparts. These high rates of perpetration by Black men have been explained by their heightened experience of adversity in childhood; marginalization, discrimination, unemployment, lack of advancement (Hampton et al., 2003); and disproportionately high rates of incarceration (Oliver & Hairston, 2008), that may act as stressors (Caetano et al., 2005).

ACEs is also associated with increased risk for alcohol use in adulthood (Dube et al., 2005; Pilowsky et al., 2009), such that individuals who experience ACEs may [mis]use alcohol as a coping strategy to process their experiences of abuse and neglect and other chronic stress initiated as a result of their childhood experiences (Rothman et al., 2008; Strine et al., 2012). Taken together, ACEs, as an individual item or a cumulative score, have detrimental effects on individuals’ overall wellbeing and functioning, particularly among racial and ethnic minority groups, especially Black, who have higher risk of ACEs (Lee & Chen, 2017) and increased risk for IPV perpetration (Bethell et al., 2017; Lee et al., 2020). Although Black men have lower drinking rates in contrast to men in other ethnic groups, they have higher rates of alcohol-related problems, likely due to social and economic disadvantage (Chartier & Caetano, 2010). Blacks
and Hispanics experience greater exposure to social disadvantage, including higher rates of poverty, unfair treatment, racial/ethnic stigma, and cumulative disadvantage in comparison to Whites, resulting in greater risk for alcohol problems (Mulia et al., 2008). Despite the exposure of Blacks and Hispanics to social disadvantage resulting in increased risk for alcohol problems, the focus of this study is specifically on Black men because of the intergenerational transmission of trauma common among this racial group. Notably, Black individuals have endured centuries of trauma (e.g., slavery, Jim Crow, the convict lease system, mass incarceration) that has had a lasting effect on the behavior and wellbeing of Black individuals in the United States, especially Black boys and men (DeGruy Leary, 2005; Hill, 1999).

In addition to race/ethnicity, other sociodemographic characteristics, such as age, household income, educational attainment, employment and marital status, have been found to be associated with ACEs. For example, Giano et al. (2020) found that younger age (≥25 years) was associated with higher mean ACE scores when compared to older individuals (≥64 years) who had lower ACE scores, although this may be attributable to recall bias. Having lower household income, educational attainment (i.e., less than high school) and being unemployed were also associated with higher mean ACE scores within the sample. Furthermore, Anderson (2017) found that men who experienced adversity in childhood (i.e., living with a depressed parent/guardian and parental divorce/separation) had increased odds of being unmarried and divorced/separated in comparison to those who were married. In summary, research has consistently shown a link between ACEs and adult sociodemographic factors.

Due to the myriad disadvantages—marginalization, discrimination, unemployment and so on — and trauma (e.g., slavery, Jim Crow) experienced by Black men, various coping strategies, adaptive and maladaptive, may be employed, which are carried from one generation to the next.
Furthermore, behaviors learned in childhood (e.g., ACEs, relationship discord, and alcohol use) are often accepted as normal and carried into intimate relationships in adulthood. Given the paucity of research that have examined this phenomenon among Black men, this study is warranted to address this gap in knowledge.

1.2. Heterogeneity in patterns of ACEs

Childhood adversities do not occur in isolation and often co-occur (Dong et al., 2004; Finkelhor et al., 2007; Lee, Bright, Sacco, & Smith, Under Review). The co-occurrence of ACEs may create layered stress, damages various aspects of the developing brain, fosters maladaptive health and behavioral habits, and limits an individual’s ability to form protective relationships (Shonkoff et al., 2012). Therefore, the effects of ACEs may vary by the pattern of individuals’ adverse experiences. ACEs are often measured as a binary or as a cumulative frequency score to account for the co-existence of ACEs (Schumacher et al., 2001), with a score of ≥4 often used as a critically important benchmark (Anda et al., 2006; Fonseka et al., 2015). One limitation of these scoring approaches is that they provide information on an individual's general ACE exposure (i.e., exposure to different kinds of ACEs), rather than multiple exposures to the same ACE domain (Finkelhor et al., 2011).

