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**Latent Classes of Bidirectional Face-to-Face and Cyber Intimate Partner Violence  
among Lesbian, Gay and Bisexual Emerging Adults: The Role of Minority Stressors**

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### Abstract

The rates of intimate partner violence have been found to be higher among lesbian, gay, bisexual (LGB) individuals when compared with heterosexual populations. However, lesser is known about the impact of specific minority stressors experienced by LGB populations on their face-to-face IPV and cyber IPV experiences. Using a three-step latent class approach, the present study investigated (i) the latent classes of self-reported types of face-to-face IPV and cyber IPV perpetration and victimization, and (ii) their associations with LGB distal and proximal minority stressors (i.e., vicarious trauma, discrimination, family rejection, and LGB-identity disclosure). Participants were 288 LGB emerging adults in the age range of 18-29 years (bisexual:  $n = 168$ , gay:  $n = 72$ , lesbian:  $n = 48$ ). Findings showed the presence of four latent classes, namely, face-to-face IPV ( $n = 32$ ; 37.5% gay, 18.8% lesbian, 43.8% bisexual individuals), cyber IPV ( $n = 66$ ; 33.3% gay, 12.1% lesbian, 54.5% bisexual individuals), psychological and stalking cyber IPV ( $n = 89$ ; 15.7% gay, 15.7% lesbian, 68.5% bisexual individuals), and low IPV ( $n = 101$ ; 23.8% gay, 19.8% lesbian, 56.4% bisexual individuals). Furthermore, multinomial logistic regressions indicated that greater exposure to the minority stressors such as exposure to heterosexism, namely, discrimination and harassment, rejection from one's family of origin, and exposure to vicarious trauma, as well as a lower degree of LGB-identity disclosure, largely predicted latent classes with greater probabilities of IPV exposure, namely, cyber IPV, face-to-face IPV classes, and psychological and stalking cyber IPV. Findings suggest the importance of addressing the role of minority stressors in IPV interventions and the creation of competent LGB-related services and training modules for clinicians.

*Keywords.* Intimate partner violence, cyber IPV, LGBTQ+, minority stressors, latent class analysis

## **Latent Classes of Bidirectional Face-to-Face and Cyber Intimate Partner Violence among Lesbian, Gay, and Bisexual Emerging Adults: The Role of Minority Stressors**

Over the past two decades studies have outlined the need for research focusing on intimate partner violence (IPV) in lesbian, gay, and bisexual individuals (LGB) since IPV occurs at similar or higher rates in LGB individuals compared to heterosexual populations ([Carvalho et al., 2011](#); [Sutter et al., 2019](#)). For instance, [Goldberg & Meyer](#) (2013) found that the lifetime prevalence of physical and sexual victimization by an intimate partner was 31.87% for gay and lesbian individuals, 51.99% for bisexual individuals, and 21.6% for heterosexual individuals. In a systematic review focusing on empirical studies examining IPV from 1999 to 2015, 400 (3%) out of 14,200 studies specifically addressed IPV among LGB individuals ([Edwards et al., 2015](#)). Moreover, a majority of these LGB related IPV studies considered IPV victimization and perpetration separately, when studies indicate that IPV is in many cases bidirectional such that instances of victimization and perpetration co-occur ([Lin et al., 2020](#); [Messinger, 2018](#)).

Akin to heterosexual samples, IPV across LGB populations has often shown a bidirectional dynamic wherein victims can be perpetrators and vice-versa ([Bartholomew et al., 2008](#); [Edwards & Sylaska, 2016](#); [Messinger, 2018](#); [Whitton et al., 2019](#)). This significant overlap between patterns of IPV victimization and perpetration has been documented in lesbian and bisexual women, and in gay and bisexual men from the United States, Canada, Australia, Latin America, and European countries ([Bartholomew et al., 2008](#); [Langhinrichsen-Rohling, et al, 2012](#); [Lewis, et al., 2015](#); [Sutter et al., 2019](#); [Swan et al., 2019](#)). Theoretical and empirical perspectives on the mutuality of aggressions in face-to-face and online instances in LGB populations are especially valuable as findings would provide information regarding power dynamics within young LGB couples ([Langhinrichsen-Rohling et al., 2012](#); [Lin et al., 2020](#)). Nonetheless, there are critiques about the validity of the assumption that IPV

is bidirectional. In this regard, there are concerns about the type of methodology and measures used in these studies (i.e., lack of sensitivity and specificity, self-report bias; Archer, 2000; Follingstad & Rogers, 2013, Johnson & Ferraro 2000), and the lack of the components exploring the context and temporal aspects of IPV (Allen et al., 2009). For example, many studies suggest that the bidirectional violence reported may reflect the reaction of victims to an attack or a self-defense mechanism (Henning et al., 2006; Holmes et al. 2019; Rajah et al., 2020). Therefore, greater insights into the bidirectionality of violence in intimate relationships should be explored especially in vulnerable populations such as the LGB.

