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RESEARCH ARTICLE

Self-Reported Sexual Aggression among Youths: Exploring the Possible Subtypes

Nicholas Hasan Buker[1] , Achraf Cohen[2]

[1]University of West Florida, Department of Criminology and Criminal Justice, Pensacola, US
[2]University of West Florida, Department of Mathematics and Statistics, Pensacola, US

ABSTRACT

Sexual aggression and offense among youths have long been subjected to scientific inquiries. A sizable number of these inquiries have identified sexually aggressive youths to constitute a heterogeneous group with possible distinct subgroups varying across their targeted victims and risk factors. This study aims to contribute to the growing body of research geared toward identifying these subgroups. Using self-reported data collected from US middle and high school students, this study employs a latent class analysis (LCA) to identify the subgroups of sexually aggressive youths using a data-driven strategy. The LCA results indicate three latent classes (sub-groups) to be distinguishable both quantitatively and qualitatively in the study sample: general delinquents, emotionally disturbed, and low-risk youths. These subgroups are comparable with those identified in similar previous studies. However, the subgroups' sizes in this study vary slightly from the sizes of the subgroups identified by earlier studies. The study concludes by presenting the reasons for the identified differences, policy implications, study limitations, and future research directions.

Keywords: Sexual offense, aggression, juvenile sex offenders, latent class analysis, juvenile delinquency, risk factors

Introduction

Sexually aggressive and offensive behaviors among adolescents have gained significantly greater concern in many societies in recent years (Ryan, 2018). While officially identified juvenile sex offenders constitute a relatively small group among all juvenile offenders, juveniles make up 16.5% of all arrests for sexual offenses apart from rape and prostitution and 17.3% of all arrests for forcible rape in the US (US Federal Bureau of Investigation [FBI], 2019). Due to sexual victimization being among the most underreported criminal victimizations (Charles & McDonald, 2005; Lombardi & Jones, 2015; Riser et al., 2013), one can speculate that the actual extent of sexual aggressiveness and offensiveness among youths is higher than what official statistics have reported. Therefore, exploring the phenomenon of sexual aggression among youths through self-reported data is essentially needed to further inform prevention and intervention strategies on sexually aggressive behavior among youths.

Previous studies have indicated sexually aggressive youths to constitute a heterogeneous group and to bear different characteristics as far as the victims they target, the etiology of their offenses, and the risk factors leading them toward these types of offenses (Fox & DeLisi, 2018; Hunter, 2018; Hunter et al., 2003; Worling, 2001). The current state of knowledge pertaining to the variations among these offenders in terms of the risk factors leading to their sexual offenses is limited at best (Fox & DeLisi, 2018; Brown, 2019), while tailoring prevention and intervention strategies based on their needs remains essential (Riser et al., 2013). However, only a limited number of studies have thus far looked into the variations and identified the different possible subgroups of sexually aggressive youths or those committing sexual offenses. Furthermore, these studies have primarily studied either officially identified juvenile sex offenders (e.g., Fox & DeLisi, 2018) or cases seen in clinical settings (e.g., Fanniff & Kolko, 2012). These earlier studies have also not provided a solid foundation for creating a robust classification of sexually aggressive youth through potential risk factors, as they mainly failed to include self-reported sexual aggression or offenses for identifying the possible variations among these youths with problematic sexual behaviors. As Knight and Prentky (1993) indicated, the factors related to detecting sex offenders are likely to be different factors associated with committing these offenses. Hence, this study aims to improve the literature regarding the various subtypes of sexually aggressive youths with regard to their individual differences by utilizing self-reported sexually offensive behavior in a large sample of youth in the US. Using self-reported data is especially important

in light of the discussions and increasing concerns related to the dark figure of crime, which refers to unrecognized criminal occurrences that have not been officially recorded and thus neither studied by researchers nor accounted for by policymakers (Biderman & Reiss, 2017).

Risk Factors Associated with Sexual Aggression among Youth

Previous studies exploring problematic sexual behavior among youths have identified three main groups of risk factors associated with and predictive of those behaviors: individual-, family-, and society-level risk factors (Buker & Erbay, 2020). The most crucial individual-level predictor among these factors is gender, more specifically being male (Finkelhor et al., 2009; Fox, 2017). Along with that, the early onset of criminality is also a common risk factor (Calleja, 2015; Fox, 2017; Ryan & Otonichar, 2016). Various adverse childhood experiences, such as having been subjected to sexual abuse (Fox, 2017), maltreatment (Rasmussen & Miccio-Fonseca, 2007), and neglect (Karsten & Dempsey, 2018) as a child have also been identified as individual-level risk factors. Dwyer and Letourneau (2011) reported that youths adjudicated for sex offenses tend to display inadequate social integration and antisocial behavior. Previous studies have also identified various psychological problems commonly present among these youths, including high impulsivity, learning disabilities (Hackett et al., 2013), low empathy, depression, psychosis (Fox, 2017), conduct disorder (Kavoussi et al., 1988), deviant sexual interests (Ryan & Otonichar, 2016), sexual frustration, aggressive behavior, disinhibition, and feelings of inadequacy (Andrade et al., 2006).

At the family level, previous studies have found youths who display sexually offensive behavior to be more likely to have bonding and affection problems with their families compared to other juvenile non-sexual offenders (Ryan, 2018; Yoder et al., 2018; Veneziano & Veneziano, 2002), and this is likely to result from ongoing conflicts within their families (Karsten & Dempsey, 2018; Dwyer & Letourneau, 2011).