To address the above noted challenge, latent class analysis has been used to derive homogenous subpopulations (i.e., classes) of individuals based on reported childhood patterns of ACEs (Barboza, 2018; Masyn, 2013; Parra et al., 2006). LCA is a person-centered analysis where individuals are classified by item responses. This enables one to see unobserved (i.e., latent) subgroups in an overall population of persons. Research based on latent classes of ACEs has identified between three and five classes (e.g., Barboza, 2018; Blum et al., 2019; Shin et al., 2018; Vaughn et al., 2017). Typically, researchers isolate a low-risk class, representing between
two-thirds and three-quarters of the population, and at least one high severity class reflecting a high probability of all ACE types. Findings have varied as a function of inclusion criteria, indicators, and estimation model.

2. Theoretical framework

This study is guided by Bandura’s (1977) Social Learning Theory (SLT) and Feminist Perspective with a focus on threats masculinity (Ali & Naylor, 2013). The SLT explains human behaviors as a continuous process—between cognitive, behavioral, and environmental forces—where attitudes and behaviors learned in childhood, from parents and society, through imitation, observation and modeling are carried into and enacted in adult relationships (Bandura, 1977). As such, through exposure to adversity in childhood, including witnessing parental IPV and substance use, children view these behaviors as acceptable, which are reenacted in intimate relationships, resulting in the intergenerational transmission of these learned behaviors.

Feminists posit that violence in heterosexual relationships is based on gendered socialization and structures, which pose as threats to men’s perceived masculinity. Specifically, this framework explains that men are culturally socialized, and when viewed through a patriarchal and masculine lens are seen as head of the household, provider, and breadwinner (Peralta & Tuttle, 2013). In cases where gendered expectations (e.g., childcare, performing sexual favors etc.) are not adhered to by men’s intimate female partners (Jewkes et al., 2015), violence is often used as means of maintaining discipline, power, and control within their relationships. Perceived threats to masculinity are also heightened when men consume alcohol, resulting in more aggressive responses to their female partners to reassert their masculine identities (Graham et al., 2013).
**Current Study**

In the current study, our analysis centers on the effects of ACEs on Black men using a latent class model. The objective of this study was to identify homogeneous subgroups of Black men based on their experiences with adversity in childhood. The second aim of the study was to test the effect of these distinct patterns of ACEs on IPV perpetration and excessive alcohol consumption in adulthood.

**3. Methods**

**3.1. Data source and sample population**

Secondary data from Wave 2 of the National Epidemiological Survey of Alcohol and Related Conditions (NESARC) were used for this study. The NESARC is a nationally representative sample of non-institutionalized civilians, aged 18 years or older, residing in all 50 states within the United States and the District of Columbia. This longitudinal study was conducted over two waves, 2001 - 2002 (Wave 1) and 2004 - 2005 (Wave 2). A multistage probability sampling design was used to obtain nationally representative estimates. Black Americans were oversampled by the NESARC survey to allow for precision estimates for this population. This study was approved by the University of Maryland Baltimore Institutional Review Board. The current study utilized a subsample \((n = 2306)\) of Non-Hispanic Black men who participated in the Wave 2 interview, after 20 cases were removed because of missingness.

**3.2. Measures**

**3.2.1. Adverse childhood experiences (ACEs)**

Ten ACEs domains were developed using multiple questions. These domains included physical neglect (5 items), emotional neglect (5 items), physical abuse (2 items), sexual abuse (4 items), emotional abuse (3 items), witnessing violence against a mother or female caregiver (4
items), having a parent or caregiver with a drug problem (1 item), caregiver with an alcohol problem (1 item), an incarcerated parent, and parental mental illness (3 items). These ACE domains were derived from the Conflict Tactic Scale (CTS; Straus, 1979; Straus & Gelles, 1990), and the Childhood Trauma Questionnaire (CTQ; Bernstein et al., 1994; Wyatt, 1985). All ACE domains were coded as binary (0 = no exposure and 1 = exposure).

3.2.2. Intimate partner violence (IPV) perpetration

Five questions assessed physical violence perpetration — how often did you (1) push, grab, or shove your spouse/partner in the past-year? (2) slap, kick, bite, or hit your spouse/partner in the past-year? (3) threaten your spouse/partner with a weapon like a knife or gun in the past-year? (4) cut or bruise your spouse/partner in the past year? and (5) injure your spouse/partner enough that they had to get medical care in the past-year? We created a binary measure of past-year IPV perpetration (0 = no and 1 = yes) preceding the NESARC interview. These questions were adapted from previous studies (Cunradi et al., 1999; White & Chen, 2002) by the NESARC survey team.

