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Trajectories of Male Sexual Aggression From Adolescence Through College: A Latent Class Growth Analysis

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Approximately 25% of male college students report engaging in some form of sexual coercion by the end of their fourth year of college. White and Smith (2004) found that negative childhood experiences—childhood sexual abuse, childhood physical abuse, and witnessing domestic violence—predicted sexual aggression perpetrated before college, but not during the subsequent college years, a puzzling finding in view of the reasonably consistent rates of sexual aggression from adolescence to the first 2 years of college. The current study takes a person-centered approach to sexual aggression in an attempt to resolve this discrepancy. We examined the possibility of cohesive subgroups of men in terms of their frequency of sexual aggression across the pre-college and college years. A series of latent class growth models were fit to an existing longitudinal dataset of sexual experiences collected across four time points—pre-college through year 3 of college. A four-trajectory model fit the data well, exhibiting significantly better fit than a three-trajectory model. The four trajectories are interpreted as men who perpetrate sexual aggression at (1) low (71.5% of the sample), (2) moderate (21.2%), (3) decreasing (4.2%), and (4) increasing (3.1%) frequencies across time. Negative childhood experiences predicted membership of the decreasing trajectory, relative to the low trajectory, but did not predict membership of the increasing trajectory, explaining the discrepancy uncovered by White and Smith. Implications for primary prevention of sexual aggression are discussed. Aggr. Behav. 9999:XX–XX, 2015. © 2015 Wiley Periodicals, Inc.

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INTRODUCTION

Male sexual aggression against women has long been a problem warranting attention. Researchers have defined sexual aggression in numerous ways, most often involving unwanted, verbally coerced, or alcohol- and drug-assisted sexual contact as well as attempted and completed forcible rape (Koss et al., 2007). Generally speaking, prevention, and intervention programs aimed at reducing negative sexual attitudes and behavior toward women have yielded mixed results (Berkowitz, 2001; DeGue et al., 2014; Garrity, 2011; Piccigallo, Lilley, & Miller, 2012). It may be fruitful to revisit data on this phenomenon to inform prevention and intervention programs. The current study assesses the extent to which there are unobserved subgroups of men in terms of their patterns of sexual aggression frequency across time. If confirmed, this information will be valuable so that prevention and intervention programs can be targeted at specific subgroups of sexually aggressive men.

SUPPORT FOR HETEROGENEITY AMONG SEXUAL AGGRESSORS

The most prominent theories of sexual aggression etiology allude to the existence of multiple pathways leading to differential engagement in sexually aggressive behavior across time (Gannon, Collie, Ward, & Thakker, 2008; Hall & Hirschman, 1991; Knight & Prentky, 1987; Knight & Sims-Knight, 2003; Malamuth, Linz, Heavey, Barnes, & Acker, 1995; Marshall & Barbaree, 1990; Prentky & Knight, 1991; Ward & Hudson, 1998). In the confluence model of sexual aggression, Malamuth et al. (1995) argued that sexually aggressive behavior arises from two, converging pathways: a hostile masculinity pathway and an impersonal sex pathway. The authors characterized the hostile masculinity pathway as encompassing antagonistic and distrustful attitudes toward women and attitudes supporting violence. The impersonal sex pathway entails a pattern of high promiscuity

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with low emotional attachment to sexual partners. Although the authors reasoned that adolescent delinquency and negative early life experience contribute to the emergence of both pathways, the subsequent diverging paths might give rise to differing patterns of offending across time.

In their quadripartite model of sexual aggression, Hall and Hirschman (1991) outlined four distinct factors that contribute to the expression of sexual aggression: sexual arousal, cognitive distortions, affective dyscontrol, and personality problems encompassing antisocial tendencies. The first three factors describe proximal states that contribute to sexual offending; the third factor entails more enduring personality traits, rooted in negative early life experiences. Although any combination of these factors may exist in each aggressor, Hall and Hirschman argued that for most, only one of the factors is the primary driving force behind sexual offending. Predictors exerting greater influence on men's sexually aggressive behavior may lead to heterogeneity among perpetrators, in terms of clinical profiles and patterns of offending.

Additionally, Knight and Sims-Knight (2003) proposed a three-path etiological model of sexual offense in which childhood victimization and personality disposition give rise to three latent traits that contribute to sexually aggressive behavior: unemotionality/callousness, preoccupation with sex, and antisocial behavior. Marshall and Barbaree (1990) proposed that negative early life experiences, biological factors, cultural messages about sex and gender roles, and emotional states interact to increase the likelihood of engaging in aggressive sexual behavior. More specifically, insecure attachment due to abuse or neglect, exposure to negative attitudes toward women, and maladaptive responses to hormonal changes during adolescence all increase the risk of perpetrating acts of sexual aggression. Situational factors, such as substance use or negative affect, can further exacerbate these vulnerabilities. According to these interpretations, the interplay of the multiple causal factors could give rise to differing patterns of sexual offending. For instance, in one pathway to sexual aggression, receiving cultural messages that devalue women predisposes the individual to engage in sexual aggression. Alternatively, the offender may develop negative attitudes toward women after failing to establish intimate relationships in adolescence.

