

A Latent Class Analysis of Campus Sexual Assault

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Objective: Campus sexual assault (CSA) is a pervasive problem among U.S. college students. Large-scale studies frequently find that between 20%–25% of women and 6%–7% of men are sexually victimized during their time at U.S. colleges and universities (Cantor et al., 2015, 2019; Fisher et al., 2000; Krebs et al., 2007; Krebs et al., 2010). The purpose of the present study is to examine individual responses to campus climate surveys in an effort to determine how students perceive their risk of being sexually assaulted and how they interact with campus policies. **Method:** The present study addresses the research gap by utilizing latent class analysis with campus climate survey data in order to identify subgroups of students based on their responses to elements of campus climate. Climate in this context is measured by the perceptions of campus constituencies and the policies of institutions of higher education. Additionally, the present study seeks to determine if latent subgroups could be predicted by victimization and gender. **Results:** Results provided evidence for the existence of latent subgroups of students on elements of campus climate, and supported the hypothesis that latent class membership could be predicted by victimization status and gender. **Conclusion:** Implications of the present study may help institutions of higher education identify students who would benefit from focused outreach efforts to improve safety based on class membership.

Clinical Impact Statement

The present study seeks to highlight heterogeneity among student experiences of campus sexual assault in order to unpack the complexity associated with sexual misconduct and hostile campus climate. Results have implications for students impacted by sexual violence, university faculty and staff, university policy makers, and governmental agencies seeking to prevent sexual assault from occurring on college campuses. Additionally, results call for the implementation of trauma-informed care in university counseling centers and serve as a call to action for institutions of higher education to train faculty and staff to respond to reports of sexual violence in a trauma-informed manner.

Keywords: campus sexual assault, latent class analysis, sexual violence, prevention, trauma-informed care

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Campus sexual assault (CSA) is a pervasive problem among U.S. college students. Prevalence rates over the past 20 years have consistently found around 20%–25% of women and 6%–7% of men have experienced some form of attempted or completed nonconsensual sexual contact during their time at American colleges and universities (Cantor et al., 2015, 2019; Fisher et al., 2000; Krebs et al., 2007, 2010). Previous research has identified several individual characteristics and behaviors associated with victimization including LGBTQ+ identity, disability status, binge drinking behaviors, and previous victimization experience

(Cantor et al., 2015, 2019; Fisher et al., 2000; Krebs et al., 2007, 2010).

While prior research has helped illuminate who is most at risk to be victimized on campus, these individual predictors do little to describe what elements of the overall campus climate contribute to an unsafe environment. Campus climate includes the intertwining individual, group, and systemic belief systems around sexual violence. Knowledge of specific elements of harmful campus climate might help institutions of higher education (IHEs) make systematic changes to protect students. Some of these elements at the systems level

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include group-level predictors such as living situation, with residential students being more at risk than students living off campus (Cantor et al., 2015, 2019; Fisher et al., 2000; Krebs et al., 2007, 2010), and peer group influence, such as campus social groups and clubs (i.e., sororities and fraternities), which increase the risk of sexual victimization and perpetration (Adams-Curtis & Forbes, 2004; DeKeseredy et al., 2018; Flack et al., 2007; Martin, 2016; Sutton & Simons, 2015). Students' endorsement of rape myths also impacts the understanding of CSA and influence victimization (Burt, 1980; O'Connor et al., 2018). Additionally, the institutional policy can alter students' risk of CSA. Specifically, comprehensive and well-understood sexual violence policies can decrease the prevalence of CSA and increase students' knowledge of where to turn for help for themselves or a peer (DeLong et al., 2018; Potter et al., 2016). Studies have shown that institutions can target outreach programs based on demographic characteristics of students, thus increasing access to campus services by those most at risk (Albright et al., 2019; Graham et al., 2021).

Further, institutions should consider the ways in which the culture of their institution impacts the efficacy of campus policies intended to prevent sexual violence. C. P. Smith and Freyd (2013) introduced the idea of "institutional betrayal" by examining the relationship between institutions and their responses to victimization. Freyd (2018) calls for a trauma-informed approach in working with survivors of CSA, but others (Doughty, 2018) found that trauma-informed care in education environments is uncommon, and that many university educators feel unprepared to implement trauma-informed care to students with trauma.

Such individual, group, and institutional level risk factors can be further illuminated at the systemic level by federal legislative efforts. Title IX of the Education Amendments of 1972 has radically changed the way IHEs manage the campus climate to prevent CSA and has been a key piece of legislation in dictating the ways in which IHEs are required by law to respond to allegations of gender discrimination, sexual misconduct, and harassment on college campuses. Since the passage of Title IX, there have been several other key pieces of legislation including the Clery Act, and the Campus Sexual Violence Elimination Act that were drafted to combat the problem of CSA (McCallion, 2014). In 2014, the Obama administration formed a task force which was designed to strengthen and address Title IX compliance issues as well as provide IHEs additional tools to respond to and prevent CSA (Obama, 2014). Since the creation of the 2014 White House task force, there has been a sharp increase in research on CSA, especially with the implementation of sexual assault and misconduct campus climate surveys, inclusive of the large-scale sexual assault and misconduct campus climate survey utilized in the present study (Cantor et al., 2015; Krause et al., 2019). It is these campus surveys that provided the impetus for researching the ecology of campuses, or in other words, the fit between persons and their environments as an avenue to better understand prevention methods.