3.2.3. Excessive alcohol consumption

Using National Institute of Alcohol Abuse and Alcoholism (NIAAA) physician guidelines, survey creators assessed whether male respondents exceeded their daily (>4 standard drinks) or weekly (>14 standard drinks) limits in the year prior to the interview. Responses were coded as positive if daily or weekly drinking limits (using a standard drink size of 0.6 oz. of ethanol) were exceeded. Individuals with daily alcohol intake of ≥1.2 oz. ethanol were coded as heavy alcohol drinkers (coded as 1) and those below as non-heavy drinkers (coded as 0; Wave 2 NESARC Data Notes, 2008).
3.2.4. Covariates

Age, marital status, educational attainment, household income, and employment status were included in the regression models as covariates. Age was treated as a continuous variable. Marital status (i.e., Married/living with someone as if married, widowed/divorced/separated, and never married [ref]); education (Less than high school [ref], high school, and greater than high school); household income (<$25,000 [ref], $25,000–$39,999, $40,000–$69,999, $70,000–$99,999, and ≥$100,000); and employment status (employed and unemployed [ref]) were treated as categorical variables.

3.3. Analysis

3.3.1. Latent class model estimation

Using Mplus (Muthén & Muthén, 1998-2017), we estimated latent class analysis (LCA) models to identify homogeneous classes of ACEs using the childhood adversity variables as indicators. A series of hierarchical models (i.e., 1-class, 2-classes) were run to identify the best fitting number of classes. Robust maximum likelihood (MLR) estimation using the “TYPE = COMPLEX MIXTURE” was used to address non-normality and the multistage sampling structure of the data (Muthén & Muthén, 1998-2017). Information criteria (AIC, BIC, & ABIC), item-level probabilities, –2 log likelihood estimates, and entropy values were used to select the best fitting model to the data.

3.3.2. Effect of class membership on alcohol use and IPV

After a final latent class model was selected, the most likely class status was exported to Stata (StataCorp, 2019), and two logistic regression analyses were estimated. Multivariate analysis included only Black men who: (1) were current drinkers since the last interview; (2) indicated being married, dating or in a romantic relationship in the previous year prior to the
interview, and (3) identified as being heterosexual. Controlling for sociodemographic characteristics – age, marital status, educational attainment, household income, and employment status – the first analysis examined class membership as a predictor of IPV perpetration, and the second analysis assessed the effect of class membership on excessive alcohol use in adulthood.

4. Results

Multiple nested latent class models were estimated beginning with a one-class solution and continuing with the addition of one class at a time. Model fit improved with the addition of each class until the four-class solution when some indicators did not converge, and the threshold fixed. The three-class model – Class 1 (High Household Dysfunction & Physical Neglect), Class 2 (Physical/Emotional Abuse), and Class 3 (Low ACEs) – was selected based on the lowest AIC, BIC, and ABIC values, high entropy value (0.80; Celeux & Soromenho, 1996), the Vuong-Lo-Mendell-Rubin Log Likelihood Ratio Test, and the adjusted LRT test (see Table 1).

Table 1

Model fit evaluation.

<table>
<thead>
<tr>
<th>Model</th>
<th>LL</th>
<th>AIC</th>
<th>BIC</th>
<th>ABIC</th>
<th>Entropy</th>
<th>VLMR</th>
<th>Adjusted LRT Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Class</td>
<td>-10,115.2</td>
<td>20,252.41</td>
<td>20,315.59</td>
<td>20,280.64</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2-Class</td>
<td>-8650.92</td>
<td>17,343.84</td>
<td>17,464.45</td>
<td>17,397.73</td>
<td>0.78</td>
<td>-9,693.15*</td>
<td>2,084.46*</td>
</tr>
<tr>
<td>3-Class</td>
<td>-8,396.32</td>
<td>16,856.65</td>
<td>17,040.44</td>
<td>16,938.77</td>
<td>0.80</td>
<td>-8,650.92*</td>
<td>503.27*</td>
</tr>
</tbody>
</table>

Note. LL = log likelihood; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; ABIC=Sample-size adjusted Bayesian Information Criteria; VLMR= Vuong-Lo-Mendell-Rubin Log Likelihood Ratio Test; LRT = log likelihood ratio test; *p < 0.001
4.1. **Sample characteristics based on class membership**