With the advent of information and communication technologies (e.g., smartphones, social media), cyberspace has become a popular venue for dating relationships and as a result cyberspace is a platform where IPV can transpire especially in adolescents and emerging adults ([Cano-Gonzalez et al., 2020](#); [Cantu & Charak, 2020](#); [Marganski & Melander, 2015](#); [Trujillo et al., 2020](#); [Watkins et al., 2018](#)). Notably emerging adulthood encompasses individuals in the age range of 18 to 29 years old, a developmental stage wherein individuals focus on acquiring new relationships and searching for greater levels of intimacy while simultaneously creating their own identity (Arnett, 2000). This characteristic may position young individuals at a greater risk of cyber aggressive behaviors (Lindsay et al., 2016) especially young LGBTQ+ individuals who often use social media and applications to connect with LGBTQ+ communities ([Corriero & Tong, 2015](#)). Interestingly, studies indicate that face-to-face IPV and cyber IPV co-occur (Marganski & Melander, 2018) with preliminary research indicating that the online controlling and abusive behaviors may precede face-to-face aggressions (Brem et al., 2019). However, few IPV-related studies examine face-to-face and cyber IPV together; this represents an important gap in knowledge of IPV experiences since prior research outlines that 51.6% to 77.1% of youth between 18 and 29

years old (i.e., emerging adults) have faced some type of cyber harassment by their current or ex-partner ([Taylor & Xia, 2018](#)).

Cyber IPV has proven to become increasingly problematic as studies indicate that victims may have mental health consequences like IPV that occurs in face-to-face interactions (i.e., post-traumatic stress disorder, Bates, 2016; depressive symptomatology, Cantu & Charak, 2020; Melander & Marganski, 2020). Hence, despite the inherent benefits of cyber environments for modern communication and interaction, several affordances of cyber spaces must be considered as potential new mediums to perpetuate control and abuse, which may increase the chances of being victimized by a partner (Harris & Woodlock, 2019). For instance, the unregulated nature of the technological advancements, such as geolocation and instant communication may increase the vulnerability of the victim to intimidation, control, and stalking (Yardley, 2021). Victims can be easily contacted through text messages and calls anytime, and aggressors can easily track the victim location contributing to the increased threat and danger and feelings of unsafety, even when the perpetrator and victim are not in the same physical space (i.e., in face-to-face interactions; Woodlock, 2017). The shareability and persistence of harmful contents in cyber spaces have also been related to an increase of hostility and decrease of empathy towards the victim which could increase the severity of consequences for the victim (Marganski & Melander, 2015). Additionally, given the lack of a physical environment in cyber IPV a perpetrator does not have to deal with the immediate emotional reactions of their victim(s) (Borrajo et al., 2015) and may feel more uninhibited to commit violence that they otherwise would not commit in face-to-face interactions (Watkins et al., 2018). Technology and social media are always available, which may increase the frequency of the abuse and limits the time that the perpetrators have to self-regulate during arguments or disagreements (Runions et al., 2013).

Unique to LGB individuals, the elevated IPV rates and dynamics have been attributed to intersections of unique risk factors related to their young age and their minority sexual identity ([Stephenson & Finneran, 2017](#)). These factors known as minority stressors in the *minority stress theory* proposed by Meyer (2003) are a unique type of persistent stressors experienced by individuals because of their social status and membership to a marginalized and stigmatized group. LGBTQ+ individuals often face oppressive forces that subject them to a range of negative discriminatory distal stressors and may over time internalize some of these negative attitudes towards their own identity, leading to psychological distress and internalized homophobia ([Balsam et al., 2013](#)). Specifically, distal LGBTQ+ minority stressors include exposure to vicarious trauma, discrimination, harassment, and familial rejection whereas proximal stressors include factors such as internalized heterosexism—internalization of societal anti-LGBTQ+ attitudes—and the degree of disclosure of one’s sexual orientation.

Studies suggest that experiencing minority stressors may be related to IPV in LGB populations ([Badenes-Ribera et al., 2019](#); [Edwards et al., 2015](#); [Rollé et al., 2018](#)). For instance, Edwards and Sylaska (2013) examined face-to-face IPV in LGBTQ+ college youth and found that physical perpetration of IPV was related to proximal stressors, namely, identity concealment and internalized homonegativity, and sexual perpetration was related to internalized homonegativity, after controlling for other perpetration types. However, they did not find any significant associations between psychological perpetration and minority stressors at a multivariate level (Edwards & Sylaska, 2013). Carvalho et al. (2011) found that being more “out” or disclosing one’s sexual orientation was related to greater frequencies of physical and psychological IPV victimization after controlling for minority stressors such as higher levels of stigma consciousness and internalized homophobia ([Carvalho et al., 2011](#)). Notably, identity disclosure has also been suggested to alleviate IPV ([Calton et al., 2016](#)).

Together there are mixed findings regarding the role of sexual identity disclosure in instances of IPV.

Insofar as distal stressors are concerned, in a sample of LGBTQ+ individuals, Swan et al. (2019) found significant and positive bivariate associations between face-to-face physical victimization and distal stressor of heterosexist experiences at work or at school, and between physical, sexual, and psychological IPV (perpetration and victimization) with heterosexist experiences occurring outside the context of work/school. Studies also indicate that distal minority stressors, such as harassment and discrimination as unrelated to physical, sexual and psychological IPV among LGB adults after controlling for the effects of other IPV types and proximal minority stressors ([Balsam & Szymanski, 2005](#); Edward & Sylaska, 2013). Thus, the significance of the associations between exposure to IPV and minority stressors such as the distal stressors, and identity disclosure remains inconclusive.