Multiple trajectories of sexual offending may also be the result of differing self-regulatory strategies. Self-regulation is the adjustment of one's thoughts, behavior, or emotions in order to match some predetermined goal (Stinson, Sales & Becker, 2008; Ward & Hudson, 1998). According to self-regulation theories of sexual offending, sex offenders inappropriately regulate negative affect by seeking out instant gratification achieved through sexual coercion (Stinson et al., 2008). Ward and Hudson (1998) outlined three ineffective self-regulatory pathways that contribute to sexual re-offending: underregulation, misregulation, and intact regulation. Similar to Hall and Hirschman's formulation of the affective dyscontrol factor, the first two self-regulatory pathways to re-offense relate to an inability to correct aggressive sexual impulses or behavior due to insufficient cognitive resources or counterproductive strategies, such as thought suppression. The third pathway relates to the failure to identify sexual aggression as a problem behavior. Each of these conceptualizations present a theoretical basis for the existence of multiple, homogeneous groups of sexual aggressors through the existence of multiple pathways to sexually aggressive behavior and self-regulation.

In one of the few person-centered approaches to sexual aggression research, Cale, Lussier, and Proulx (2009) used cluster analysis to uncover adolescent trajectories of antisocial behavior in a sample of men convicted of sexual aggression against women. These authors then used trajectory membership to predict criminal activity during adulthood, including sexual aggression. Their results bring attention to latent subgroups of sexual aggressors in terms of their antisocial behavior patterns during adolescence. Likewise, in a person-centered analysis of patterns of recidivism for convicted sex offenders, Lussier and Davies (2011) identified distinct trajectories of multiple offending, including late onset offending, low-rate offending, and high-rate/increasing offending.

Abbey, Wegner, Pierce, and Jacques-Tiura (2012) also identified trajectories of sexual violence perpetration in a community sample of young men. From self-reports of sexually aggressive behavior collected at baseline and a 1 year follow-up, Abbey et al. (2012) manually identified three groups of sexual offenders: persistent sexual aggressors, desisters, and initiators. Using discriminant function analysis, the authors found that some subgroups had stronger associations with certain risk factors than did other subgroups; persistent sexual aggressors had higher rates of childhood victimization, desisters had fewer sexual partners at follow-up than persistent perpetrators, and initiators were more likely to report intoxication in sexual situations than were non-perpetrators. Taken together, recent research using person-centered approaches to understanding patterns of multiple offending have supported the existence of heterogeneity among sexual aggressors.

THE CURRENT RESEARCH

In one of first longitudinal studies of college men's sexually aggressive behavior, White and Smith (2004) uncovered an anomaly related to how men's negative

childhood experiences predicted later sexually aggressive behavior. Specifically, they found that negative childhood experiences significantly predicted sexual aggression at the pre-college assessment, but not during the subsequent college years. The dataset that White and Smith (2004) initially examined is uniquely valuable to the study of male sexual coercion in that it contains longitudinal data on sexual aggression across the pre-college and college years. It makes sense, therefore, to revisit the data using a model-building approach to examine young men's rates of sexual aggression across time, in an effort to better explain White and Smith's findings (2004) (Swartout, Swartout, & White, 2011). Latent class growth analysis (LCGA) allows us to model frequencies of sexual aggression across time to assess patterns of change and determine whether there are distinct groups, or trajectories, within the data.

In addition to sexual aggression frequency, the tactics perpetrators use, such as force, and outcomes for victims, such as unwanted contact, are important factors in the study. Different sexually aggressive tactics can differentially affect survivors' health outcomes and the development of post-traumatic stress disorder (Bennice, Resnick, Mechanic, & Astin, 2003; Eadie, Runtz, & Spencer-Rodgers, 2008). Analyses involving perpetration tactics will not only help to confirm the results of the frequency analysis, but they will also add a great deal of contextual information to the sexual aggression frequency trajectories. Cross-tabulation and non-parametric tests will provide information on the overlap between sexual aggression frequency trajectories and sexually aggressive tactics used at each time point.

The literature strongly suggests that sexual aggressors are more likely than non-aggressors to have experienced negative circumstances during childhood, including childhood sexual abuse, witnessing domestic violence, and parental physical abuse (e.g., Finkelhor, 1984). Social learning theory posits that aggressive behavior is learned through observing and reproducing others' modeled behavior (Bandura, Ross, & Ross, 1961). Therefore, men who have experienced aggression in childhood might be more likely engage in aggressive behavior in adolescence. Moreover, negative family interactions and environments often provide the groundwork for the formation of poor self-control as well as negative attitudes regarding women and violence. In fact, White and Kowalski (1998) argued that early experiences with family violence and delinquent peers are precursors of attitudes that promote power, dominance, and competitiveness. When men associate these qualities with their masculinity, they can develop hostility toward anything feminine (Burt, 1980; Malamuth, Sockloskie, Koss, & Tanaka, 1991). Researchers have linked negative childhood experiences to both physical and sexual aggression in adolescence (Patterson, Reid, & Dishion, 1998; White & Smith, 2004); however, the relation of these variables to aggression beyond adolescence has not been well established (White & Smith, 2004).