Across the *High Household Dysfunction & Physical Neglect*, *Physical/Emotional Abuse* and *Low ACEs* classes Black men had a mean age of 42 (*SD* = 13.58), 45 (*SD* = 14.49) and 45 (*SD* = 16.95) years, respectively. Regardless of class membership, men were mostly born in the U.S., married or living with someone as if married, employed and were current drinkers (see
Additionally, men with *High Household Dysfunction & Physical Neglect* and *Low ACEs* class memberships reported more high school education (*n* = 104, 48%; *n* = 609, 47%, respectively) and having an annual household income less than $25,000 (*n* = 83, 32%; *n* = 500, 35%, respectively) when compared to men with *Physical/Emotional Abuse* class membership who reported having greater than high school education (*n* = 416, 54%) and annual household income of $40,000–$69,999 (*n* = 204, 27%). Although men across all three classes reported IPV perpetration, Black men with *High Household Dysfunction & Physical Neglect* class membership reported higher rates of IPV perpetration (*n* = 25, 13%) than men in the other two classes. Chi square analyses indicated significant differences among Black men based on class membership and sociodemographic characteristics.

**Table 2**

*Demographic Characteristics Based on Class Membership*

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>High Household Dysfunction &amp; Physical Neglect (n = 238, 10.48%)</th>
<th>Physical/Emotional Abuse (n = 763; 32.27%)</th>
<th>Low ACEs (n = 1,305; 57.25%)</th>
<th>X²</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. born</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>9 (4.86)</td>
<td>63 (8.83)</td>
<td>119 (11)</td>
<td>X²(52, N = 2,306) = 128.78, p &lt; 0.001</td>
</tr>
<tr>
<td>Yes</td>
<td>229 (95.14)</td>
<td>700 (91.17)</td>
<td>1186 (89)</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married/living as married</td>
<td>114 (51.76)</td>
<td>379 (56.04)</td>
<td>604 (49)</td>
<td>X²(52, N = 2,306) = 137.44, p &lt; 0.001</td>
</tr>
<tr>
<td>Widowed/divorced/separated</td>
<td>53 (15.95)</td>
<td>183 (16.62)</td>
<td>323 (17.66)</td>
<td></td>
</tr>
<tr>
<td>Never married</td>
<td>71 (32.29)</td>
<td>201 (27.34)</td>
<td>378 (33.25)</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>15 (3.42)</td>
<td>37 (4.11)</td>
<td>104(5.49)</td>
<td>X²(52, N = 2,306) = 151.03, p &lt; 0.001</td>
</tr>
<tr>
<td>High school</td>
<td>104 (48.43)</td>
<td>310 (41.48)</td>
<td>609 (46.98)</td>
<td></td>
</tr>
<tr>
<td>Greater than high school</td>
<td>119 (48.15)</td>
<td>416 (54.41)</td>
<td>592 (47.53)</td>
<td></td>
</tr>
<tr>
<td>Household Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; $25,000</td>
<td>83 (32.78)</td>
<td>215 (25.58)</td>
<td>500 (34.83)</td>
<td>X²(52, N = 2,306) = 705.66, p &lt; 0.001</td>
</tr>
<tr>
<td>$25,000–$39,999</td>
<td>45 (22.29)</td>
<td>145 (17.39)</td>
<td>259 (20.47)</td>
<td></td>
</tr>
</tbody>
</table>
$40,000–$69,999  51 (21.55)  204 (27.61)  315 (25.9)
$70,000–$99,999  34 (13.92)  129 (18.83)  125 (9.31)
≥ $100,000  25 (9.46)  70 (10.59)  106 (9.49)

Employment Status 1
Employed 163 (70.49)  537 (74.82)  812 (66.46)  $2 \chi^2 (52, N = 2,306) = 209.95 \ p < 0.001
Unemployed 75 (29.51)  226 (25.18)  493 (33.54)

Perpetrated IPV
No 180 (86.45)  576 (92.42)  891 (96.53)  $2 \chi^2 (50, N = 2,306) = 555.41, \ p < 0.001
Yes 25 (13.55)  51 (7.58)  31 (3.47)