Notably, the mentioned studies have focused on the analysis of relations between minority stressors and specific face-to-face aggressive behaviors (e.g. face-to-face physical or psychological victimization; [Edwards & Sylaska, 2013](#); [Kelley et al., 2014](#)), providing a limited view of the relation between the minority stressors and the pattern of IPV experiences in LGB individuals ([Milletich et al., 2014](#); [Stephenson & Finneran, 2017](#)). In addition, the majority of the recent IPV studies on LGBTQ+ populations fail to consider the co-occurrence of face-to-face and cyber IPV, and the cumulative effect of these different victimization/perpetration types. As mentioned, LGBTQ+ emerging adults owing to their developmental stage and identity status often use online spaces to seek dating partners and for connecting with LGBTQ+ communities, and hence are likely to experience minority stressors, such as discrimination/harassment and vicarious trauma, and IPV virtually. Further research is needed to understand the effect of the minority stressors on different patterns of IPV experiences (i.e., in face-to-face instances and over cyber spaces), and the bidirectionality of

victimization and perpetration experiences (Longobardi & Badenes-Ribera, 2017), as done in the present study.

### **The Current Study**

The present study aimed first to identify latent classes based on a total of 12-types of face-to-face and cyber intimate partner violence in lesbian, gay and bisexual emerging adults. The face-to-face IPV variables were based on perpetration and victimization with each comprising three types, namely, psychological (i.e., the use of verbal and nonverbal acts to cause emotional harm), physical (i.e., the use of physical force against the partner), and sexual IPV (i.e., pressuring or using physical force against the partner to engage in unwanted sexual acts). The cyber IPV variables included perpetration and victimization with each comprising three types, namely, psychological (i.e., using, posting, or sending information through technology to cause emotional harm), stalking (i.e., accessing electronic devices and accounts without the partner's permission and monitoring partners through electronic devices), and sexual aggressions (i.e., requesting or pressuring partners to engage in sexual acts or send sexual content against their wishes). Related, it was hypothesized that there would be varying patterns of face-to-face and cyber IPV where victimization and perpetration scores would correlate indicating bidirectional patterns based on types of face-to-face IPV and cyber IPV behaviors (hypothesis 1; [Charak et al., 2019](#); [Grest et al., 2018](#), [Lin et al., 2020](#)). Second, the aim was to analyze the associations between latent class membership, and distal and proximal minority stressors, such as vicarious trauma, discrimination, rejection by family, and sexual identity disclosure. We chose to focus on minority stressors, namely, discrimination, rejection by family, and sexual identity disclosure as prior research supports an association between them and IPV types (Edwards & Sylaska, 2013; Longobardi & Badenes-Ribera, 2017). Additionally, we also aimed to explore the associations between vicarious trauma and IPV types. Based on the minority stress framework ([Meyer, 2003](#)), it was hypothesized that greater

exposure to the minority stressors would predict latent classes with higher probabilities of face-to-face IPV and cyber IPV exposure (hypothesis 2).

## Method

### Participants

Participants included 288 emerging adults (cisgender women:  $n = 168$ , 58.3%, cisgender men:  $n = 109$ , 37.8%, transgender and nonbinary person:  $n = 11$ , 3.8%). Participants' ages ranged from 18-29 years ( $M = 25.35$ ,  $SD = 2.76$ ). Over half of the participants identified their sexual orientation as bisexual ( $n = 168$ , 58.3%), and to a lesser extent as gay ( $n = 72$ , 25.0%) and lesbian ( $n = 48$ , 16.7%). Nearly 56% ( $n = 163$ ) self-identified as non-Hispanic White, 26% as White Hispanic ( $n = 75$ ), 6.6% as Black/African American ( $n = 19$ ), 5.2% as Asian ( $n = 15$ ), 4.2% as bi- or multi-racial ( $n = 12$ ), and 1.4% as American Indian/Alaska Native ( $n = 4$ ). About 33% ( $n = 96$ ) of the participants indicated having an income higher than the median yearly income of the U.S. (i.e., more than \$50,000), 40.6% ( $n = 117$ ) reported a yearly household income between \$25,000 and \$49,000, and 26% ( $n = 75$ ) reported a yearly household income of less than \$25,000. Nearly 12% ( $n = 33$ ; 11.5%) indicated that their highest level of education was high school or less, 40.6% ( $n = 117$ ) indicated having an associate degree or having attended/graduating some college courses, 42.7% ( $n = 123$ ) indicated having a Bachelors' degree, and 5.2% ( $n = 15.2$ ) had a professional or advance degree.