To bring together the individual, group, institution, and regulatory research efforts reviewed here, the current study seeks to use latent class analysis (LCA), to examine individual responses to campus climate surveys in an effort to determine how students perceive their risk of being sexually assaulted and how they interact with campus policies designed to prevent victimization and comply with federal regulatory requirements. Additionally, the present study seeks to understand the predictive power of victimization experience and gender identity on latent class membership. Taking on this type of

methodological approach is novel in its attempt to identify unrecovered variables operating beneath the surface of sexual assault and misconduct campus climate surveys. To this end, this study focused on the following research questions: (a) Are there distinct latent subgroups of college students based on measures of campus climate? (b) Can latent class membership be predicted by victimization status (i.e., having experienced victimization by sexual penetration and/or sexual touching, or never having such an experience)? (c) Can latent class membership be predicted by gender identity?

Method

Data Source

The present study is a secondary analysis of data from the American Association of Universities (AAU) Campus Climate Survey on Sexual Assault and Sexual Misconduct (hereafter known as the AAU survey; Cantor et al., 2015). The survey instrument was developed by the White House Task Force to Protect Students from Sexual Assault, and then was adapted around the informational needs of the IHEs.

Participants

Participants in the AAU survey were undergraduate, graduate, and professional students enrolled at 27 IHEs across the United States. The sample in the original study garnered a response rate of 19.3% with 150,072 students participating in total (Cantor et al., 2015). The present study used all nonmissing data for the analysis, for a sample size of $N = 132,778$. Large population surveys with low response rates have been compared to surveys with higher response rates and in most of these comparisons ($n = 77$ of 84 in a replicated study) the results were statistically indistinguishable (Keeter et al., 2006). Moreover, the data analytic procedure itself, LCA, is designed to identify classes based on shared characteristics, for theory building rather than for generalizing to populations.

Participants included in the study were mostly undergraduate students (61.6%) and their reported racial identities were White (70.6%), Asian (18.1%), Black (4.0%), and other/multiracial (7.3%). The sample was made up of 58% women, 40.5% men, and 0.9% transgender, genderqueer, nonconforming, or questioning (TGNQ). Full demographic information on the study sample can be found in Table S1 in the online supplemental materials.

Measures and Procedures

In the present study, researchers utilized a subset of items from the AAU survey: 14 items total from the perceptions of risk (three items adapted from Fisher and Sloan, 2003), knowledge of campus resources and policies (four items adapted from McMahon et al., 2014) and perceptions of response to reporting (seven items adapted from McMahon et al., 2014) sections as the manifest variables in the LCA; and a dichotomous variable on victimization designated as victims versus nonvictims. In the original survey, victimization was measured using a sexual violence screener which included items modified from the Sexual Experiences Survey (Koss et al., 2007) and the CSA Study (Krebs et al., 2007). The AAU survey defined sexual assault and misconduct with two types of victimization (a) sexual penetration, and (b) sexual touching. These victimization experiences were specified by four behavioral tactics and

were defined using behaviorally specific language with examples of the behavior and use of the tactics to provide clarity for each distinct victimization experience (Cantor et al., 2015).

The present study categorized participants as those who had endorsed victimization by sexual penetration and/or sexual touching, and those who had not. Doing so captures a wide breadth of rape and/or assaultive experiences including victims who may not use the word “rape” to describe their experience as well as avoids heterosexist bias that often isolates victimization experiences of men and TGNQ people. The present study sought to capture a wide pool of sexual victimization experiences that included unwanted oral, vaginal, and anal sex acts. Other victimization experiences such as stalking and intimate partner violence were not included as part of the present study. This decision was based on decades of research on the definition and measurement of sexual misconduct as cited in Koss et al. (2007), Fisher et al. (2005), Fricker et al. (2003), and others. Full AAU Survey items, sample means, sample standard deviations, and internal consistency measures of each scale used in the present study can be found in Table S2 in the online supplemental materials.