At the societal level, having ties with delinquents (DeGue et al., 2013; Dwyer & Letourneau, 2011) and sexually active peers (Finkelhor et al., 2009) were typical among youths displaying sexually offensive and aggressive behaviors. Earlier studies have also indicated these youths to demonstrate more problem behaviors at school, such as truancy and conduct disorder (Veneziano & Veneziano, 2002), and to be more likely to drop out of school (Christiansen & Vincent, 2013; Fox, 2017).

Earlier Efforts to Classify Youths with Problematic Sexual Behavior

Earlier studies concerning the classification of youths with problematic sexual behavior mainly focused on youths who'd been adjudicated for sexual offenses and utilized theoretical and empirical approaches toward this goal. The theoretical approaches proposed a descriptive personality-based classification based on their clinical experiences (O'Brien & Bera, 1986). As such, they identified seven types of juveniles who've sexually offended (JSOs) ranging from naive experimenter to group-influenced. However, the empirical validity and reliability of this approach are not well established.

Likewise, Rasmussen (2004) also provided a multidimensional theoretical framework called the trauma outcome process model for classifying sexually offending youths. This model classifies offenders based on offensive characteristics, individual risk factors, psychological pathologies, and family/environmental characteristics.

Mimicking the way adult sex offenders have been classified in many studies, a sizable number of earlier studies concerned about proposing empirically supported classifications of JSOs focused on the nature of the sexual aggressiveness and offensiveness and whom the JSOs targeted as their victims (Worling, 2001). In this respect, the age difference between the offenders and their victims (e.g., JSOs targeting younger children compared to peers or adults) was a focal point for a sizeable number of earlier studies (for a review of more than 20 earlier studies, see the findings from Fanniff & Kolko, 2012; Gunby & Woodhams, 2010; Hunter et al., 2003; Ford & Linney, 1995; Kemper & Kistner, 2010) in identifying the subtypes of these youths. Moving from the age difference between the JSOs and their victims, Becker et al. (1986) generalized the acts of JSOs as pedophiles if they targeted younger victims and as rapists if they targeted peers or older victims. They also included other types of youths who display sexually offensive behavior based on the nature of their acts, such as incest (for a particular focus on JSOs targeting siblings, see O'Brien, 1991), mooners, voyeurs, and frotteurs. Likewise, Graves (1993) identified three types of youths with aggressive sexual behavior based on the meta-analysis of 13 studies' findings: sexually assaultive (targeting peers), pedophilic (targeting younger children), or undifferentiated (targeting indifferently).

Identifying the subcategories of youth with aggressive or offensive sexual behavior based on victim-offender age difference has been criticized due to the overlap of the gender and age of the victims of male subjects as the largest group, with the younger victims of the male youth sexual offenders tending to be primarily male while the older victims are more likely to be females (Worling, 1995). Such classification also fails to shed light on developing effective prevention and intervention strategies for committing sexual offenses among youths. This is due mainly to the fact that a classification based on victim-offender age difference does

not effectively address the risk factors of youths with aggressive sexual behavior, instead only generally describing the nature of the behavior. The ineffectiveness of such classification has also resulted from the fact that the subtypes of youths displaying sexually aggressive behavior when determined based on age differences display very few differences and more similarities. These similarities and differences are not necessarily about the etiology of the problematic sexual behavior, though (Fanniff & Kolko, 2012).

Earlier studies concerning the differences among youths displaying aggressive/offensive sexual behavior also utilized various individual-level characteristics while exploring the possible coherent subtypes among these youths. The psychopathological risk factors widely recognized as significant predictors of committing a sexual offense among youths (Fox, 2017; Seto & Lalumière, 2010) were among those characteristics. Gamache et al. (2012) identified different clusters in their study group, such as youths who'd been adjudicated for sexual offenses with (a) impaired reality, (b) psychopathy (impulsive and manipulative), (c) narcissism (egocentric and vengeful), and (d) high inhibition. Though Hunter et al. (2003) pursued an approach based on victim age, they also incorporated psycho-social deficits (e.g., anxiety/depression) into their analyses and reported that youths targeting younger children during a sexual offense had more significant psycho-social functioning deficits, less aggression, and more depression. Dunton's (2020) recent study identified four distinct groups of JSOs: (a) sexually aggressive, (b) disturbed vengeful, (c) disturbed, and (d) vengeful. Among these, the sexually aggressive group was the largest, with the juveniles in this group being the most prolific offenders and having the lowest scores for behavioral and psychological problems. On the other hand, the youths in the disturbed vengeful group scored highest for behavioral and psychological issues.

Youths with problematic sexual behaviors have also been classified based on their prior delinquent activities. Using this approach, Butler and Seto (2002) identified and examined two groups of youths with sexually offensive behavior: those who'd only committed sex offenses and those who'd committed sex offenses along with other types of crimes. However, this classification comes with various limitations. McCuish et al. (2016) first indicated that identifying membership to either of these groups is determined early and therefore fails to recognize that the offensive status can subsequently change throughout adolescence and adulthood. In other words, youths identified as only sex offenders can later become involved in different types of delinquent behaviors and thus switch their type. In their study sample, 88.2% of the youths who'd been adjudicated for sexual offenses and who'd initially been identified as only sex offenders also committed other crimes by the time they reached age 23. Second, McCuish et al.'s study indicated that this classification could not effectively capture the variation among JSOs who'd also committed other types of crimes. In their study group, four different offending trajectories were associated with various risk factors.