### Measures

**Cyber IPV.** Cyber Aggression in Relationships Scale (CARS; [Watkins et al., 2018](#)) is a measure of victimization and perpetration of cyber IPV composed of a 34-item, 17 items measure victimization and the other 17 items measure perpetration. CARS measures cyber IPV across three domains, namely, psychological, stalking, and sexual perpetration. Each item is measured on an eight-point Likert scale indicating the prevalence of behaviors in the past

12 months (0 = *never*, 1 = *Once in the past year*, 2 = *Twice in the past year*, 3 = *3-5 times in the past year*, 4 = *6-10 times in the past year*, 5 = *11-20 times in the past year*, 6 = *more than 20 times*) and lifetime (7 = *not in the past 12 months, but it did happen before*). For the present study, perpetration, and victimization subscales (cyber psychological IPV, cyber sexual IPV, and cyber stalking IPV) were recoded as 0 = *absence* and 1 = *presence* (responses from 1 to 7). The authors of the original scale used factor analysis to validate the scale and found that the three-factor model had an acceptable fit in a sample of adults ([Watkins et al., 2018](#)). Construct and predictive validity were good, demonstrated across correlations of the CARS with and face-to-face IPV measure (correlations ranged from .13 and .71; [Watkins et al., 2018](#)). Cronbach's alpha for the present study were excellent for all subscales (cyber psychological perpetration:  $\alpha = .84$ ; cyber sexual perpetration:  $\alpha = .89$ ; cyber stalking perpetration:  $\alpha = .90$ ; cyber psychological victimization:  $\alpha = .87$ ; cyber sexual victimization:  $\alpha = .86$ ; cyber stalking victimization:  $\alpha = .92$ ).

**Face-to-face IPV.** Conflict Tactics Scale 2 Short Form (CTS2-SF; [Straus & Douglas, 2004](#)) is a 20-items measure that assesses sexual, physical, and psychological intimate partner victimization and perpetration. Each item is measured with an eight-point Likert scale that quantifies the frequency of the behaviors in the past year (1 = *once*, 2 = *twice*, 3 = *3–5 times*, 4 = *6–10 times*, 5 = *11–20 times*, 6 = *more than 20 times*), lifetime (7 = *not in the past year, but it did happen before*) or absence (8 = *never*). In the present study, the perpetration and victimization subscales (sexual, psychological, and physical) were recoded as 0 = *absence* (score of 8) and 1 = *presence* (scores from 1 to 7). The CTS2-SF was adapted in a sample of college students from a larger version of 78-items ([Straus & Douglas, 2004](#)). Concurrent and construct validity were good, shown on the correlations between the short version and the larger (ranging from .65 to .94; [Straus & Douglas, 2004](#)). Cronbach's alpha showed good reliability in the present study (psychological perpetration:  $\alpha = .84$ ; sexual perpetration:  $\alpha =$

.90; physical perpetration:  $\alpha = .93$ ; psychological victimization:  $\alpha = .84$ ; sexual victimization:  $\alpha = .91$ ; physical victimization:  $\alpha = .92$ ).

**Minority stressors.** The Daily Heterosexist Experiences Questionnaire (DHEQ; [Balsam et al., 2013](#)) is a 50-item measure that assesses the unique aspects of minority stress for lesbian, gay, bisexual, and transgender adults during the past 12 months. The DHEQ is composed of nine domains, namely, gender expression, vigilance, parenting, discrimination and harassment, vicarious trauma, family of origin, HIV/AIDS, victimization, and isolation. Each item was measured on a six-point Likert-scale indicating the presence/absence of the stressor and the impact on the individual (0 = *Did not happen/not applicable to me, or It happened, and 1 = it bothered me not at all, 2 = it bothered me a little bit, 3 = it bothered me moderately, 4 = it bothered me quite a bit, 5 = it bothered me extremely*). In the present study, only the vicarious trauma (e.g., hearing about hate crimes that happened to LGBTQ+ people you don't know), discrimination/harassment (e.g., being verbally harassed by people you know because you are LGBTQ+), and rejection from family of origin (e.g., family members not accepting your partner as part of the family) subscales were used. The development and validation of the subscales were done through a mixed-method study, which included interviews to generate themes and web surveys ([Balsam et al., 2013](#)). The authors report a good internal consistency (ranging from .76 to .86), good construct validity when correlated with psychosocial adjustment, and concurrent validity when correlating with two items that measure general LGBTQ+ discrimination. Cronbach alpha's in the present study was good for the subscales used (i.e., vicarious trauma:  $\alpha = .91$  discrimination/harassment:  $\alpha = .89$ , and family of origin:  $\alpha = .87$ )

**LGB-identity disclosure.** The Nebraska Outness Scale (NOS; [Meidlinger & Hope, 2014](#)) is a scale assessing an individual's degree of outness, or openness about one's sexual orientation, with an individual's parents, siblings, extended family, friends, coworkers or

supervisors, and strangers. This measure is composed of 10 items that are divided into two subscales concealment (NOS-C) and disclosure (NOS-D). Each item is measured on an 11-point Likert-type scale indicating the percentage (0 = 0% to 10 = 100%) of people being aware of LGB's sexual orientation at the time of the study (NOS-D; e.g., your family members, people at your work school) or time avoiding discussing their sexuality (NOS-C; e.g., with people of your family or people that you socialized with). For the present study, the total score of the disclosure subscale was used with higher scores denoting greater disclosure of LGB-identity at the time of the study. The full scale and subscales showed good internal reliability, across genders and sexual orientations (ranging from  $\alpha = .84$  to  $.95$ ; [Meidlinger & Hope, 2014](#)). Also, the authors indicated good discriminant validity when correlated with measures of homophobia, convergent when correlated with other outness' measures, and predictive validity when correlated with mental health and wellbeing measure ([Meidlinger & Hope, 2014](#)). In the present study, Cronbach's alpha for the NOS-D was  $.85$ .