Each of the 14 items analyzed in the present study is polytomous in nature, with a 5-point Likert-style scale ranging from *not at all* to *extremely*. When conducting LCA with polytomous variables, justification for the number of scale points is encouraged (Samuelsen & Dayton, 2019). As such, prior to the LCA, an item analysis was conducted using the Latent Trait Modeling (ltm) package in the R statistical computing environment (Rizopoulos, 2006; RStudio Team, 2019). Upon inspection of proportion of responses to the scale points for each item, it was found that for each item in the analysis, less than 10% of participants utilized the full range of the Likert-style scale and were least likely to respond at the extremes of the scale (Table S3 in the online supplemental materials). It is recommended to reduce the number of scale points prior to conducting LCA when less than 10% of the sample utilizes the full range of scale points (Aflaki et al., 2022; Samuelsen & Dayton, 2019). Therefore, scale points *not at all* (1) and *a little* (2) were combined, *somewhat* (3) was left alone, *very* (4), and *extremely* (5) were combined, to make a 3-point scale, which is adapted as follows, (1) *disagree*, (2) *neutral*, and (3) *agree*.

Analysis

In order to address research question one, cases are not specified a priori but are classified into classes naturally through their response

patterns (Samuelsen & Dayton, 2019). An exploratory polytomous variable LCA was conducted to generate hypotheses about qualitative differences among respondents. Researchers used the polytomous variable latent class analysis (poLCA) package in the R statistical computing environment to conduct the analysis (Linzer & Lewis, 2011; RStudio Team, 2019). PoLCA estimates the latent class model by maximizing the log-likelihood function using the expectation-maximization algorithm (Linzer & Lewis, 2011). To address research questions two and three, researchers conducted two Latent Class Regression analyses (LCR). LCR can use covariates to predict individual class membership (Linzer & Lewis, 2011). Including covariates in LCA allows researchers to examine how the composition of the latent classes differs by known subgroups (Weller et al., 2020). In order to examine how the compositions of the classes differed by victimization status and gender identity, researchers used a three-step approach as outlined by Asparouhov and Muthén (2014). The three-step approach requires the identification of the measurement model, then the addition of covariates. Researchers dichotomized victimization status (i.e., victim or nonvictim), and used a multinomial logistic regression to determine if victimization status could predict latent class membership. Gender was categorized into three dummy variables to reflect the three levels of gender measured in the study (Man, Woman, or TGNQ) and used a multinomial logistic regression to determine if gender identity could predict latent class membership.

Results

Latent Class Analysis

In order to answer research question one, researchers conducted a series of LCA models, beginning with an independence model, and proceeding through a nine-class model (Linzer & Lewis, 2011; RStudio Team, 2019). Researchers assessed model fit by examining global fit, local fit, and substantive criteria (Nagelkerke et al., 2017). Researchers determined model fit by first examining multiple comparative fit statistics (Akaike Information Criteria [AIC], Bayesian Information Criteria [BIC], sample-size adjusted Bayesian Information Criteria [ABIC], and Bozdogan's consistent AIC [CAIC]), as well as G^2 , and entropy (Table 1). Then, researchers constructed an elbow-plot with the fit statistics to examine the most parsimonious model (Figure S1 in the online supplemental

Table 1
Model Fit Statistics of Latent Class Models

Number of latent classes	G^2	df	AIC	BIC	ABIC	CAIC	Entropy
One	956,732.3	132,750	3,602,582	3,602,856	3,602,767	3,602,884	—
Two	652,378.9	132,721	3,298,286	3,298,845	3,298,664	3,298,902	0.871
Three	555,134.5	132,692	3,201,100	3,201,943	3,201,669	3,202,029	0.848
Four	476,285.5	132,663	3,122,309	3,123,436	3,123,070	3,123,551	0.841
Five	428,498.3	132,634	3,074,580	3,075,990	3,075,533	3,076,134	0.835
Six	404,042.2	132,605	3,050,182	3,051,877	3,051,327	3,052,050	0.829
Seven	383,104.2	132,576	3,029,302	3,031,281	3,030,639	3,031,483	0.820
Eight	363,783.7	132,547	3,010,039	3,012,302	3,011,568	3,012,533	0.828
Nine	351,979	132,518	2,998,292	3,000,840	3,000,013	3,001,100	0.822

Note. Model fit is assessed by examining fit statistics, parsimony, and interpretability. Bolded row indicates the best-fitting model per comparative fit statistics, class separation, and qualitative interpretation. Fit statistics examined in the model are as follows: G^2 (likelihood-ratio chi-square statistic), AIC, BIC, ABIC, CAIC, and entropy. $N = 132,778$. AIC = Akaike Information Criteria; BIC = Bayesian Information Criteria; ABIC = sample-size adjusted Bayesian Information Criteria; CAIC = Bozdogan's Consistent AIC.

materials; Ohlsen, 2015). The use of elbow-plots in deciding on the number of latent classes is a useful way to visualize fit statistics, however, as pointed out by Nylund-Gibson and Choi (2018), it is not uncommon for BIC to continue to decrease for each additional class added. Therefore, Nylund-Gibson and Choi (2018) recommend looking for an “elbow of point of diminishing return” (p. 443). Finally, the researchers determined the best-fitting model by considering the interpretability of each solution. Researchers identified the four- and five-class solutions as having adequate fit according to the fit statistics and elbow plot. However, upon comparison between the five-class model and the four-class model, the additional class provided by the five-class model was not interpretably different from the four-class model. For the reasons stated above, the four-class model was chosen as it demonstrated adequate comparative fit statistics, adequate class separation, and was determined to be qualitatively interpretable.