Meanwhile, Lussier et al.'s (2012) classification centered around the recidivism of youths who'd displayed sexually offensive behavior. They identified seven subgroups among these youths, most of which (five out of seven) did not display subsequent sexual offenses. The groups that displayed sexual recidivism were limited to adolescents and had a high-rate of slowly desisting.

Lastly, other previous studies had proposed a personality-based classification of youths with aggressive or sexually offensive behaviors. Smith et al.'s (1987) study is an early example of this approach, through which they identified four distinct groups of JSOs based on their personality types: (a) socially immature and isolated (the largest group), (b) over-controlled, (c) impulsive, and (d) emotionally disturbed. Likewise, Worling (2001) also developed a personality-based classification to explore the possible subtypes of youths adjudicated for sexual offenses. In doing so, they identified such subgroups as: (a) over-controlled/reserved, (b) confident/aggressive, (c) antisocial/impulsive, and (d) unusual/isolated. While groups a and b demonstrated less problematic features such as a history of physical abuse, parental marital status, the residence of the offenders, and whether or not the offenders had received criminal charges for their registered sexual assaults, groups c and d were identified as more pathological, as they were more likely to commit subsequent delinquent acts. Lastly, using the Personality Patterns Scale, Richardson et al. (2004) identified five different personality prototypes among their sample of JSOs: (a) normal, (b) antisocial, (c) submissive, (d) dysthymic/inhibited, and (e) dysthymic/negativistic. Among these, the dysthymic/inhibited group was the largest (35%). The members of this particular group also did not have the motivation to socialize with their peers and were socially withdrawn and isolated. Following the same scale, Oxnam & Vess (2006, 2008) identified similar groups of sexually aggressive male adolescents in a non-US setting. Similar to Richardson et al. (2004), the largest group of youths displaying sexually offensive behavior in their studies exhibited poor social awareness, were withdrawn, and had socially inadequate personality features.

While these earlier studies did shed essential light on understanding within-group variations for youths with problematic sexual behavior, the methodologies they employed were usually limited in understanding how each accounted factor weighed differently in predicting membership to a group. In response to this and various other methodological limitations, a couple of recent studies have employed latent class analysis (LCA) to determine data-driven classes and types of these youths. While LCA was previously utilized in various criminological studies to identify within-group differences regarding offense categories (e.g., Vaughn et al., 2008, 2009), it is a relatively new approach for studying the types of youths with aggressive or sexually offensive behavior. Similar to cluster analyses, LCA allows researchers to create typical qualitative profiles with regard to the regularities and patterns revealed by data based on the interaction of various indicators (Brown, 2019).

Fox and DeLisi (2018) conducted one of the earliest typology studies using LCA and identified data-driven subtypes based on an extensive sample of youths who'd been adjudicated for sex offenses. Their data revealed four distinct types among the males and two specific types among the females in their study sample. Coherent groups emerged from the data using commonly accepted predictors for committing sexual offenses among male youths, such as age of onset, felony arrest record, sexual abuse history, and psycho-social characteristics (e.g., impulsivity, empathy); these groups were: (a) non-disordered, (b) impulsive/unempathetic, (c) early-onset/chronic, and (d) male victim offenders. The non-disordered group was the largest (54%) of all four and consisted of juveniles characterized by minor risk factors (e.g., 26% impulsive, 8% depressed, and 3% hallucinated and had psychosis). On the contrary, male victim offenders had the smallest group (10%) yet had the highest rate of psychopathologies, which were characterized by high rates (almost two-thirds) of sexual abuse experienced in their childhood. For the females, (a) non-disordered (53%) and (b) female victim offenders (47%) were the distinctive subtypes. While the non-disordered subtype was characterized by a minimum amount of risk factors (majority never sexually abused, low levels of psychopathology), the subtype of female victim offenders was characterized by higher scores for impulsivity, lack of empathy, psychopathology (depression, hallucination), and a common history of sexual abuse (85%).

Barra et al. (2018) also utilized LCA to explore the subtypes of a sample group of non-US male youths with a history of sexually offensive behavior based on 10 different adverse childhood experiences (ACE; e.g., various types of parental abuse/neglect, exposure to violence at home, sexual victimization). Their study revealed five distinct groups of these youths, who had (a) multiple (9.0%), (b) mainly family-related (17.1%), (c) mainly peer-related (21.7%), (d) mainly neglectful (18.6%), and (e) little or no (33.5%) ACE. Similar to the findings from Fox and DeLisi (2018), Barra et al.'s (2018) data also revealed the largest distinct subtype of youths in their study to have the lowest level of risk (.55 ACE on average), while the smallest subtype had the highest level of risk (7.55 ACE on average).

While Fox and DeLisi (2018) and Barra et al. (2018) did provide a better understanding of the coherent subtypes of youths with sexually offensive behavior, the predictors they employed in classifying these offenders largely overlap with the general predictors for those who commit an offense. To address this issue, Brown (2019) used only predictors concerning the sexual offenses of the subject in their study, such as victim age/sex, sexual offense onset age, use of penetration/force, and planning the sex offense. In so doing, Brown (2019) identified four distinct groups of male youths with sexually offensive behavior in their study sample: (a) child victims/nonviolent (48%), (b) female peer victims-only (20.5%), (c) male child-focus (16.5%), and (d) early starter/multiple victims (14.8%). While the classification in Brown's study was mainly based on sex-offense characteristics, unlike Fox and DeLisi (2018) and Barra et al. (2018), Brown's (2019) results resonated with their findings. Similar to the previous ones, the largest group in Brown's typology displayed low-risk factors (early onset of criminality and less violence). In contrast, the smallest group displayed higher levels of various risk factors and a more problematic type of sexual offense (multiple victims, targeting children, teen, and adult victims).