### **Procedure**

Participant recruitment was done via Amazon's Mechanical Turk from July to August 2017. MTurk is a platform for gathering data that allows collecting significantly more diverse samples ([Buhrmester et al., 2011](#)). The current study was listed as a research survey link on Amazon MTurk and tagged with the keywords "survey," "psychology," "adverse life events," and "emotional problems." The study was advertised as one examining "the role of lifetime stressful events on emotional experiences among young adults." The HIT was available only to individuals who had an IP address located within the U.S. After providing consent, participants were asked to screener demographic questions regarding sexual orientation. Participants that answered "heterosexual" or "other" were directed to the end of the survey, thanked for their time and informed that they did not qualify for the study. Participants that answered gay, lesbian, bisexual qualified, and completed the survey received \$3.00 for

participating. The forced response option was used in the survey; however, participants had the option to leave the survey without any penalty. Multiple attention check questions (e.g., if you are reading this item, check option 2) for checking response validity were included (i.e., one question after every 20-25 self-report items) and individuals who failed even one attention check item were removed from the final analyses. The Institutional Review Board at the University of the corresponding author approved the study procedures.

### **Data analyses**

The statistical analyses were performed in three phases. First, latent class analysis (LCA, *Mplus* 8.4) was used to identify unobserved groups of individuals based on their responses to a set of observed indicators ([Hagenaars; & McCutcheon, 2002](#)). LCA was used because it has some benefits over other clustering techniques, that is, (i) the less arbitrary choice of classification due to the underlying statistical model; (ii) the several rigorous statistical tests to assess model fit; and (iii) the probabilistic nature of class membership that leads to less biased estimations of class-specific means, since each case contributes to this mean weighted by its class membership probability (Karnowsky, 2017). Additionally, LCA is a technique that identifies groups based on responses to a set of observed indicators (Hagenaars & McCutcheon, 2002) instead of exploring the mutuality of violence among separated subtypes (Straus, 2015). Therefore, a total of twelve indicators, that is, six face-to-face IPV indicators and six cyber IPV indicators were included in the analysis. In order to perform the LCA, the process began with an one-class LCA model that served as a comparative baseline, and then the number of classes ( $k$ ) was incremented by one ([Nylund-Gibson & Choi, 2018](#)). With addition of a class, model fit statistics were compared with the previous class solution to identify if it is conceptually and statistically superior. The model fit was examined using, the Akaike information criterion (AIC), the Bayesian information criterion (BIC), sample size adjusted Bayesian information criterion (SSBIC), the entropy

value, the Lo–Mendell–Rubin adjusted likelihood ratio test (LMR), and the bootstrapped likelihood ratio test (BLRT). Lower values on AIC, BIC, and SSBIC indices, and entropy values closer to 1 indicate a better fit ([Nylund et al., 2007](#)). Moreover, using the TECH 11 and TECH 14 commands in *Mplus*, the LMR and BLRT values, respectively, indicated the specific  $k$  classes versus the  $k-1$  class (e.g., whether the five-class solution fits the data better than the four-class solution; [Nylund et al., 2007](#)). Finally, maximum bivariate residuals (BVR) were analyzed for the model solutions to analyze how associations between residuals of the indicators influenced the model, and values over 3.84 were considered high (Schreiber, 2017; van Kollenburg, et al., 2015). As recommended by [Nylund et al. \(2007\)](#), the interpretative meaningfulness, and the statistical relevance of the latent classes drove the selection of the number of classes.

After selecting the best class solution, participants were assigned to the latent classes based on their class membership probabilities. Next, using the 3-step approach estimation of the latent class predictors was performed. First, demographic variables, namely, sex, age, sexual orientation (bisexuals vs. gay; bisexuals vs. lesbians), and race/ethnicity (non-Hispanic White vs. people of color including Hispanics) were added to explore if class-membership varied across these variables. Then, the minority stress subscales (i.e., vicarious trauma, discrimination/harassment, and rejection by family of origin) and LGB-identity disclosure were added in a separate model. These predictors were estimated using the *Mplus* AUXILIARY function R3STEP, and odds ratio (ORs) was used to identify the relation among the latent classes and predictors ([Asparouhov & Muthén, 2014](#)).