Description of the Four-Class Model

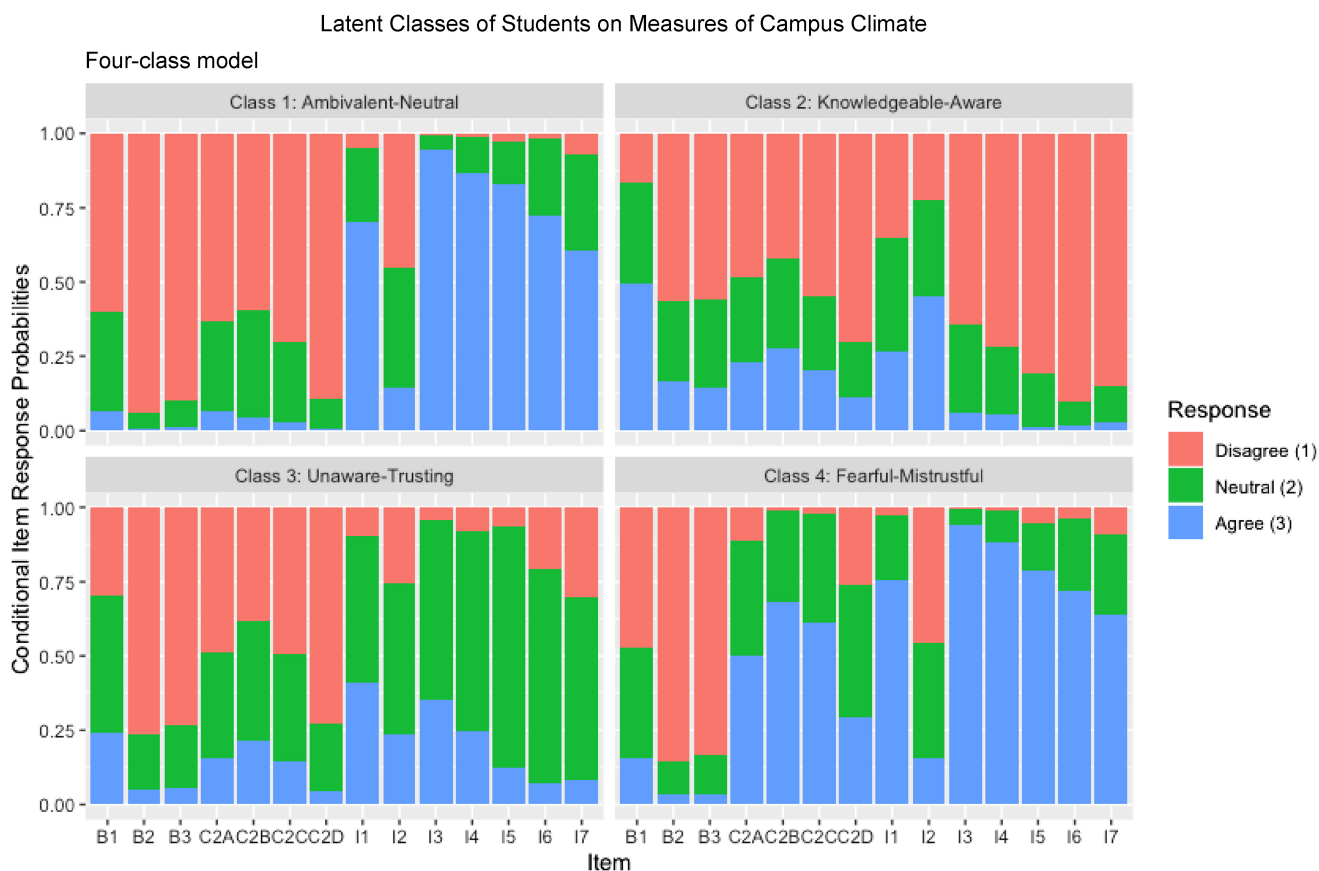
In order to label the latent classes, researchers examined item response probabilities and the response patterns of each class were considered. Figure 1 presents latent class prevalences and item

response probabilities in graphical format while tabular format can be seen in Table S4 in the online supplemental materials. Class one is estimated to have a prevalence of 0.31 and is characterized by a general sense of neutrality toward the campus climate measures. Specifically, members of this class perceived only a moderate amount of risk of CSA, had a moderate amount of knowledge of campus resources, and perceived the response to reporting an incident of CSA as being neutral. For these reasons, researchers labeled Class one, “Ambivalent–Neutral.” Overall, this class of students denied having strong feelings toward any of the measures of campus climate.