Lifetime drinking status
Current drinker 154 (67.27)  504 (69.62)  766 (60.68)  $2 \chi^2 (52, N = 2,306) = 277.81 \ p < 0.001
Former drinker 65 (23.55)  193 (22.27)  377 (26.25)
Lifetime abstainer 19 (9.18)  66 (8.11)  162 (13.07)

Exceeded weekly/daily drinking limits
No 73 (43.04)  268 (50.51)  409 (49.83)  $2 \chi^2 (46, N = 1421) = 55.63 \ p = 0.02
Yes 81 (56.96)  235 (49.49)  355 (50.17)

Age (in years)
\[ M (SD) \]
\[ 42 (13.58) \]
\[ 45 (14.49) \]
\[ 45 (16.95) \]

Note. Weighted data were used in these analyses; 1 Employment status was coded using a hierarchical method (i.e., employed, retired, unemployed, and other - students, full-time homemakers, or individuals who engaged in some other activity) to account for individuals in multiple categories. These groups were then dichotomized to employed and unemployed (i.e., retired, unemployed, and other).

4.2. Latent class analysis

Two thousand three hundred and six Black men were classified across three classes:

Class 1 (High Household Dysfunction & Physical Neglect; \( n = 238 \)), Class 2 (Physical/Emotional Abuse; \( n = 763 \)), and Class 3 (Low ACEs; \( n = 1305 \)). Across all three classes, the most common ACEs were emotional and physical abuse, having a battered mother, and having an individual with alcohol problems in the household (see Table 3).

In the final LCA model (see Figure 1), Class 1 (High Household Dysfunction & Physical Neglect) displayed the highest probability of almost all types of ACEs, with the exception of physical and emotional abuse. Class 2 (Physical/Emotional Abuse) was distinctive for high probabilities of emotional (0.90) and physical (0.87) abuse. This class also had somewhat high probability of maternal IPV victimization (i.e., “battered mother”; 0.33) and having a caregiver
with a mental illness (0.28). The third class, “Low ACEs” displayed the lowest item probabilities for any type of childhood adversities.

Table 3.

**Prevalence of ACEs by Class Membership**

<table>
<thead>
<tr>
<th>ACEs</th>
<th>ACEs Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High Household Dysfunction &amp; Physical Neglect (n = 238; 10.48%)</td>
</tr>
<tr>
<td>(n, %)</td>
<td>(n, %)</td>
</tr>
<tr>
<td>Physical Neglect</td>
<td>156 (67.14)</td>
</tr>
<tr>
<td>Emotional Neglect</td>
<td>39 (17.65)</td>
</tr>
<tr>
<td>Emotional Abuse</td>
<td>161 (62.72)</td>
</tr>
<tr>
<td>Physical Abuse</td>
<td>155 (62.14)</td>
</tr>
<tr>
<td>Sexual Abuse</td>
<td>51 (23.94)</td>
</tr>
<tr>
<td>Battered Mother</td>
<td>139 (57.34)</td>
</tr>
<tr>
<td>Mental Illness in Household</td>
<td>84 (32.00)</td>
</tr>
<tr>
<td>Alcohol Problem in Household</td>
<td>194 (81.11)</td>
</tr>
<tr>
<td>Drug Problem in Household</td>
<td>107 (50.43)</td>
</tr>
<tr>
<td>Incarcerated Household Member</td>
<td>165 (67.85)</td>
</tr>
</tbody>
</table>

*Note. Weighted data were used in these analyses*

4.3. **Risk for IPV perpetration and excessive alcohol use based on class membership**

4.3.1. **IPV Perpetration**

Membership in the *High Household Dysfunction & Physical Neglect* (Class 1) and *Physical/Emotional Abuse* (Class 2) classes were significant predictors of IPV perpetration
among Black men when compared to men with Low ACEs membership (Class 3; see Table 4). Black men in the High Household Dysfunction & Physical Neglect class had almost 4 times the odds ($OR = 3.95, p < 0.001$) of perpetrating IPV when compared to men with Low ACEs. Similarly, in comparison to men with Low ACEs class membership, men in the Physical/Emotional Abuse group had approximately 3 times ($OR=2.37, p < 0.001$) greater odds of perpetrating IPV. Additionally, age and income were significant predictors of IPV perpetration in this model. That is, older age was associated with lower risk ($OR=0.96, p<0.001$) of IPV perpetration among Black men. When compared to men with household income of less than $25,000, those who earned between $25,000 and $39,999 were 36% more likely ($OR = 1.36, p < 0.02$) to perpetrate IPV, while those with income of $40,000–$69,999 ($OR = 0.55, p < 0.001$), $70,000–$99,999 ($OR = 0.33, p < 0.001$), and $100,000 or more ($OR = 0.64, p = 0.001$) had lower odds of perpetrating IPV.