## Results

### Latent Classes of Cyber and Face-to-Face IPV profiles

There were no missing data in the current study since forced response option was used during data collection. Descriptive statistics of the study variable are displayed in Table 1. Six

consecutive latent class models were estimated to identify the underlying class structure within the sample. The AIC, BIC, and SSABIC values improved until the 5-class solution; hence, 1-class and 6-class solution were dropped from further investigation. The BLRT associated  $p$ -value was significant for all models. The LMR associated  $p$ -values were significant for 2-class, 3-class, and 4-class models; hence, the 5-class model was dropped. Models 2-4 were analyzed further by considering the class size, parsimony, entropy, and meaningfulness of the classes. Further, Models 3 and 4 were selected as the best possible solutions, and the BVR were analyzed for both the class solutions. Three significant residuals correlations were found between psychological cyber perpetration and victimization, sexual cyber perpetration, and victimization, and stalking cyber perpetration and victimization. The 3-class solution was tested adding the correlations between errors, BIC decrease substantially suggesting the 3-class solution as the optimal model. Nevertheless, when analyzing the theoretical meaningfulness and interpretation of classes in the 3-class solution, the class characterized by stalking and verbal bidirectional aggressions was not represented anymore and was substituted by a class with high probabilities of psychological, stalking, and sexual cyber IPV that represented almost 40% of the total sample. This output was very unlikely to be accurate as prior studies document rates and prevalence of the different types of cyber IPV among young adults, where sexual cyber IPV tends to have lower prevalence rates, (between 15% and 20%; Watkins et al., 2018; Zapor et al., 2017). Thus, the 4-class solution was identified as the best fitting model based on the LMR, entropy, interpretability, meaningfulness, and class sizes when compared to the other latent class solutions (Table 2). Nonetheless, residuals of psychological cyber perpetration and victimization, sexual cyber perpetration and victimization, and stalking cyber perpetration and victimization variables continued to be significantly correlated ( $p < .05$ ) according to the BVR.

Each class was labeled based on the probabilities of exposure to face-to-face and cyber IPV perpetration and victimization types. Class 1 ( $n = 32$ ; 37.5% gay, 18.8% lesbian, 43.8% bisexual individuals; mean age = 24.87,  $SD = 2.98$ ; 53.1% non-Hispanic white, 46.9% people of color) was labeled ‘face-to-face IPV’ as it had the highest probabilities of victimization and perpetration of face-to-face IPV for psychological, physical, and sexual abuse, and lower probabilities of any type of cyber IPV. Class 2 ( $n = 66$ ; 33.3% gay, 12.1% lesbian, 54.5% bisexual individuals; mean age = 25.19,  $SD = 2.60$ ; 45.5% non-Hispanic white, 54.5% people of color) was labeled ‘cyber IPV’ as it had the highest probabilities of victimization and perpetration of cyber psychological abuse, stalking, and sexual abuse, and lower probabilities of any type of face-to-face IPV. Class 3 ( $n = 89$ ; 15.7% gay, 15.7% lesbian, 68.5% bisexual individuals; mean age = 25.37,  $SD = 2.58$ ; 60.7% non-Hispanic white, 39.3% people of color) was labeled ‘psychological and stalking cyber IPV’ as it had moderate probabilities of psychological and stalking cyber IPV (compared to class 2), but low probabilities of cyber sexual abuse or any type of face-to-face IPV. Finally, class 4 ( $n = 101$ ; 23.8% gay, 19.8% lesbian, 56.4% bisexual individuals; mean age = 25.59,  $SD = 2.93$ ; 61.4% non-Hispanic white, 38.6% people of color) was labeled ‘low IPV’ since it had lower probabilities of exposure to any type of IPV. The item probabilities across the four classes are shown in Figure 1. Multinomial regressions with the demographic variable, namely, age, sex, sexual orientation, and race/ethnicity showed that class composition did not significantly vary across any demographic variable (Table 3).

### **Minority stressors across the latent classes**

Multinomial logistic regressions (Table 3) suggested that disclosure of LGB identity differentiated the low IPV class from the face-to-face and cyber IPV classes (i.e., classes 1 and 2), such that lesser the degree of disclosure of sexual identity the more probable was the likelihood of an individual to be in the IPV classes. Furthermore, experiences of LGB-related

discrimination/harassment and rejection from one's family of origin was greater in the cyber IPV class compared to the low IPV class. However, no differences were found on discrimination/harassment and rejection between face-to-face IPV class, the psychological and stalking cyber IPV class from the lower IPV class. Exposure to vicarious trauma differentiated between psychological and stalking cyber IPV class and the low IPV class, in that exposure to vicarious trauma was greater in the psychological and stalking cyber IPV class when compared to the low IPV class. Finally, face-to-face IPV class had lower exposure to vicarious trauma when compared to the low IPV class.

### **Discussion**

The current study corroborates prior research findings of high rates of different types of face-to-face IPV and cyber IPV in LGB population ([Badenes-Ribera et al., 2019](#); [Sutter et al., 2019](#)). The present study included investigation of the most common aggressive behaviors studied in the LGB IPV research (i.e., verbal and physical aggression in face-to-face situations) and also other characteristically displayed behavior in emerging adults ([Charak et al., 2019](#); [Taylor & Xia, 2018](#)), such as cyber stalking, cyber psychological IPV and cyber sexual IPV, that enabled a better understanding of the overall IPV experiences of LGB emerging adults.