Class two is estimated by a latent class prevalence of 0.27 and is characterized by low to moderate agreement that CSA is a problem on their college campus. Members of class two had just short of a .50 probability of endorsing their disagreement that CSA is a problem on their campus. Members of class two endorsed strong agreement with knowledge of campus resources, with members having a .69 probability of endorsing that they agree that they know where to get help if they or a friend experienced sexual assault. Additionally, class two also endorsed strong agreement with the perceptions of responses to reporting items, indicating they felt that their university would support a survivor making a report of CSA. For these reasons, researchers labeled class two as “Knowledgeable–Aware.”

Figure 1

Four Latent Class Model of Students on Measures of Campus Climate



Note. B1–B3 = perceptions of risk, C2A–C2D = knowledge of campus resources, I1–I7 = perceptions of responses to reporting. See the online article for the color version of this figure.

Response patterns of this class suggest that members of this class might feel empowered by their knowledge of campus resources and feel as though their knowledge of campus resources may protect them against CSA.

Class three is estimated by a latent class prevalence of 0.25 and is characterized by strong disagreement that CSA poses a risk on campus, very low levels of knowledge of campus resources, and strong agreement with perceptions of responses to reporting incidents of CSA. Members of class three had a greater than .60 probability of endorsing that they disagree that CSA is a problem on their college campus. Additionally, members in this class had a .95 probability of responding that they disagreed that they would be sexually assaulted on campus. Members of class three also had a nearly .95 probability of endorsing that they agree that the university would take a report of sexual assault seriously. For these reasons, researchers labeled Class three "Unaware–Trusting." Members of this class do not agree that CSA is a big problem, do not feel they themselves are at risk, and despite not knowing much about the on-campus resources, feel strongly that their university would be supportive of someone making a report of CSA.

Class four is estimated by a latent class prevalence of 0.17 and is characterized by strong agreement that CSA is problematic on their college campus, with members in this class having a .50 probability of agreeing that CSA was problematic. Class four also described a moderate amount of knowledge of campus resources. Class four was particularly distinguished by their strong disagreement with the perceptions of responses to reporting items, with members having a .90 probability of endorsing disagreement that their university would take action against a perpetrator of CSA. Of note, members in class four had a .45 probability of endorsing agreement that an accused perpetrator would retaliate against their accuser. For these reasons, researchers labeled class four "Fearful–Mistrustful." Members of this class recognize that CSA is a big problem on campus, but while they possess some knowledge about campus resources, they have very little agreement that their university respond helpfully if an incident was reported.

Latent Class Regression Analyses

Research question two sought to determine if latent class membership could be predicted by victimization status. To this end, researchers entered victimization status into the latent class model as a covariate. Researchers specified the Ambivalent–Neutral class as the reference group in the multinomial logistic regression. Results of the latent class regression model were statistically significant, and are presented in [Table S5 in the online supplemental materials](#). Specifically, when compared to nonvictims, victims were 67.5% more likely to reside in the Fearful–Mistrustful class.

When compared to the reference class, the Fearful–Mistrustful class ($OR = 2.08$, 95% CI [1.98, 2.18]), had over a 100% increase in the odds of having a victimization experience compared to the Ambivalent–Neutral group. Additionally, the Knowledgeable–Aware group ($OR = 0.28$, 95% CI [0.26, 0.30]), had a 72% decrease in the odds of having a victimization experience compared to the Ambivalent–Neutral group. Finally, the Unaware–Trusting group ($OR = 0.68$, 95% CI [0.67, 0.70]), had a 32% decrease in the odds of having a victimization experience compared to the Ambivalent–Neutral group. Results of the latent class regression indicate that latent class can be predicted by victimization status and, survivors of CSA are most likely to be members of the Fearful–Mistrustful class.

Research question three sought to determine if latent class membership could be predicted by gender identity. Gender identity was entered into the latent class model as a covariate. The Ambivalent–Neutral class was specified as the reference group in the multinomial logistic regression. Gender identity was found to be a significant predictor of latent class membership ([Table S6 in the online supplemental materials](#)). Specifically, when compared to men, women had a greater than 40% increase in the odds ($OR = 1.42$, 95% CI [1.35, 1.48]) of residing in the Fearful–Mistrustful class compared to the Ambivalent–Neutral class. Women also had a 50% decrease in the odds of being in either the Knowledgeable–Aware or the Unaware–Trusting class when compared to the Ambivalent–Neutral class. Additionally, when compared to men, participants who described their gender identity as TGNQ had over three times the odds ($OR = 3.39$, 95% CI [2.91, 3.95]) of residing in the Fearful–Mistrustful class and were least likely to reside in the Unaware–Trusting group ($OR = 0.17$, 95% CI [0.13, 0.22]) when compared to the Ambivalent–Neutral class. When women were considered the reference group, participants with TGNQ gender identity had a 140% increase in the odds ($OR = 2.40$, 95% CI [2.07, 2.79]) of being in the Fearful–Mistrustful class and had a 62% decrease in the odds of being in the Unaware–Trusting class when compared to the Ambivalent–Neutral class. In summary, results of the latent class regression revealed that gender identity is a significant predictor of latent class membership, such that being a woman or someone that identifies with a TGNQ gender identity increases the probability of being a member of the Fearful–Mistrustful class, while men are most likely to reside in the Unaware–Trusting class.