Current Study

As summarized above, previous studies have consistently indicated youths with aggressive or sexually offensive behavior to not constitute a homogeneous group but to instead display differences within themselves based on their victim and non-sexual offense characteristics, delinquent or antisocial behavior patterns, personality features, psychopathological problems, and various other individual risk factors. Hence, understanding the within-group differences and identifying coherent classes of these youths can help in designing effective intervention and prevention strategies. Therefore, this study contributes to the still limited and ongoing efforts to empirically identify the subtypes of youths with sexually aggressive behavior based on a US sample. In so doing, this study utilizes LCA as a recent analytical strategy to help overcome the limitations of previous studies that have thus far identified various classes and subtypes of youths with aggressive or sexually offensive behavior. Another important goal of this study is to identify the subtypes of these youths based on self-reported behavior. As such, the study explores if the possible subtypes of these youths who self-report a sexually aggressive behavior vary from the subtypes identified by the previous studies primarily conducted on officially recognized (i.e., arrested/processed) samples or clinical samples (mostly from treatment facilities/programs).

Methods

The data utilized in this study were collected in 2011 and 2012 for the Urban Institute's Technology, Teen Dating Violence and Abuse, and Bullying research project (Zweig et al., 2013).[1] During the project, 5,647 middle and high school students (51% female, 78% white, and 67% living with both parents, with a mean age of about 15 years) were cross-sectionally surveyed in New Jersey, New York, and Pennsylvania school districts located in suburban areas, small cities, and rural areas. The response rate

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[1] The data have been provided to the authors by the Inter-University Consortium for Political and Social Research by special agreement.

to the survey was about 84%. The project's main focus was to explore the violence and abuse experienced in conjunction with other risky behaviors and technology use among youths. The project included questions about teens' technology use patterns, dating violence perpetration/victimization, school life, psycho-social issues, family characteristics, delinquency patterns, and drug use (Zweig et al., 2013). Out of 3,683 valid responses to the questions measuring self-reported sexually coercive behavior, 94 participants (2.6%) were identified as youths with sexually aggressive behavior and were included in the analysis.

Variables

Self-reported sexual aggression is the variable used to determine the subjects in this study. Previous studies have generally conceptualized sexual aggression to refer to various types of unwanted sexual behaviors ranging from harassment to rape (Bevens & Loughnan, 2019). As an inclusion criterion for the study sample, this variable had a binary measure (No = 0, Yes = 1) and comprised the responses to the following statements (= 0.723): "I pressured someone to have sex with me when I knew they didn't want to," "I forced someone to have sex," and "I forced someone to do other sexual things they didn't want to do."

This study includes the potential variables of non-sexual delinquency, parental connections, antisocial behavior, being withdrawn (isolated), substance use, risky sexual behaviors, academic and success/commitment, as well as three measures of psychopathology (i.e., depression, anxiety, anger), to determine the different latent classes of sexually aggressive youths in the study sample.

As summarized above, various studies have indicated involvement in non-sexual delinquent behavior (especially felonies) to be a risk factor for committing a sexual offense among youths (e.g., Buker & Erbay, 2020; Fox, 2017; Seto & Lalumière, 2010). Thus, various earlier classification efforts have considered non-sexual offenses as a factor in identifying the subtypes of sexually aggressive youths (Butler & Seto, 2002). This study includes two variables for assessing these youths' non-sexual delinquent behavior. The first variable is a binary measure of violent delinquency (No = 0, Yes = 1) based on self-reported physical violence against a dating partner, attacking to hurt someone (a non-partner), and damaging or destroying the property of others. The second variable is a binary measure of non-violent delinquency (No = 0, Yes = 1) based on self-reported behaviors of stealing, drunkenness at school, carrying a handgun, taking a handgun to school, getting suspended, and selling drugs.

As earlier studies acknowledged, parental dysfunction is a predictor of aggressive or sexually offensive behavior (Hunter & Becker, 1994; Karsten & Dempsey, 2018; Oxnam & Vess, 2008; Veneziano & Veneziano, 2002), and they included this in their classification efforts (e.g., Barra et al., 2018). This study includes two variables that tap into the quality of the participants' connections with their parents: mutual activities, and communication with parents. The parental activities score is the mean (α = 0.677) of the participants' responses to how often they had done various activities (i.e., shopping, attending a religious event, working on a school project) together with their parents in the past month. The parental communication score was the mean (α = 0.624) of the participants' responses to how often they had talked with their parents in the past month about someone they were dating, a personal problem, school work, or problematic behavior.

The responses to those items were collected on a Likert scale ranging from 0 (never/not a lot) to 4 (extremely/often). Due to the LCA requiring the use of categorical variables, all of these measures were recoded as 0 (average or above) or 1 (below average) by considering the average score of all study participants, not only the subjects of the study group.

Social competency or lack of social integration has been identified as another risk factor for sexual aggression/offensiveness among youths (Dunton, 2020; Dwyer & Letourneau, 2011). The original data include a prosocial activity score that measures the total frequency of 12 different activities (i.e., hanging out with friends, reading, volunteer work, and after-school programs) in a week (α = 0.652). Using the same strategy explained above, this variable was also recoded as 0 (average or above) and 1 (below average) for inclusion in the LCA.