Almost 80% of the total sample endorsed some type of IPV in their current or past relationships. Physical and sexual face-to-face IPV perpetration were reported at the rate of 15% and 16%, respectively. These findings are similar to the prior research findings of rates between 10% and 20% for physical and sexual IPV in LGB youth and young adults ([Exner-Cortens et al., 2013](#); [Reuter et al., 2017](#); [Whitton et al., 2019](#)). Cyber IPV was the most common type of aggression reported in our findings, reaching rates over 70% for any type or form of cyber IPV, 60% for cyber stalking perpetration and victimization, and over 50% for cyber psychological perpetration and victimization. The present findings corroborate prior

findings of the higher prevalence (i.e., 60% to 70%) of cyber IPV in emerging adults ([Cano-Gonzalez et al., 2020](#); [Marganski & Melander, 2015](#)). These higher ranges of technology mediated cyber IPV outlines the usage of electronic devices and social media in IPV experience among LGB emerging adults ([Taylor & Xia, 2018](#); [Wang et al., 2019](#)).

Hypothesis 1 was supported as there were four clearly differentiated latent classes of IPV, namely, face-to-face IPV, cyber IPV, psychological and stalking cyber IPV, and low IPV. Contrary to what has been found in prior studies, the three IPV classes—face-to-face IPV, cyber IPV, psychological and stalking cyber IPV—characterized by medium and high instances of IPV represented more than two-third of the total sample ([Kelley et al., 2014](#); [Stephenson & Finneran, 2017](#)). These higher rates of victimization and perpetration of IPV may be related to the inclusion of several types of abuse as much of the existing literature has only analyzed IPV as physical or sexual aggression ([Longobardi & Badenes-Ribera, 2017](#); [Rollé et al., 2018](#)), creating a limited view of the actual IPV experience in LGBTQ+ individuals. Our findings warrant replication and future studies should use dyadic analysis and include severity of aggressive behaviors in order to address the ongoing need to develop intervention and preventative strategies addressing the overall IPV experience of LGB individuals ([Laskey et al., 2019](#); [Stiles-Shields & Carroll, 2015](#)).

Furthermore, in contrast to prior findings on heterosexual samples, there were greater probabilities of perpetration and victimization in face-to-face interactions and over cyberspaces across the latent classes. These bidirectional patterns of face-to-face and cyber IPV corroborates prior research findings where experiences of bidirectional violence have been found to be the most common pattern across lesbian and bisexual women ([Lin et al., 2020](#); [Sutter et al., 2019](#)), and in gay men ([Bartholomew et al., 2008](#); [Carvalho et al., 2011](#); [Grest et al., 2018](#)). For example, [Sutter et al. \(2019\)](#) found four latent classes of bidirectional IPV when analyzing face-to-face psychological, physical, and sexual perpetration and

victimization among lesbian and bisexual women. Using latent class analysis, our findings add to the extant literature by examining and validating the presence of bidirectional IPV victimization and perpetration experiences in face-to-face and in online instances. In order to better understand the underlying factors that contribute to these bidirectional dynamics, future studies should consider the context and motivations for enacting such violence that may be related to self-defense, exertion of power or dyadic affect dysregulation characterized by both partners' inability to self-regulate emotions and behaviors leading to cyclical and reciprocal violence ([Grest et al., 2018](#); [Langhinrichsen-Rohling et al., 2012](#); [Sutter et al., 2019](#)).

Our findings suggest that a considerable number of LGB young adults were classified into the cyber IPV classes (i.e., classes 2-3). This trend highlights that LGB emerging adults could be especially vulnerable to IPV using electronic devices and social media. Prior research outlines that cyber IPV is usually viewed by LGBTQ+ identifying individuals as less serious and hence is often not disclosed (Barret & Pierre, 2013; Rolle, et al., 2018). This conjoint with frequent secrecy about their intimate relationships and 'closeted' experience of their sexual orientation ([Messinger et al., 2018](#); [Taylor & Xia, 2018](#)), and the reliance on use of social media and online networking sites to connect with LGBTQ+ communities and partners is an important issue to address when developing research and interventions strategies for cyber IPV in LGBTQ+ people ([Edwards et al., 2015](#); [Rollé et al., 2018](#)). Prior studies have also found that LGBTQ+ spaces, social networking and dating applications may represent an essential way to satisfy LGBTQ+ needs such as a sense of existing in a community, receive social approval and the opportunity to explore different ways to practice their sexuality ([Corriero & Tong, 2015](#); Karyofyllis, et al., 2018; [Miller, 2015](#)). Future studies focusing on IPV in LGBTQ+ emerging adults should include analyses of specific consequences and correlates of cyber IPV, since prior research suggests that cyber IPV could be potentially harmful, generating high levels of distress and consequences in victims, such as

an increased consumption of alcohol and greater levels of depression ([Cantu & Charak, 2020](#); [Marganski & Melander, 2015](#); [Trujillo et al., 2020](#)). Moreover, stalking behaviors have been related to physical and sexual face-to-face IPV, severe injuries and even homicide; therefore, failure to recognize the potential dangers of cyber stalking and psychological aggressions may have detrimental consequences on LGBTQ+ victim's mental health ([Charak et al., 2019](#); [Messinger et al., 2018](#); [Sargent et al., 2016](#)).