4.3.2. Excess Alcohol Use

No significant association was found between IPV, class membership, and excessive alcohol use (i.e., >2 standard drinks daily and >14 standard drinks weekly) among Black men (see Table 5). Covariates, including age and income were significant predictors of excessive alcohol use. Notably, older Black men had lower risk ($OR = 0.95, p < 0.001$) of excessive alcohol use. In comparison to men with an annual income of <$25,000, those who earned $25,000–$39,999 ($OR = 0.66, p < 0.001$), $40,000–$69,999 ($OR = 0.68, p < 0.001$), $70,000–$99,999 ($OR = 0.72, p < 0.001$), and $100,000 or more ($OR = 0.76, p = 0.001$) were less likely to exceed drinking limits.
Table 4

*Logistic Regression Analysis for IPV Perpetration and Class Membership (N = 1,126)*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>OR</th>
<th>SE</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class membership¹:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class 1 (High Household Dysfunction &amp; Physical Neglect)</td>
<td>3.95*</td>
<td>0.95</td>
<td>[2.42, 6.44]</td>
</tr>
<tr>
<td>Class 2 (Physical/Emotional Abuse)</td>
<td>2.37*</td>
<td>0.38</td>
<td>[1.70, 3.30]</td>
</tr>
<tr>
<td>Age</td>
<td>0.96*</td>
<td>0.005</td>
<td>[0.95, 0.97]</td>
</tr>
<tr>
<td>Employment Status²</td>
<td>0.86</td>
<td>0.20</td>
<td>[0.53, 1.37]</td>
</tr>
<tr>
<td>Income³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$25,000 - $39,999</td>
<td>1.36**</td>
<td>0.18</td>
<td>[1.03, 1.80]</td>
</tr>
<tr>
<td>$40,000 - $69,999</td>
<td>0.55*</td>
<td>0.08</td>
<td>[0.41, 0.73]</td>
</tr>
<tr>
<td>$70,000 - $99,999</td>
<td>0.33*</td>
<td>0.05</td>
<td>[0.23, 0.47]</td>
</tr>
<tr>
<td>≥ $100,000</td>
<td>0.64**</td>
<td>0.07</td>
<td>[0.50, 0.82]</td>
</tr>
<tr>
<td>Education⁴</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>2.02</td>
<td>2.06</td>
<td>[0.25, 15.89]</td>
</tr>
<tr>
<td>Greater than High School</td>
<td>1.76</td>
<td>1.78</td>
<td>[0.22, 13.74]</td>
</tr>
<tr>
<td>Marital Status⁵</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married/Living with Someone as if Married</td>
<td>1.32</td>
<td>0.24</td>
<td>[0.91, 1.95]</td>
</tr>
<tr>
<td>Widowed/Divorced/Separated</td>
<td>1.48</td>
<td>0.38</td>
<td>[0.87, 2.51]</td>
</tr>
</tbody>
</table>

*Note.* Weighted data were used in these analyses; *SE* = standard error; *OR* = odds ratio; *CI* = confidence interval; ¹Reference group = Class 3 (low ACEs); ²Reference group = not employed; ³Reference group = <$25,000; ⁴Reference group = Less than high school; ⁵Reference group = Never married; *p < 0.001; **p < 0.05
Table 5.