Measurement Invariance Testing

Latent variable modeling is prone to issues of measurement equivalence, or invariance. Measurement invariance refers to when items are not equivalent across known groups and can lead to misleading comparative conclusions between groups ([Finch, 2015](#)). When latent variable modeling is applied in large cross-national surveys (such as in the present study), some level of measurement invariance is not uncommon especially as it relates to comparing known groups such as gender, race/ethnicity, or geographic region ([Kim & Wang, 2019](#)). As sexual violence occurs disproportionately for women and TGNQ people, testing for measurement invariance was indicated to ensure that the items included in the analysis were deemed equivalent irrespective of gender and that the latent class structure holds for each gender.

In order to test for measurement invariance across gender, the present study utilized an approach outlined by [Finch \(2015\)](#). Specifically, the dataset was first split by gender and the LCA was retested for each respective gender, reexamining the number of classes for each gender separately. Across men, women, and TGNQ participants, the four-class model held. While latent class prevalences between classes showed very similar patterning between men and women, latent class prevalences differed slightly for the TGNQ group ([Table S7 in the online supplemental materials](#)). Differing latent class prevalences for TGNQ participants may be due to the difference in sample size comparatively to men and women, and/or due to some measurement invariance for this gender category. Then, two models were developed in Mplus on the entire dataset ([Muthén & Muthén, 2012](#)). In the first model, all item response probabilities

were constrained to be equal across genders, while in the second model, they were unconstrained across all genders. The two models were compared using a chi-square difference test and the bootstrapped likelihood ratio test. According to Finch (2015), if the constrained model is significantly worse compared to the unconstrained model, there is no evidence for measurement invariance. In the present study, the constrained model demonstrated statistically significantly poorer fit compared to the unconstrained model, upholding measurement equivalence across genders (Table S8 in the online supplemental materials).

Discussion

The present study sought to discover and interpret qualitative differences among students using the AAU survey on campus climate and sexual misconduct. Results highlighted heterogeneity in response patterns on elements of campus climate. Specifically, not only do students experience their perception of risk differently, but there seems to be a great deal of difference in the knowledge that students have about available on-campus resources, with some students having very little knowledge on where to get help. This would suggest tailoring the reporting requirements for Title IX and the Clery Act (McCallion, 2014) based on group membership. Additionally, students have varied perspectives on how their university treats survivors, meaning that some students have a great deal of faith their IHE would respond to an allegation of CSA with seriousness and fairness, while others feel unsupported by their IHE. To adequately support students, it is first necessary to identify potential subgroups based on their knowledge of sexual assault and their experiences with institutional support. Screening tools based on class membership might be useful in this effort. This discussion focuses on the emergence of four latent classes which were labeled Ambivalent–Neutral, Knowledgeable–Aware, Unaware–Trusting, and Fearful–Mistrustful.

Ambivalent–Neutral Class

With the Ambivalent–Neutral class being observed as the most prevalent latent subgroup, one can say that many students on campus do not have strong feelings toward CSA risk, do not know about on-campus resources, and are neutral about their institution's response to CSA. This may suggest that IHEs should increase the focus during CSA trainings on bystander intervention programs which have shown to be an effective prevention strategy by many other sexual assault researchers (Austin et al., 2016; Gidycz et al., 2011; McMahon et al., 2017). Bystander intervention training would capitalize on providing students with strategies for intervening even when they do not perceive themselves to need such interventions. Alternatively, given the prevalence of this ambivalent class, IHEs might consider more generalized training on how to develop social relationships that are safe in psychological and physical senses rather than solely on the prevention of CSA.

Knowledgeable–Aware Class

The Knowledgeable–Aware class is characterized by students having a great deal of knowledge of the on-campus resources and where to get help regarding an incident of sexual misconduct either for themselves or a peer. The Knowledgeable–Aware class also seemed to believe that their IHE would be supportive of someone making a CSA allegation. This result is supported by the existing literature

about the impact that comprehensive and well-understood CSA policy has on the prevalence of sexual violence on campus (e.g., DeLong et al., 2018; Potter et al., 2016). Building this class of students should be a primary focus for IHEs especially through existing student organizations with broad purposes rather than those provided solely through Title IX offices. The responses in this class of students highlight the importance of providing opportunities for students to build a sense of self-efficacy around many life skills including safe relationships and how to intervene effectively as a bystander.