Research Questions

This investigation will address three, related research questions: (1) Are there meaningful subgroups of men in terms of their frequency of sexual aggression across time? (2) What sexually aggressive tactics are men within each trajectory using at each point in time? (3) Do negative childhood experiences predict sexual aggression trajectory membership?

METHOD

Participants

Data for the present study came from a longitudinal study of social experiences (data available at http://dx.doi.org/10.3886/ICPSR03212). Three incoming classes of first-year male college students received invitations to complete a series of five surveys ($N = 850$) with yearly participant retention rates of 89%, 86%, and 80%, respectively. Participants completed a survey on adolescent social experiences during the fall semester of their freshman year; only young men who had completed high school the year prior were eligible to participate. Furthermore, only men aged 18–20 years old at the first survey administration qualified to participate in the project. Participants completed surveys during the spring semesters of each of their 4 years of college that asked questions about behavior since the last survey. Yearly average retention was 77% and approximately 22% of the original sample completed all five surveys ($n = 184$). Because so few men completed the final assessment, for the current study, we only analyzed data from the first four assessments. Approximately 69% of the sample self-reported being White, 26% Black, and 5.8% another ethnicity (see White and Smith (2004) for a more detailed description of this sample).

Procedure

First, the Institutional Review Board at the University where data were collected approved all data collection protocols. Researchers explained the purpose and method of data collection to participants and acquired informed consent before the first survey was administered. For the purpose of contacting students for subsequent surveys, participants completed contact sheets, including the name, address, and telephone number of a person who would most likely still be in contact with them during the following year. Confidentiality was ensured using code numbers matched to

participants' names, contact information, and surveys; students' names were not included on actual survey instruments or data files. Files containing the lists of matching code numbers and names were kept in a locked safe only accessible to the investigators. In addition, to further protect the confidentiality of participants, the National Institutes of Mental Health issued a federal Certificate of Confidentiality.

Measures

The surveys administered gauged a number of social experiences including predictors, correlates, and consequences of interpersonal aggression. We included questions about experiences in childhood and adolescence, including 4 years of college. The first survey included measures that assessed childhood and pre-college experiences, including negative childhood experiences and sexual aggression from age 14 to the beginning of college. The subsequent surveys measured sexual aggression during each respective college year. We describe each measure in more detail below.

Sexual coercion. Using the Sexual Experiences Survey (SES; Koss, Gidycz, & Wisniewski, 1987), young men indicated during the first survey how many times since the age of 14 they had engaged in each of a number of acts of sexual behavior directed toward a woman ($\alpha = .93$). At each follow-up, participants again reported which of the acts they had engaged in; on the follow-up surveys, however, the young men indicated how many times since the last survey—instead of since age 14—they had engaged in each type of behavior (α for the first 3 years of college was .89, .95, and .97, respectively). We calculated *frequency* of sexual aggression by totaling the number of sexually aggressive acts reported across all SES items at each assessment. These variables were used as indicators in the latent class growth analysis to address Question 1. To address Question 2, we determined *tactics* of sexual aggression by categorizing men based upon the most extreme methods for obtaining non-consensual sex they reported at each time point: 0 = no sexual activity, 1 = only consensual sexual activity, 2 = unwanted sexual contact, 3 = verbal sexual coercion, 4 = attempted rape, and 5 = rape. We included reports of only consensual sex or no sexual activity at each assessment for reference to enhance interpretation.

Negative childhood experiences. The study assessed three forms of childhood victimization: childhood sexual abuse, parental physical abuse, and witnessing domestic violence. Measures used by Koss et al. (1987) served as the basis for our assessment of each experience. We assessed childhood sexual abuse using four items that asked about any sexual act perpetrated by an adult toward the participant prior to the age of 14 ($\alpha = .70$). The four items used to construct the childhood sexual abuse variable were (1) "Another person showed his/her sex organs to you or asked you to show yours"; (2) "Another person fondled you in a sexual way or touched your sex organs or asked you to touch their sex organs"; (3) "Another male attempted intercourse (but penetration did not occur)"; and (4) "Another male had intercourse (penetration occurred; ejaculation not necessary)". All four items were measured on 5-point scales: "never had this experience" (coded 0), "1 time" (coded 1), "2 times" (coded 2), "3–5 times" (coded 4), and "more than 5 times" (coded 6). Follow-up items assessed if the other person was an adult; only experiences with adults were counted. We calculated a frequency of childhood sexual abuse by recoding and summing across all four items, creating a response range of 0–24.

Witnessing domestic violence and parental physical abuse—each measured with one item—captured young men's recurrent experiences, not experiences that may have happened once or twice during childhood. We measured witnessing domestic violence by asking participants how often, during an average month, their parents/guardians delivered physical blows to one another. We measured parental physical abuse in a similarly: asking participants how often, in an average month, their parents/guardians used "physical blows" on them, such as hitting them, kicking them, or throwing them down. Participants responded to both items on identical 5-point scales: "never" (coded 0), "1–5 times" (coded 3), "6–10 times" (coded 8), "11–20 times" (coded 16), and "over 20 times" (coded 21). Therefore, for the current analyses, responses were recoded to yield a frequency measure ranging from 0 to 21 for each item.