Due to school-related issues also having been identified as a risk group predicting sexual aggressiveness/offensiveness among youths (Christiansen & Vincent, 2013; Fox, 2017; Veneziano & Veneziano, 2002), the current study has included one variable in this regard: grades. Grades were also recoded as: As and Bs = 0, and Cs, Ds, and Fs = 1. Low empathy is another crucial risk factor for committing sexual offenses among youths (Fox, 2017). However, the data set utilized for this study did not include a measure of empathy. On the other hand, bullying perpetration, a variable included in the original data set, was consistently found to be negatively associated with cognitive and affective empathy and positively associated with callous/unemotional traits (Zych et al., 2019). Therefore, bullying perpetration has been included as a proxy for low empathy in the LCA as a dummy variable (No = 0, Yes = 1).

Impulsivity (i.e., low self-control) was also determined to be a decisive risk factor for JSOs (Hackett et al., 2013) and was included in previous efforts to classify that group (Fox & DeLisi, 2018). Due to this study including no direct measure of impulsivity in the LCA, a group of risky sexual behaviors that are strong correlates of impulsivity and low self-control (Curry et al., 2018; Dir et al., 2014; Khurana et al., 2012; Magnusson et al., 2019) have been included instead. In this group, the first variable is early exposure to sex (No = 0, Yes = 1), which means losing one's virginity below the age of 15, which is as a generally agreed-upon cut-off point

in terms of age (Magnusson et al., 2019). In addition to early exposure to sex, the study includes two other commonly cited risky sexual behaviors (Ekundayo & Babalola, 2020; Isaksson et al., 2018): having had multiple sex partners in the past three months, and using alcohol or drugs before last having sex. These two behaviors are measured with a dummy variable (No = 0, Yes = 1).

While substance abuse is a common risk factor for juvenile non-sex offenders, earlier studies have found it less common among youths with sexually aggressive/offensive behavior. Nevertheless, this can be an important differentiator among the possible subtypes of these youths (Fanelli, 2018; Falligant et al., 2017; Seto & Lalumière, 2010). The original data included a drug use scale on the total reported frequency of alcohol (binge drinking not included), marijuana, and severe drug use over the last 30 days (α = 0.776). The response options are (0) never, (2) 1–3 times, (6.5) 4–9 times, and (15) 10 or more times. This original scale was recoded as a binary variable with median or below = 0 and above median = 1 for inclusion in the LCA in this study.

Lastly, another critical group of risk factors for committing sexual offenses among youths involve various psychopathologies (Andrade et al., 2006; Fox, 2017; Seto & Lalumière, 2010), which have also been included in previous efforts to identify the subtypes of JSOs (Fox & DeLisi, 2018; Hunter et al., 2003). The original data set includes three subscales for psycho-social adjustment: depression, anxiety, and anger/hostility. The depression scale consists of five items assessing symptoms of loneliness, hopelessness, worthlessness, disinterest in things, and feeling blue (α = 0.892). Anxiety is also measured with a five-item scale (α = 0.861) that taps into the symptoms of fearfulness, panic, tension, and restlessness. The anger/hostility scale (α = 0.839) includes items for assessing uncontrollable temper outbursts, getting into frequent arguments, shouting, and feeling urges to harm others or break things. Response options are not at all (0), a little bit (1), moderately (2), quite a bit (3), and extremely (4) for all items on these scales. These response scores range from zero to 20, with higher values indicating more of each of these three psychopathological conditions. However, all scales were recoded as above median (1) or median or below (0) for inclusion in the LCA. Table 1 presents descriptive statistics for the predictor variables.

Table 1. *Descriptive Statistics of the Sexually Aggressive Youths (n_{all} = 94 ; n_{female} = 23, n_{male}= 67)*

Predictor variables	All (%)	Male (%)	Female (%)	Missing (%)
Caucasian (Yes)	67	51.1	14.9	1
Violent Delinquency (Yes)	50	37.2	10.6	2.2
Nonviolent Delinquency (Yes)	46.8	34	9.6	3.2
Parental Activities (below avg.)	44.7	35.1	8.5	1.1
Parental communication (below avg.)	51	40.4	8.5	2.1
Prosocial Activities (below avg.)	50	35.1	13.8	1.1
Grades (C, D, or F)	51.1	39.4	9.6	2.1
Bullying (Yes)	70.2	51.1	14.9	4.2
Early Exposure to Sex (Yes)	44.7	36.2	6.4	2.1
Multiple Partners (Yes)	24.5	21.3	2.2	1
Drugs before Sex (Yes)	33	27.7	4.3	1
Drug Use (above median)	72.3	52.1	16	4.2
Anger (above median)	64.9	46.8	14.9	3.2
Anxiety (above median)	56.4	38.3	16	2.1
Depression (above median)	59.5	37.2	19.1	3.2
Percentage of sample	100	71.3	24.5	4.2

Analytical Strategy

To understand the structure and characteristics of the subgroups of sexually aggressive youths in this study, the 14 variables described in the previous section have been included in the analyses. The LCA model is used to uncover the latent classes or subgroups in the JSOs' data, the main idea being that individuals can be classified into latent classes based on their pattern of answers regarding a set of categorically measured variables. The analysis has been performed using the R package program poLCA

(Linzer & Lewis, 2011). LCA can handle missing values present in the variables and identify latent classes or subgroups of JSOs. To assess the models' goodness of fit, a researcher can begin by fitting several models and adding one class at a time. Statistics such as the Bayesian information criterion (BIC) and Akaike information criterion (AIC) are widely used to compare models. The best models have the lowest BIC and/or AIC values. BIC is often appropriate for latent class models due to how it balances the model's goodness of fit and parsimony. The chi-squared statistic is another measure of goodness of fit; however, if the observed cross-classification table has a large number of cells and small number of observations, then using the Chi-squared statistic to assess model fit for these models is not appropriate.