Unaware–Trusting Class

The Unaware–Trusting class is characterized by low levels of perceived personal risk of CSA, and very low levels of knowledge of on-campus resources. Students in this class also reported high levels of agreement that their IHE would support someone making a CSA report. One interpretation of this result is that students in the Unaware–Trusting class experience a great deal of institutional privilege. The belief that an institution is universally supportive is based on white, male, cisgender, and able-bodied privilege (Campe, 2019; Griner et al., 2020). While this class of respondents highlights a group of students who are trusting of and aligned with their university, it is most concerning that they possess such limited knowledge of on-campus resources and seemingly downplay the risk of CSA. As students in the Unaware–Trusting class might feel supported and have trust in their IHE's ability to handle incidences of CSA fairly and appropriately, these students' lack of knowledge of on-campus resources impedes that process by creating a barrier between them and peer survivors to also gain knowledge, information, and support from a large group of their fellow students.

Fearful–Mistrustful Class

The Fearful–Mistrustful class is characterized by agreement that CSA is problematic on campus, and very low levels of agreement that their IHE would be supportive of someone making a report. The Fearful–Mistrustful class is the group of students that universities should be working hardest to support and regain their trust. Students in this class have very little faith in an IHE's intention or ability to help, despite adequate knowledge of on-campus resources. The most striking result from the interpretation of this latent subgroup is the ways in which this group of students seemingly experience a hostile campus climate with fearfulness that someone accused of CSA might retaliate against their accuser. IHEs can focus on this latent subgroup, as this is the group of students most at risk for institutional betrayal (C. P. Smith & Freyd, 2013). The existence of the Fearful–Mistrustful latent subgroup highlights that there are groups of students who are already experiencing institutional betrayal at their IHE. With the potential for students to feel isolated, unsupported, and have little faith that their IHE would support someone making a CSA report, members of the Fearful–Mistrustful class are at an increased risk of worsened mental and physical health outcomes upon victimization (Smidt et al., 2019).

Victimization as a Predictor of Latent Class

Research question two posited that the latent subgroups found in research question one could be predicted by victimization status. Results highlighted that students who had been victimized were most likely to reside in the Fearful–Mistrustful class and least likely

to reside in the Unaware–Trusting class. These findings are supported by the literature on negative reporting experiences of survivors and further highlight the increased risk of PTSD, depression, and anxiety symptoms following a mismanaged CSA incident (Pinciotti & Orcutt, 2018). Additionally, as is supported by the data, the students in the Knowledgeable–Aware class were less likely to be victimized, highlighting that knowing how to manage unsafe situations may protect students from harm. This finding is supported by DeKeseredy et al.' (2018) work, which found that students who did not support pro-abuse sentiments were at lower risk of victimization. It appears that students who are armed with knowledge are less likely to be victimized or to perpetrate sexual violence against others.

Lastly, it is notable that nonvictims are most likely to be in the Unaware–Trusting class. Students who do not believe that CSA is a problem for them personally are less likely to engage in prosocial bystander behaviors (Austin et al., 2016). Nonvictims in the Unaware–Trusting class might be more likely to endorse rape myths being that they are not as knowledgeable about incidences of sexual violence and what to do if they or a peer is victimized. Examples of rape myths are victim blaming and shaming, citing false rape accusations as occurring more often than they do, and dissolving perpetrators' responsibility from their actions (Burt, 1980). These results are supported by research by O'Connor et al. (2018) that examined the ways in which combating students' endorsement of rape myths is useful in preventing sexual violence on campus. Alternately, students in the Unaware–Trusting class may be further removed from campus climate and simply do not interact with their IHE in such a way that would lend themselves to have knowledge of on-campus resources or understand the risk of CSA on their college campus. This idea is backed up by Cantor et al.'s (2015) data that found that graduate students were at lesser risk of being victimized than undergraduate students. Graduate students typically live off-campus and do not attend on-campus parties where the risk of CSA might be high.

Gender as a Predictor of Latent Class

It is widely identified that women experience CSA disproportionately compared to men (Cantor et al., 2015, 2019; Fisher et al., 2000; Krebs et al., 2007; Krebs et al., 2010). Unsurprisingly, results highlighted that there were gender effects in latent class membership when comparing men and women, with women being much more likely to reside in the Fearful–Mistrustful class. Additionally, participants who identified a TGNQ gender identity were also more likely to reside in the Fearful–Mistrustful class when compared to men or women. This further paints the picture of the Fearful–Mistrustful class of respondents. Additionally, TGNQ students were also least likely to reside in the Unaware–Trusting class, further illuminating the distrust of noncisgender students to rely on their IHE for support following CSA.

Results of the present study seek to uplift the voices of TGNQ students who may experience their college campus as more dangerous and feel a lack of support by their IHE. The results of the present study support the findings by Griner et al. (2020), which assert that not only do transgender and gender nonconforming students experience sexual violence disproportionately, but they are often categorically excluded from policies and programming built to reduce CSA. In order to increase safety for TGNQ students, IHEs should take on an inclusive and intersectional approach to the programs set up to aid survivors. While the inclusion of TGNQ students in

the present study highlights the unique experiences of noncisgendered students, it should be noted that the small number of TGNQ students compared to men and women students in the sample requires some precaution in the interpretation of the results. Additionally, while measurement invariance testing upheld the four-latent class structure across gender, there was a very slight difference in the patterning of latent class prevalences in the TGNQ group compared to men and women, and therefore measurement invariance cannot be completely ruled out.