Analytic Strategy

We conducted a latent class growth analysis (LCGA; Muthén, 2001; Nagin, 2005) to answer our first research question. LCGA is a specific and more simplified case of growth mixture modeling (GMM; Asparouhov and Muthén, 2008; Muthén, 2004; Muthén & Shedden, 1999). Using GMM with longitudinal data allows statistically heterogeneous latent trajectories to be discovered within manifest data. LCGA is well-suited for the current analysis because, unlike GMM, within-class variances are fixed at zero (Feldman, Masyn, & Conger, 2009; Kreuter & Muthén, 2007; Nagin, 1999; Roeder, Lynch, & Nagin, 1999). This allows LCGA to forgo two common assumptions held by most mixture models: (1) that there is a normal distribution of data within each latent class; and (2) there is sufficient within-class variability to compute accurate variance/co-variance matrices. These assumptions are relaxed because LCGA does not allow individuals to vary within-class. In this case, latent class membership accounts for individual

differences (Muthén & Muthén, 2000); class differences can then be analyzed as a function of covariates to assess the level to which these variables are generally able to predict class membership. LCGA provides a more statistically grounded alternative to manual classification techniques and offers statistics related to model classification quality (Morgan-Lopez, Cluff, & Fals-Stewart, 2009).

We conducted a LCGA using Mplus version 5.1 (Muthén & Muthén, 2008) using maximum likelihood estimation with robust standard errors (MLR) to account for missing data within our sample across time. MLR adheres to the assumption that data are missing-at-random, uses all of the data present in the sample to estimate model parameters, and allows variables included in the analyses to be related to patterns of missing data (Little & Rubin, 2002; McKnight, McKnight, Sidani, & Figueredo, 2007). We entered individuals' frequencies of sexual aggression at each time point (adolescence to third year of college) as latent trajectory class indicators in the analyses. Because these variables represent frequencies of behavior during a given timeframe, they were designated as *count* variables within the analysis. By designating the dependent variable as *count*, the analysis software uses a Poisson distribution to estimate the model, where the conditional mean equals the conditional variance (Long, 1997). The latent trajectory class structure, therefore, is based upon men's rates of sexual aggression across time.

We entered negative childhood experiences—childhood sexual abuse, parental physical abuse, and witnessing domestic violence—into the model as *auxiliary* variables. The auxiliary variable option in Mplus stipulates that these variables are not used to specify the latent trajectory classes, rather, they are used as time-invariant predictors of latent trajectory membership through multinomial logistic regression (Hosmer & Lemeshow, 2000). This allowed us to assess the power of past negative childhood experiences in discriminating between the latent trajectory classes. See Figure 1 for a illustration of this model.

Fitted models ranged from 1- to 4-classes (model fit and classification criteria are found in Table 1) with both linear and quadratic change over time (i.e., time^2) specified for each latent class. One can interpret the linear effect as consistent change across time; whereas the quadratic effect is interpreted as accelerated, directional change over time to the point that the trajectory is nonlinear. When building a mixture model there is no singular indicator of how well a model fits the data; multiple statistical indicators must be paired with a theoretical understanding of the constructs in order to determine an appropriate class structure (Jackson, Sher, & Schulenberg, 2005; Tucker, Orlando, & Ellickson, 2003). To compare the fit of each

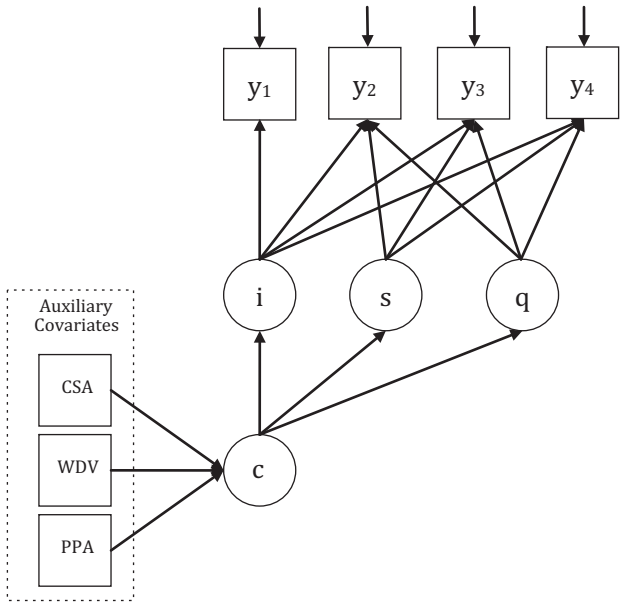

Fig. 1. Latent class growth analysis model of sexual aggression frequency across time with negative childhood experience variables as auxiliary covariates. Note. *c*, categorical latent class variable; *i*, latent intercept; *s*, latent linear slope; *q*, latent quadratic slope.