Latent Class Analysis

LCA is a finite mixture model (Lazarsfeld & Henry, 1968; Goodman, 1974) that expresses the overall univariate or multivariate distribution of the variable(s) as a mixture of a finite number of component distributions. These components are indirectly observed and called latent variables. Therefore, the overall population distribution is expressed as a finite mixture of some number K of unknown groups or latent variables or classes. The goal is to infer the structure of the latent variables or classes from the observed variables. LCA is used in many applications, such as disease subtypes, marketing research, sociology, psychology, education, and criminology. The basic LCA assumes the existence of a latent class such that a set of response variables (manifest variables) are conditionally independent for the given class. For T number of categorical response variables $Y_1, Y_2,..., Y_T$, the latent class model without explanatory variables assumes a latent variable Z for each possible outcome of response $y_1, y_2,..., y_T$ and each category z of Z. If the number of categories of each Y_t is denoted by C and the number of classes of Z is K, then the latent class model assumes a multinomial distribution where the joint multinomial probabilities are (Agresti, 2018):

$$P(Y_1 = y_1, ., YP(Z = z)_T = y_T) = \sum_{z=1}^{K} \left(\prod_{t=1}^{T} P(Y_t = y_t | Z = z) \right) \tag{1}$$

An extension of this basic model allows covariates to predict latent class membership (Bandeen-Roche et al., 1997; Dayton & Macready, 1988). Covariates are included in the latent class model via their effects on the prior probabilities of latent class membership. This model is called the latent class regression model.

Results

This study evaluates several LCA models to select the appropriate fit that makes sense from a literature point of view while importantly remaining statistically adequate. With 94 subjects, the maximum number of classes that can be fitted is six. Figure 1 presents the six models with an increasing number of classes from one to six. It also shows each model's AIC, BIC, and the adjusted BIC values. The model with three latent classes has the lowest AIC and the second smallest BIC values. Some simulation studies have shown the adjusted BIC to be associated with higher proportions of correct model selection compared to AIC and BIC (Dziak et al., 2014). In the present case, the adjusted BIC presents a significant decrease in the model fit with three latent classes. Pearson's likelihood ratio chi-square statistics (see Table 2) are also measures of goodness of fit; however, with 2^{14}(14 dichotomous variables) cells in the observed cross-classification table, most of the cells have zero cases. Using these statistics to assess model fit is inappropriate for models such as this. The LCA model with three subgroups seems reasonable for the current sample set. This model with three subgroups does make sense on the subject matter and in terms of the empirical/statistical levels.

Table 2. *Goodness-of-Fit Statistics*

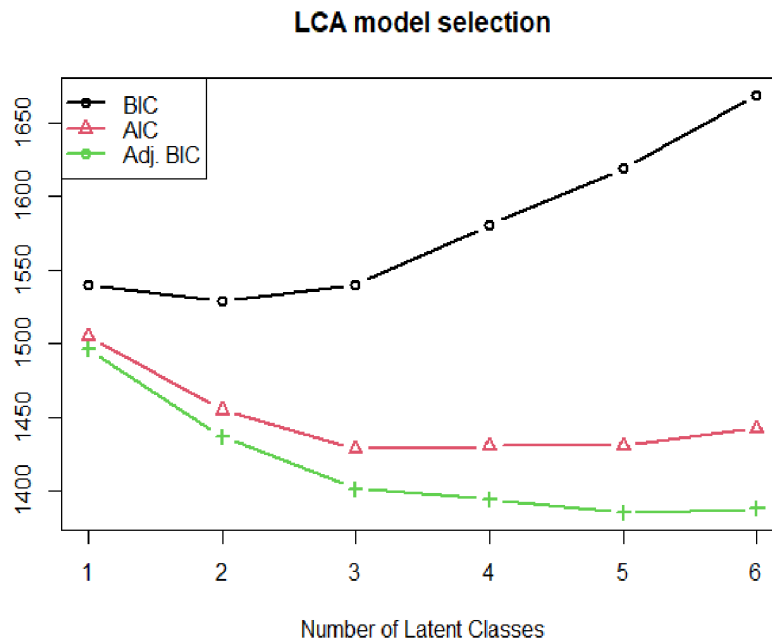| Model	Chi-square Pearson Statistic	Likelihood Ratio Statistic Latent Classes
1	19,386.38	414.71
2	7,517.96	367.37
3	8,617.28	342.36
4	8,477.47	332.88
5	5,940.47	321.16
6	4,190.35	299.66

LCA model selection

Figure 1. Latent class selection. *AIC* =Akaike Information Criterion, *BIC* = Bayesian Information Criterion, and Adj. BIC = Adjusted *BIC*.

Next, the characteristics of the three-subgroup model were examined using the conditional probabilities of the response given a latent class (see Table 3). This indicates the probabilities of observing a response knowing a JSO subgroup. These probabilities also indicate the percentage of each item response in the unobserved subgroup/cluster (see Figure 2).[2]
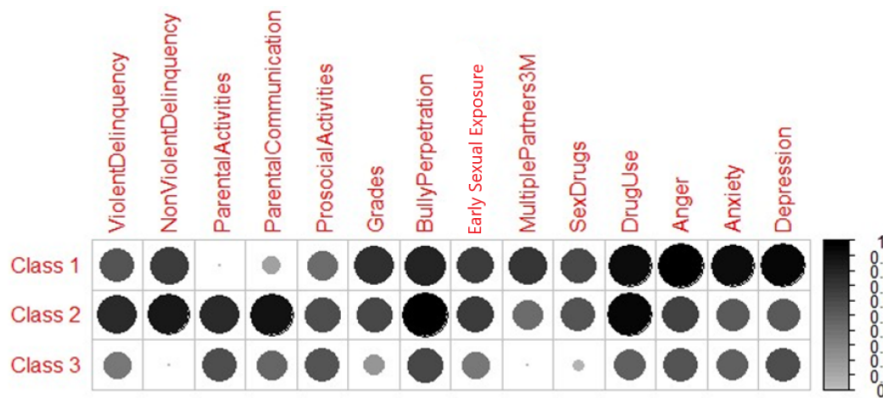

Figure 2. The latent class patterns among sexually aggressive youths.