*Logistic Regression Analysis for Excess Alcohol Use and Class Membership (N = 1,124)*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>OR</th>
<th>SE</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class membership</strong>¹:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class 1 (High Household Dysfunction &amp; Physical Neglect)</td>
<td>1.08</td>
<td>0.13</td>
<td>[0.84, 1.39]</td>
</tr>
<tr>
<td>Class 2 (Physical/Emotional Abuse)</td>
<td>1.04</td>
<td>0.05</td>
<td>[0.93, 1.16]</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>0.95*</td>
<td>0.002</td>
<td>[0.95, 0.96]</td>
</tr>
<tr>
<td><strong>Employment Status</strong>²</td>
<td>0.79</td>
<td>0.07</td>
<td>[0.65, 0.96]</td>
</tr>
<tr>
<td><strong>Income</strong>³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$25,000 - $39,999</td>
<td>0.66*</td>
<td>0.06</td>
<td>[0.54, 0.80]</td>
</tr>
<tr>
<td>$40,000 - $69,999</td>
<td>0.68*</td>
<td>0.05</td>
<td>[0.57, 0.80]</td>
</tr>
<tr>
<td>$70,000 - $99,999</td>
<td>0.72*</td>
<td>0.05</td>
<td>[0.61, 0.84]</td>
</tr>
<tr>
<td>≥ $100,000</td>
<td>0.76*</td>
<td>0.05</td>
<td>[0.66, 0.88]</td>
</tr>
<tr>
<td><strong>Education</strong>⁴</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>1.02</td>
<td>0.18</td>
<td>[0.70, 1.47]</td>
</tr>
<tr>
<td>Greater than High School</td>
<td>0.91</td>
<td>0.15</td>
<td>[0.65, 1.28]</td>
</tr>
<tr>
<td><strong>Marital Status</strong>⁵</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married/Living with Someone as if Married</td>
<td>0.88</td>
<td>0.07</td>
<td>[0.74, 1.04]</td>
</tr>
<tr>
<td>Widowed/Divorced/Separated</td>
<td>1.15</td>
<td>0.10</td>
<td>[0.95, 1.39]</td>
</tr>
</tbody>
</table>

*Note.* Weighted data were used in these analyses; SE = standard error; OR = odds ratio; CI = confidence interval; ¹Reference group = Class 3 (low ACEs); ²Reference group = not employed; ³Reference group = <$25,000; ⁴Reference group = Less than high school; ⁵Reference group = Never married; *p < 0.001; **p < 0.05
5. Discussion

This study examined Black men’s class membership based on their exposure to adversities in childhood, and how these classes influence IPV perpetration and excessive alcohol use in adulthood. Three homogenous classes of ACEs were identified within the current sample: Class 1 = High Household Dysfunction & Physical Neglect, Class 2 = Physical/Emotional Abuse, and Class 3 = Low ACEs. Our results showed that men with High Household Dysfunction & Physical Abuse class membership had higher probabilities of exposure to all ACEs, except emotional and physical abuse. For the Physical/Emotional Abuse class, these individuals had higher probabilities of emotional and physical abuse in comparison to the other two classes. Conversely, Black men with Low ACEs class membership had low exposure to all adverse childhood domains. These findings provide further support and evidence to the use and feasibility of discrete classes of individuals who endorse similar patterns of childhood adversity (Adams et al., 2016; Roos et al., 2016), despite using different samples (e.g., adolescents, young adults [18–25 years], immigrants; e.g., Blum et al., 2019; Vaughn et al., 2017; Shin et al., 2018) and outcome variables (e.g., mental health disorders - depressive symptoms, psychological distress, antisocial behaviors; HIV risk-taking behavior; Barboza, 2018; Vaughn et al., 2017; Shin et al., 2018).

We also found that men with membership in the High Household Dysfunction & Physical Abuse and Physical/Emotional Abuse classes had increased risk of perpetrating IPV when compared to men with Low ACEs class membership. These findings are consistent with the literature regarding the effects of ACEs and subsequent risk for perpetrating violence (Anda et al., 2006; Askeland et al., 2011; Brady & Back, 2012; Mersky et al., 2013; Whitfield et al., 2003). Notably, research have indicated a strong connection between childhood adversity (e.g.,
boy’s victimization and exposure to violence in childhood) and later IPV perpetration (Lee et al., Under Review; Priestley & Lee, 2019; Valandra et al., 2019; Watts & Scrandis, 2013), where violence is learned, through socialization, as an acceptable means of settling conflict in intimate relationships (Franklin et al., 2012). Consistent with other studies we also found that older age and having higher income (≥40,000) were associated with lower odds of IPV perpetration (CDC, 2018). Men who had an annual income of between $25,000 and $39,999 were found to be more likely to perpetrate IPV when compared to those with income of <$25,000. Of importance to note is that these individuals earn just above the poverty threshold, which may impact their ability to receive government benefits (e.g., welfare), thereby increasing their stress levels as a result of not being able to meet the breadwinner and provider roles within the family. This then often results in threats to their perceived masculinity and ultimately violence perpetration. In such cases, violence is used to compensate for their economic shortcomings and assert their dominance through other mediums that fosters the creation of alternative masculine identity (de Visser & McDonnell, 2013; Melzer, 2002).