model to the data, we used the Bayesian Information Criterion (BIC) and the Lo–Mendell–Rubin adjusted Likelihood Ratio Test (adj-LRT). We also used entropy and posterior probabilities to compare how cleanly each model classified individuals into specific latent trajectories (Muthén, 2004). In addition to these model fit and classification statistics, we reviewed the plots provided by Mplus for each model. Taken together, these criteria allowed us to compare the heterogeneous class structure suggested by each model with past theoretical and empirical information concerning frequency of sexual aggression and also helped us to factor parsimony into the model selection process. We then exported each participants' most likely trajectory class memberships and computed a cross-tabulation with sexually aggressive tactics to address research Question 2. Negative childhood experience covariates allowed us to address Question 3 and to establish additional discriminant validity for the final trajectory class structure (Muthén, 2003).

TABLE 1. Model Fit Statistics for Class Structures

Model	BIC	Adj. LRT	Entropy
One-Class	11987.27	—	1.000
Two-Class	7145.49	4694.79 ($p = .004$)	0.977
Three-Class	6096.94	1037.11 ($p < .05$)	0.954
Four-Class	5329.14	765.66 ($p < .05$)	0.919

Note. BIC, Bayesian information criterion; Adj. LRT, Lo–Mendell–Rubin adjusted likelihood ratio test.

RESULTS

Descriptives

The percentage of men reporting any form of sexually aggressive behavior during adolescence was 23.9%, followed by 15.2% during year 1 of college, 13.7% during year 2, and 13.1% during year 3. Just over 31% of men reported engaging in sexually aggression at least once across the four assessments; this concurs with previously published rates of male sexual aggression (Koss et al., 1987). See White and Smith (2004) for information regarding odds ratios and relative risk estimates of sexual aggression across time within this sample. Of men who answered questions about their childhood experiences in the initial survey, 12.2% reported experiencing childhood sexual abuse, 28.2% reported childhood physical abuse, and 7.7% reported witnessing domestic violence during childhood. All three negative childhood experience variables were moderately inter-correlated (r range = .214–354).

Model Selection

All four tested models converged normally. According to the adj-LRT statistic, compared with the 3-trajectory model, the 4-trajectory model fit the data significantly better ($p < .05$). The 4-trajectory model cleanly separated participants into different latent classes, as indicated by the entropy value of .919. The four-class model estimated the average latent trajectory probabilities for most likely latent class membership to be between .90 and .98—further signifying good classification quality. This information concerning model fit paired with very strong classification quality lends support for the 4-trajectory solution (see Figure 2 for an estimate plot of the 4-trajectory model). Each of the four trajectories in this model is described below.

Class 1: *Low/None*. Of the four trajectories, the first trajectory class has the highest most-likely membership ($n = 609$, 71.5%). The intercept of this trajectory is significantly lower than average, and the slope of this trajectory is non-significant (see Table 2). This led us to interpret class 1 as the *Low/None* trajectory due to its consistently low level of sexual aggression across the four time points (see Table 3 and Fig. 2). Because the most-likely members of this class engaged in little to no sexual aggression across the study, we used this class as the reference group for the multinomial logistic regressions of latent trajectory class membership on the negative childhood experience variables (used to address Question 3).

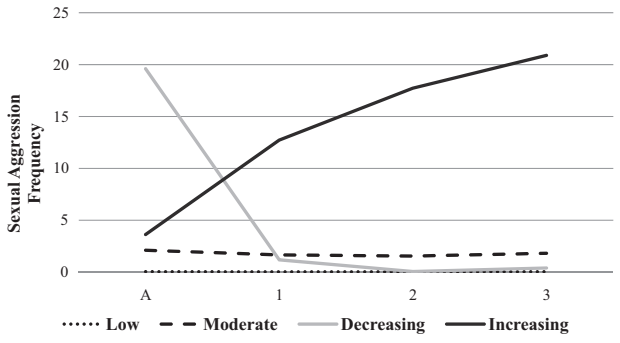

Fig. 2. Estimated means of latent trajectory classes across time, from adolescence through year 3 of college.

Class 2: Moderate

The second trajectory accounted for over 20% of the sample ($n = 186$) according to the average latent class probabilities for most likely latent trajectory class membership. The intercept of the class 2 trajectory is significantly higher than average while the slope of this trajectory is non-significant (see Table 2). Due to its consistent level of sexual coercion—ranging from an average of 1–3 instances per time point—we interpreted class 2 as the *Moderate* trajectory (again, see Table 3 and Fig. 2).

Class 3: Decreasing. The last two trajectories both accounted for small yet dynamic portions of the sample, with the third trajectory accounting for 4.2% ($n = 35$). The intercept of the third trajectory is significantly higher than average; however, it dips sharply thereafter, as evidenced by its significant negative linear slope (see Table 2). Figure 2 and Table 3 show that the third trajectory, although elevated during adolescence, drops sharply at year 1 of college to a consistently low frequency thereafter. For this reason we interpreted this latent class as the *Decreasing* trajectory.