Class 1 comprises 26.71% of the population. This group of sexually aggressive youths tends to have higher levels of anger (100%), anxiety (91%), and depression (94.8%). None of these offenders did fewer activities (0%) with their parents (they all did activities), and 15.3% of them did communicate less with the parents, yet many fewer did prosocial activities (43.6%). Class 1 also tended to use drugs (91%), use alcohol/drugs before the last time having sex (62.4%), had multiple sex partners in the past three months (70.9%), and were exposed to sex early (66.3%). Their chances of getting C, D, or F grades are high (74.8%). They are more likely to be non-violent delinquents (67.8%). In this group, 80.4% are bullies.

Contrarily, Class 2 of sexually aggressive youth (41.56% of the entire sample) had the highest violent (75.5%) and non-violent (85.9%) delinquency rates, as well as deplorable parental relationship activities (75.7%) and communication (90.4%). These youths also tend to use drugs (96.4%) but are less angry (64.7%), anxious (51.7%), and depressed (50.5%). Every member of Class 2 has perpetrated bullying (100%). Nevertheless, only 54.8% used alcohol/drugs before the last time they had sex, and this group has fewer sexually aggressive youths who had multiple sex partners in the past three months (43.1%) and who were exposed

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[2] On Figure 1, the color scale indicates 1 with Black and 0 as Gray. As the colors get darker, the values get closer to 1. The right axis also demonstrates the legend and how to read the scale.

early to sex (66%). These offenders had the lowest prosocial activity rates (58.6%), and 61.4% of them are likely to get C, D, or F grades. This group comprised the largest share at 41.56% of the population.

Lastly, Class 3 had the lowest rates of violent delinquency (36.1%), and none of the members of Class 3 are non-violent delinquents who have not had multiple sex partners in the past three months. This group also had the lowest drug use percentage among the offenders (47.2%), with only 6% having used alcohol/drugs before the last time they had sex, and 36.6% being exposed early to sex. They also tend to have the lowest number of bullies (60.2%) compared to Class 1 and Class 2. This group of sexually aggressive youths is the least likely to have C, D, or F grades (20.8%); almost 44% maintain lower parental communication rates, 56.5% do few parental activities, and 54.9% have fewer prosocial activities. About half of Class 3 are angry (55.6%) or anxious (49.1%), and 58.1% are depressed. This group contains 31.73% of the study sample.

Table 3. *Conditional Probabilities Across the Latent Classes of Sexually Aggressive Youths (n = 94)*

	Class 1	Class 2	Class 3
Estimated class population percentages →	26.71%	41.56%	31.73%
Predictor variables ↓			
Violent Delinquency (Yes)	0.557	0.755	0.361
Nonviolent Delinquency (Yes)	0.678	0.859	0
Parental Activities (below average)	0	0.757	0.565
Parental Communication (below average)	0.153	0.904	0.448
Prosocial Activities (below average)	0.436	0.586	0.549
Grades (C below or D)	0.748	0.614	0.208
Bullying Perpetration (Yes)	0.804	1	0.602
Early Sexual Debunk (Yes)	0.663	0.660	0.366
Multiple Partners (Yes)	0.709	0.431	0
Drugs before Sex (Yes)	0.624	0.548	0.060
Drug Use (above median)	0.917	0.964	0.472
Anger (above median)	1	0.647	0.556
Anxiety (above median)	0.910	0.517	0.491
Depression (above median)	0.948	0.505	0.581

Discussion

The previous studies had indicated youths involved in sexually aggressive/offensive behaviors to not constitute a homogenous group (Buker & Erbay, 2020; Dunton, 2020; Fox, 2017; Fox & DeLisi, 2018; Brown, 2019), to display variances among themselves, and to be a heterogeneous group. The question that followed from the findings for researchers and practitioners alike has involved the subgroups/classes in that heterogeneous group. Addressing this question has been deemed essential for shedding much-needed light on understanding the nature of committing sexual offenses among youths and thus contribute to the development of effective intervention, rehabilitation, and prevention strategies in this regard. Overall, the current study aims to contribute to these efforts by exploring the subgroups within a group of sexually aggressive youth based on self-reported information. In doing so, it attempts to improve the empirical perspectives on the subject matter in two ways. First, this study uses self-reported data, unlike previous studies that relied heavily on official or clinical data, occasionally from US samples. Second, this study utilizes an analytical strategy known as LCA, which takes into account missing values and enables researchers to identify latent classes in a group. However, only a limited number of previous studies so far (Barra et al., 2018; Buker et al., 2022; Fox & DeLisi, 2018; Brown, 2019) have utilized this analytical approach to classify how to reveal youths with aggressive/offensive sexual behaviors.