This study shows that students perceive their IHEs to be more supportive when they have knowledge about the resources available to them. The effort that universities put in to give students the knowledge about CSA and what to do if it happens allows students to have faith that their university is supportive and creates a greater sense of trust in the institution. Overall, these results are supported by recent literature highlighting differences in how campus climate is experienced by students (DeKeseredy et al., 2018) and provides research support on the ways that CSA intervention and prevention strategies can be tailored depending on students' experiences of campus climate (Austin et al., 2016; Gidycz et al., 2011; McMahon et al., 2017). Alternatively, these results show that outreach efforts by IHEs do reach students uniquely based on their particular characteristics, though these efforts sometimes have mixed results.

Limitations

Following the analyses in the present study, there are a few limitations that should be noted, specifically as it relates to the dataset and interpretation of the findings. First, Cantor et al. (2015) noted that there were some statistically significant differences in response rates among the sample (i.e., graduate students were much more likely to respond to the survey than undergraduate students, and women were much more likely to respond to the survey than men). Additionally, there was some evidence that survivors of CSA were more likely to respond to and complete the survey than those who had not been victimized, suggesting a slight bias in the prevalence rate obtained by Cantor et al. (2015). The AAU survey also did not include variables needed to examine additional elements of campus climate associated with risk, such as membership of fraternities and sororities. While the survey did ask students to identify the on-campus activities and organizations they participated in, the specific details of these responses were removed from the public use dataset to maintain participant privacy. Additionally, as a cross-sectional data set, predictions cannot be made about directionality or about temporal precedence of the variables studied.

The present study utilized exploratory LCA to determine if latent subgroups exist within a large sample of college students on elements of campus climate. While the present study identified that latent class membership could be predicted by victimization and gender, other known subgroups were not explored in the scope of the current research. In a doctoral dissertation by L. E. Smith (2021), several additional covariates were explored and found to have varying degrees of predictability on latent class membership. These findings highlight additional heterogeneous student experiences of campus climate. Future research should seek to delve more deeply into the heterogeneous experiences of students by conducting additional analyses such as multigroup latent class analysis.

The AAU Survey incorporated guidance from the White House Task Force with regard to campus climate surveys, however, in the

original report the authors failed to report measures of reliability and validity for their sample. In order to remedy this somewhat, a reliability analysis and confirmatory factor analysis (CFA) were conducted to examine evidence for internal consistency and construct validity. While each scale utilized demonstrated adequate evidence for internal consistency (Table S2 in the online supplemental materials), the CFA revealed that Item I2 demonstrated a negative relationship to the corresponding factor. The negative factor loading indicates that responses to this item were opposite of the other items in the factor. Additionally, item I2 was found to have a negative impact on internal consistency. Given the evidence, future research would benefit from reducing the number of items in the analysis in order to determine a more succinct set of items that contribute most robustly to the latent classes.

Suggestions for Future Research

While the present study utilized LCA to analyze elements of campus climate, there are implications for future research in the use of latent profile analysis to uncover discrete latent subgroups of students based on continuous manifest variables. Additionally, multi-level LCA might be used to examine the impact of nested structures on college campuses between individuals and communities or groups of students to understand how campus climate and CSA are experienced within and between communities. As campus climate surveys are distributed at nearly every IHE, using a latent variable modeling approach to further validate the existence of latent subgroups of students might assist IHEs and federal policymakers in understanding the nuanced experiences of survivors. Future research should continue to advocate for valid and reliable scales measuring campus climate and sexual victimization and CSA victimization researchers should use statistical and methodological ingenuity to understand CSA as a complex problem.

It might be instructive to conduct similar analyses of the other major stakeholders in IHEs, namely faculty, staff, and administrators, to determine how much variability there might be in identifying classes based on the various roles of individuals on campuses. As Title IX regulations continue to evolve and change, IHEs should continue to use data to inform the efficacy of their procedures and programming. The latent subgroups described in this study are a platform to organize the data for more effective prevention and intervention around CSA on campuses. IHEs may consider sponsoring targeted surveys to understand how to pursue more effective CSA programs so that more students fall into the Knowledgeable-Aware class. Finally, future researchers should continue to examine the efficacy of CSA intervention and prevention efforts in order to increase on-campus safety and protect students from sexual violence. For example, current trainings could be studied in randomized controlled trials to determine which of the many prevention trainings are most efficacious in preventing sexual violence on campus.

Conclusion

In summary, the present study described latent subgroups of students based on elements of campus climate including perceived risk of CSA, knowledge of on-campus resources, and perceptions of responses to reporting an incident of CSA. Four distinct latent classes were identified and interpreted, suggesting that there could be tailored ways of providing prevention programs based on class membership.

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