Class 4: Increasing. The fourth trajectory is the smallest in terms of most-likely membership ($n = 20$, 3.1%). The intercept of this class does not significantly differ from the average intercept of the sample as a whole, but the linear slope is significantly positive (Table 2). The plot of trajectories (Fig. 2) along with the information in Table 3 suggests that men in this class engage in a relatively low frequency of sexual aggression during adolescence but sharply increase their levels after they begin college. These factors led us to label this class the *Increasing* trajectory.

Relation Between Frequency and Tactics of Sexual Coercion

We conducted chi-square analyses using the categorical latent class variable (with four levels) along with a categorical variable computed at each assessment indicating the most extreme sexually aggressive tactics each participant reported. These additional analyses provided a more nuanced characterization of each latent

TABLE 2. Characteristics for the 4-Class Model of Sexual Coercion

		Frequency of Sexual Aggression		
Latent Trajectory Classes	% Of Sample	Intercept (SE)	Slope (SE)	Quadratic (SE)
(1) *Low/None*	71.5	−2.85 (0.41)**	−0.72 (0.60)	0.14 (0.21)
(2) Moderate	21.2	.78 (.13)**	−0.43 (0.26)	0.10 (0.09)
(3) Decreasing	4.2	2.98 (0.14)**	−4.12 (1.19)**	0.93 (0.47)*
(4) Increasing	3.1	0.84 (0.57)	1.98 (0.58)**	−0.40 (0.14)*

*$p < 0.05$.
**$p < 0.001$.

class and served as a means to explain the *type* of sexually aggressive behavior in which members of each class reported engaging (Macy, Nurius, & Norris, 2007).

As illustrated in the four plots of Figure 3, trajectory membership differs by the sexually aggressive tactics the perpetrators used across time. Not surprisingly, men in the *Low/None* trajectory are consistently most likely to engage in only consensual sex across all time points measured. Men in the *Moderate* trajectory tend to perpetrate moderately extreme forms of sexual aggression such as unwanted and coercive sexual contact consistently across time; rates of attempted rape and rape were relatively low in this class. In sharp contrast, men in the *Decreasing* and *Increasing* trajectories are both highly likely to perpetrate rape at some point during adolescence or the first 3 years of college. In fact, the graphs corresponding to these two trajectories clearly parallel their frequency trajectory patterns in Figure 2; that is, the *Decreasing* trajectory—the group with the highest frequencies of sexual aggression before college—is most likely to perpetrate rape before college. The *Increasing* trajectory—the group that perpetrates at lower frequencies before college but with an increasing rate during college—shows a similar pattern in terms of their perpetration tactics; their likelihood of committing rape is relatively low before college, but extremely high across the first 3 years of college.

Results of the chi-square analyses supported these interpretations ($\chi^2 = 139.72$–693.81, all $ps < .001$). This significant level of dependence between frequency trajectories and tactics was qualified by distinct trends across time. As would be expected, members of the *Low/None* trajectory were less likely than members of the other three trajectories to engage in any type of sexually aggressive behavior (all *standardized residuals* [S. R.] < -2.0) across assessments. Members of the *Moderate* trajectory were generally more likely than would be expected to engage in an array of sexually aggressive tactics consistently across assessments. Members of the *Decreasing* class were more likely to complete a rape before college (S.R. = 17.3) and during the first year of college (S.R. = 3.0), although this relation was not found during the subsequent 2 years of college. Members of the *Increasing* class were more likely than would be expected to complete a rape during college years 2 and 3 (all S. R.s > 7.0).

Predictive Power of Negative Childhood Experiences

Observed negative childhood experience variables—childhood sexual abuse, witnessing domestic violence, and parental physical abuse—were specified as predictors of latent trajectory class membership, with the *Low/None* trajectory as the reference group (see Table 4). Specifically, the odds of classification in the *Decreasing* trajectory increased by 1.32 for every instance of childhood sexual abuse, 1.73 for every instance of childhood physical abuse, and 4.19 for every instance of witnessing domestic violence. None of the negative childhood experiences significantly predicted membership in either the *Moderate* or *Increasing* trajectories compared with the *Low/None* trajectory.

TABLE 3. Means and Standard Deviations of Sexual Aggression Frequency at Each Time Point by Most Likely Latent Trajectory Membership

	Low/None ($n = 609$)		Moderate ($n = 186$)		Decreasing ($n = 35$)		Increasing ($n = 20$)	
Time Point	*M*	SD	*M*	SD	*M*	SD	*M*	SD
Adolescence	.05	.26	2.11	1.80	19.60	10.66	3.62	5.44
Year 1 of college	.03	.19	1.66	2.60	1.18	2.91	12.72	10.83
Year 2 of college	.04	.21	1.55	2.43	.06	.243	17.73	14.25
Year 3 of college	.04	.21	1.82	3.29	.40	1.27	20.89	16.37