By analyzing the self-reported sexually aggressive behavior of a group of youths using a novel strategy, this study first concurs with the findings from earlier studies regarding this group of youths displaying heterogeneity. First and foremost, the results of the current study indicate that distinct subgroups of juvenile sex offenders exist who differ in terms of personal and family-level risk factors. Three qualitatively and quantitatively separate latent classes are found in the sample. The results from the statistical analysis allowed the three groups to be identified. While previous studies that had used LCA to classify similar youth groups

(Barra et al., 2018; Fox & DeLisi, 2018; Brown, 2019) identified a four-class model, the four-class model does not have the best statistical fit nor provide a plausible qualitative description for each class in the current study's sample.

Among the three classes, Class 2 (41.56% of all sample) is the largest and can be described as general delinquents. The JSOs in this group have the highest probability of displaying violent and non-violent behaviors, non-sexual delinquent behaviors, and bullying of their peers. They also have the highest possibility of using drugs and having anger issues. Lastly, they have the highest probability of having familial problems. This group is similar to Fox and DeLisi's (2018) early-onset/chronic group, Worling's (2001) antisocial/impulsive group, and Dunton's (2020) disturbed aggressive groups, as these groups also displayed higher levels of psychological problems and delinquent behavior. However, the early-onset/chronic and disturbed aggressive groups were the smallest groups in their respective studies. At the same time, general delinquents constitutes the largest group in the current study and also resemble Richardson et al.'s (2004) and Oxnam and Vess' (2006; 2008) groups, which displayed poor social awareness, and a withdrawn and socially inadequate personality, as well as more importantly being the largest groups in their studies, also similar to the general delinquent group of the current study.

Class 1 (26.71%) is the smallest group and can be called the emotionally disturbed group. The JSOs in this class have the highest probability of having psycho-social adjustment problems, risky sexual behavior, and low academic achievement. On the other hand, they displayed the lowest likelihood of having familial issues and social isolation. Lastly, Class 1's probability of displaying non-sexual delinquency was lower than the general delinquents group but higher than the emotionally disturbed group. Class 1 demonstrates similarities with Dunton's (2020) disturbed revenge group and Smith et al.'s (1987) emotionally disturbed group, both of which had significant behavioral and psychological disturbances.

Class 3 (31.73 % of the sample) consists of the JSOs who display the lowest probability of having risk factors in most domains and are therefore described as the low-risk group. The JSOs in the low-risk group have the lowest probabilities for delinquency, low academic achievement, bullying, risky sexual behavior, drug use, and psychological problems (except depression, which was very close to the rate in Class 2). In general, the sexually aggressive youths in this group can be compared to those in Fox and DeLisi's (2018) non-disordered group and Dunton's (2020) sexually aggressive group. However, both Fox and DeLisi's (2018) non-disordered group and Dunton's (2020) sexually aggressive group were the largest groups in their respective studies, while the low-risk group of the current study constitutes 31% of the study sample and is the second largest group after the general delinquents group.

The psychopathological characteristics of the subgroups identified through LCA in the current study resemble the findings from Gamache et al. (2012) and Hunter et al. (2003), all of which indicated that youths with sexually aggressive/offensive behavior differs in their levels/types of psychopathological problems. The classes identified in the current study also resonate with Butler and Seto's (2002) approach to separating youth offenders who'd only committed sex offenses from those who'd committed sex offenses and other types of crimes. In the current study, the low-risk group displays almost no delinquency (mainly non-violent), while the other two groups had significant delinquent involvement.

In general, the three subgroups identified in this study are comparable with some subgroups of JSOs that previous studies had identified while employing similar predictor variables. However, the subgroups' sizes in the current study different from the comparable subgroups' sizes specified in most other studies. The reason for this difference may be due to the differences in the data types (self-reported compared to official/clinical) and to the risk factors each of those studies employed. These differences and the differences in the analytical strategies (LCA compared to the other classification approaches) also make comparing the subgroups of youths displaying sexually aggressive/offensive behavior as identified in the current study with those identified in the previous studies quite challenging.

Conclusion

By empirically identifying the distinct subgroups of youths with sexually aggressive/offensive behaviors and their varying levels of risk factors, this study points to the fact that prevention, intervention, and rehabilitation strategies for these youths should be designed to address and respond to the various types of risk factors and their severity. While one group of these youths might also be involved in other types of delinquent behaviors and display similar risk factors, others are just sexually aggressive, unlikely to show other aggressive or delinquent behaviors, and bear different risk factors than the others.

Future research should continue implementing LCAs to explore more subtle classifications of youths with sexually aggressive/offensive behaviors using similar risk factors. The existing literature's findings are insufficient for identifying a common pattern among JSO subtypes due to the methodological variations (e.g., types of data, analysis, predictor variables) employed in those studies as the context under which they were conducted. The context and country especially matter when examining official data to determine the subgroups, because the definition of sex offenses and the age of criminal liability vary from one country to

another. While studies from other countries can understand the subgroups of youths with sexually aggressive/offensive behaviors, the results should be cautiously interpreted by considering any legal and cultural differences.

This study has certain limitations. First, while employing a data set based on self-reported sexual aggression is unique for exploring the subtypes of these youths, self-reported data has its own limitations that mainly result from differential validity (Thornberry & Krohn, 2003). In addition, this study has been based on secondary data collected to explore various types of youth behaviors and not actually their sexually aggressive behaviors. Hence, the predictor variables included in the analyses involve what that data included rather than what the researchers would have chosen had they designed the surveys for assessing the subtypes of the JSOs. Consequently, the current study results are not thoroughly comparable with the findings of studies that are specifically designed for this purpose and that include risk factors for sexual offenders.

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