With regards to class membership as a predictor of excessive alcohol use among Black men we did not find a significant association. This non-significant finding could be due to the fact that Black men typically consume lower rates of alcohol in comparison to other racial/ethnic groups (e.g., non-Hispanic Whites, Native Americans and Hispanics; Chartier & Caetano, 2010; Hedden et al., 2009). Therefore, the effect of ACEs, regardless of class membership, did not seem to have a meaningful effect on risk for excessive alcohol use. Despite this finding, some sociodemographic factors (i.e., age and income) were found to be significant predictors of excessive alcohol use which are in alignment with the extant literature (Barboza, 2018; Kerr et al., 2009).
Specifically, older age was associated with reduced risk of excessive alcohol use. Income, regardless of the amount, was associated with lower alcohol use among Black men in this study. This finding related to income and alcohol use partially aligns with the extant literature, where lower income is associated with a decline in drinking levels (Brennan et al., 2010) and greater risk for abstinence or heavy hazardous drinking (Anderson, 2006; Cerdá, et al., 2011; Huckle et al., 2010; Karlamangla et al., 2006), while higher income is associated with greater frequency of “light” drinking (Huckle et al., 2010; Ziebarth & Grabka, 2009). The difference in findings of the current study could be because Black men with lower household income have fewer disposable funds to purchase alcohol, while men with higher income, although they consume more “light” alcohol, do so in the context of social and job-related networking (Peters & Stringham, 2006), thereby limiting hazardous drinking. Some evidence from the NESARC survey suggests that poverty exerts a greater influence on at-risk drinking (i.e., heavy episodic drinking) among Black men than Hispanic or White men, where rates of heavy drinking are more evenly distributed by income level (Glass et al., 2017).

5.1. Strengths and limitations

This study has several strengths including the estimation of a latent class model to derive homogeneous subpopulations based on ACE domains, and risk for subsequent excessive alcohol use and IPV perpetration, multiple categories of ACEs typology, and use of a nationally representative sample of Black men who have been underrepresented in research studies. Despite the strengths of this study, there are also limitations. Cross-sectional data were used in this study and does not allow for causality to be determined. Retrospective self-reported data of ACEs, occurring prior to age 18, alcohol use, and IPV perpetration may have introduced recall and social desirability biases. However, adequate stability and reliability have been established for
the ACEs (da Silva & da Costa Maia, 2013), alcohol use and IPV perpetration (Ruan et al., 2008) measures in the NESARC survey. IPV perpetration and excessive alcohol use were treated as distinct entities in our study, and do not account for the combined effects (i.e., men who perpetrate IPV and exceeded drinking limits) due to small sample size.

6. Conclusion & implications

Our findings do not support the notion that ACEs are associated with at-risk drinking in adulthood among Black men but do correspond with literature on ACEs increasing risk for IPV perpetration. This study reinforces the need for interventions targeted at preventing and treating trauma related to ACEs as a key element to preventing IPV perpetration later in life (Gilchrist et al., 2017). ACEs and IPV may be mutually informative and assist with targeting prevention and intervention services to reduce family violence. ACEs, an additional marker of risk, could be added to screening tools used by agencies to serve families that have experienced violence.

While the ACEs measure (Felitti et al., 1998) has been useful in research and surveillance studies it is a cumulative measure of childhood adversity. The current study and others suggest that experiences often vary from individual to individual (Anda, Porter, & Brown, 2020). Future research should explore the frequency, intensity, chronicity, and timing of the exposures and their effect on childhood and adult well-being. Future studies should examine the association between ACEs and the combined effect of alcohol associated IPV perpetration among Black men.

Finally, policy and practice should focus on prevention of ACEs themselves, through family strengthening and support, which could have multigenerational impact, but also of IPV among those known to have experienced ACEs. Preventing ACEs or responding with targeted
services for those Black males who have experienced them may have lasting effects in terms of family violence prevention.

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