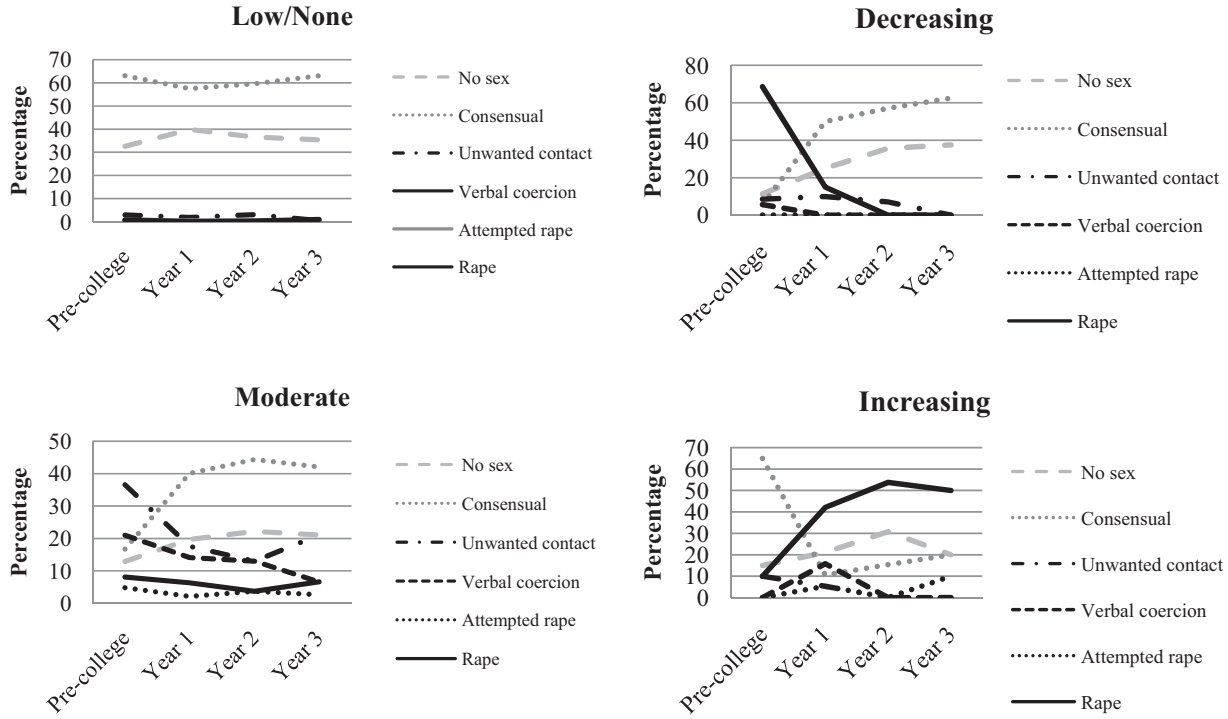

Fig. 3. Plots of sexually coercive behavior accounted for by each latent trajectory class across time.

DISCUSSION

We set out to answer three related questions: (1) whether there were cohesive latent groups of men in terms of their frequency of sexual aggression across time; (2) whether perpetration tactics used across time related to membership in the sexual aggression frequency trajectories; and (3) whether negative childhood experiences predicted trajectory membership. We distinguished four meaningful patterns of sexual aggression frequencies among young men during the pre-college and college years: groups of men with low, moderate, increasing, and decreasing rates of sexual aggression across time. In addition, these groups of men also differ in the sexually aggressive tactics they utilized at different points in the study. Higher levels of three negative childhood experiences—childhood sexual abuse, witnessing domestic violence, and childhood physical abuse—only predicted membership in the decreasing trajectory. In contrast, negative childhood experiences were not effective predictors of membership in either the moderate or increasing trajectories. These findings contextualize those of White and Smith (2004): the group of men who engage in high rates of sexual aggression before college is different from the group who engages in high rates during college, explaining why negative childhood experiences are predictive of sexual aggression at early, but not late, stages of adolescence.

This interpretation of heterogeneity in the population of sexually aggressive college men fits well with descriptions of subgroups of perpetrators based on sexual assault tactics (Lyndon, White, & Kadlec, 2007) as well as differences in social behavior and attitudes of sexually aggressive and non-sexually-aggressive young men described by White et al. (2008). Additionally, these differing classes fit well with Moffitt's (1997) developmental theories of antisocial behavior. The *Decreasing* class of men may be exhibiting the "adolescent limited" pattern of sexual aggression. Thus, future studies should attempt to identify what aspects of the transition to

TABLE 4. Results of Multinomial Logistic Regression of Sexual Aggression Trajectory on Negative Childhood Experiences, Using *Low/None* Class as Reference Group

Latent Trajectory Classes	Estimate (SE)		
	CSA	WDV	PPA
(2) Moderate	0.12 (0.14)	0.24 (0.28)	0.17 (0.20)
(3) Decreasing	0.28 (0.14)*	1.43 (0.28)***	0.55 (0.20)**
(4) Increasing	0.16 (0.16)	0.72 (0.46)	−0.08 (0.38)

Note. CSA, childhood sexual abuse; WDV, witnessing domestic violence; PPA, parental physical abuse.
*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

college contribute to a reduced likelihood of sexual aggression for these men.

In contrast, one might consider the men in both the *Moderate* and *Increasing* classes "life course persistent" in their frequencies of sexual aggression: these groups' frequencies of sexual aggression are significantly and persistently elevated across the college assessments, compared to the *Low/None* class. However, the trajectories of these two groups differ in that members of the *Moderate* class engage in consistent but low frequencies of sexual aggression across time whereas members of the *Increasing* class significantly increase their frequency of sexual aggression across time. Although both of these groups of men fit Moffitt's (1997) conception of "life course persistent" antisocial behavior, we have found these groups to be qualitatively different in terms of their perpetration tactics: men in the *Increasing* class are more likely to perpetrate rape in college, whereas men in the *Moderate* class mostly perpetrate unwanted contact and verbal coercion. It may be that men in the *Moderate* trajectory are most like the men Gavey (1999) refers to when she uses the term heteronormativity: perhaps these men perpetrate consistently moderate levels of less severe forms of sexual aggression because they think of acts such as verbal coercion as part of the normative script of sexual exchange (Atmore, 1999; Byers & Eno, 1991). Their partners may also subscribe to a similar sexual script, thus offering no resistance to their tactics. Thus, they may continue to perpetrate similarly over time because they can—there are no real consequences, either interpersonally or legally. Therefore, intervention efforts for this largest and most consistent group of perpetrators may be most effective if focused on altering these normative "sex-as-usual" scripts, rather than using more consequence-based appeals (Gavey, 1999).

Limitations

This study was limited by its inclusion of male students from only one university. Despite this, the rates of SA found in our sample were similar to those reported from comparable studies with college men and the categorizations are consistent with conceptually similar studies using data collected from different universities (Abbey et al., 2012; Thompson, Swartout, & Koss, 2013). We assessed only one category of trajectory membership predictor, negative childhood experiences, and within this category, two of the three measures involved a single item. Future research should use a broader measure of childhood trauma with known psychometric properties.

There has been some debate within the methodological literature about interpretations of LCGAs and growth mixture models in general. Bauer and Curran (2003) pointed out that there are two equally plausible explanations for the fit of a growth mixture model: (1) the population of interest is heterogeneous and contains cohesive, normally-distributed subgroups or (2) the data constitute a non-normal sample and model fit is purely a function of this lack of normality. These two explanations are very similar in practice but lead to quite different and possibly inaccurate conclusions, especially when cohesive latent subgroups are assumed based upon data which are actually from a homogenous population.

We feel confident that we have discovered cohesive latent subgroups in the current research. First, the percentage of our sample that was assigned to one of the three sexually aggressive latent trajectory classes matches prevalence rates of this behavior found in previous research (Koss et al., 1987; Tjaden and Thoennes, 2000). In other words, the percentage of men who comprise the three more aggressive trajectories (28.5%) is consistent with estimates of sexual coercion in other college samples (25.1%; Koss et al., 1987). Second, covariates known to predict sexual aggression—negative childhood experiences—successfully distinguished between the latent trajectory classes and were able to inform questions raised by previous research in this area (White & Smith, 2004). Third, another indicator of sexual aggression—tactics used—corroborated the latent trajectory classes. Finally, the interpretation of the sexually aggressive latent trajectories fits with substantive theory on the heterogeneous development of antisocial behavior across adolescence and into adulthood (Moffitt, 1997). Taken together, there is substantial support for the interpretation of qualitatively different subgroups in terms of sexually aggressive trajectories among college-aged men.

Implications

The current findings have immediate implications for researchers, clinicians, practitioners, and administrators seeking to develop new—or revamp existing—prevention and intervention programs for sexually aggressive men. In a recently published study, Stephens and George (2009) reported that a rape prevention program based upon attitudes and behavioral intentions was successful with men who were judged to be at low-risk for perpetrating sexual aggression but unsuccessful for high-risk men. This suggests that men are heterogeneous in their response to rape prevention programming; men's responsiveness may be a function of the extent to which they hold rape-supportive beliefs. Although the relation between attitudes and behavior is by no means perfect (LaPiere, 1934), one might infer that the men found to be highly sexually aggressive in the current study would also hold attitudes highly supportive of sexual aggression (Bem, 1972), making them more resistant to existing programs aimed at reducing this behavior.

The findings from the current study—and other studies that have found heterogeneity among sexually aggressive men—might help to guide the development of more nuanced and specific intervention and prevention programs. Program developers and practitioners could tailor sexual-assault prevention and reduction programs to specific subgroups of men based upon their frequency of sexual aggression across time, or other factors such as their level of attitudinal support for sexual aggression and their professed intent to engage in this behavior. Importantly, for example, addressing issues of children exposed to or experiencing violence in childhood is central to addressing sexual aggression that may occur in adolescence. However, a focus on attenuating the impact of childhood experiences will not affect men who engage in only less severe forms of sexual aggression or initiate sexually aggressive behavior only in college. The ineffectiveness of some programs might be due to painting with too broad a brush (*cf*. Berkowitz, 2001): specific interventions targeted at subgroups of men found to be both empirically and behaviorally distinct might produce more favorable outcomes.

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