In the present study, the associations of distal-proximal minority stressors to each latent class allowed for a more detailed characterization of the IPV experiences of LGB emerging adults. In line with hypothesis 2 and the minority stress framework, greater exposure to the minority stressors predicted latent classes with greater probabilities of IPV exposure, such as cyber IPV and face-to-face IPV classes ([Kelley et al., 2014](#); [Longobardi & Badenes-Ribera, 2017](#)). Particularly, our finding that the cyber IPV class (class 2) had exposure to a greater amount of distal minority stressors such as harassment and the rejection by family of origin is supported by prior studies ([Balsam & Szymanski., 2005](#); [Edwards & Sylaska, 2016](#)). An interesting finding was that vicarious trauma predicted the low IPV class when compared to the face-to-face IPV class. This finding could be related to the fact that minority groups after learning about trauma vicariously may have higher chances of accessing community resources, engage in coping and community-based resilience which have been proven to increase wellbeing and adjustment in minority groups ([Meyer, 2003](#); [Ramirez & Paz Galupo, 2019](#)). Further studies should investigate the differential impact of vicarious trauma as a resilience or risk factor on the adjustment and wellbeing of LGBTQ+ people.

Furthermore, lower degree of LGB-identity disclosure (proximal minority stressor) was a risk factor of bidirectional face-to-face and cyber IPV classes compared to the low IPV class. Related, prior studies have found that non-disclosure of minority sexual identity is associated with internalized homophobia ([Stokes et al., 1993](#)) and can serve as an impediment

in seeking social support from family and friends, and social and legal services ([Corrigan & Matthews, 2003](#)). In the absence of protective factors (e.g., social support, legal respite) an opportunist perpetrator may continue to intimidate their partner. Future studies should investigate the circumstances and factors that could moderate the associations between identity disclosure and IPV experiences, such as risk of increased expectations and experiences of discrimination, distress and isolation or protective factors such as higher self-esteem, authenticity, and social support ([Kosciw et al., 2012](#); [Riggle et al., 2017](#)).

This study is not without limitations. First, the present study involved a convenience sample and findings may not be representative of all LGB emerging adults. Second, the causal and unidirectional relations between minority stressors and IPV types is based on the minority stress framework ([Meyer, 2003](#)) and future studies should examine these associations in a longitudinal design. Third, self-report questionnaires were used to obtain IPV and minority stressor variables, which can lead to recall bias and may decrease the accuracy of rates of IPV. Specifically, self-report measures of IPV have been criticized as they may lead to underreporting ([Follingstad & Rogers, 2013](#); [Hamby, 2005](#)) and may not be capturing the context of the IPV situations (e.g., self-defense) resulting in biased conclusions about the bidirectionality of the violence ([Allen et al., 2009](#)). Fourth, data included instances of IPV reported by one partner; future studies must consider the analysis of couples' behavior to achieve a deeper understanding of the dynamics and directionality of the abusive behavior in intimate relationships. Fifth, dichotomizing IPV indicators may have led to loss of some information and lower threshold for presence of victimization and perpetration. Future studies should consider analyzing the role of several characteristics of IPV, including, frequency, duration, patterns, and consequences. Finally, the use of the MTurk as a platform for recruitment restricted the study sample to internet users.

The present study findings have important implications aimed at addressing preventative and intervention measures directed towards alleviating face-to-face and cyber IPV and related minority stressors in LGB emerging adults. First, clinicians and service providers should inquire about sexual and gender identities in a sensitive and inclusive manner when screening for IPV. For instance, inclusive language in intake forms (e.g., use of terms spouse, partner instead of husband/boyfriend, wife/girlfriend) and signs in the waiting area can signal a clinician's willingness to discuss non-heterosexual relationships and can promote trust and disclosure ([Ard & Makadon, 2011](#)). Second, since the vast majority of the individuals in our study had higher probabilities of bidirectional IPV—face-to-face and cyber IPV—suggesting that IPV is often dyadic in nature ([Whitton et al., 2019](#)); hence, IPV programs directed towards LGB adults may focus on skills promoting healthy relationships, such as conflict resolution strategies through effective communication and conflict management skills. Third, cultural and ethnic backgrounds of LGB people must be considered when developing IPV prevention strategies. Our finding suggested a lower representation of people of color in the low IPV class (although not significant), which could be related to a greater risk of IPV when compared to non-Hispanic White individuals. In addition to the creation of culturally competent LGB-related services and training modules for clinicians, effectiveness of interventions can be enhanced if the unique risk factors of LGB-related identity IPV, that is, minority stressors are recognized and addressed.

In conclusion, although prior research with sexual and gender minority youth and adults has documented the bidirectional nature of IPV ([Whitton et al., 2019](#)), our findings extend this work by simultaneously examining the bidirectional dynamics of face-to-face and cyber IPV victimization and perpetration experiences in LGB emerging adults. Furthermore, the bidirectional nature of IPV measured via latent classes were correlated with minority stressors, that is, lower degree of LGB-identity disclosure, exposure to discrimination and

harassment, rejection from one's family of origin, and exposure to vicarious trauma. Thus, findings from this study underscore the relevance of assessing and understanding the role of LGB-minority stressors in partner violence through a minority stress framework.

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Table 1

*Descriptive statistics of study variables*

	Percent of sample "yes"	<i>n</i>	<i>M</i>	<i>SD</i>	Observed range
<i>Victimization</i>					
Psychological cyber IPV	43.06	124	--	--	0-1
Sexual cyber IPV	29.51	85	--	--	0-1
Stalking cyber IPV	48.61	140	--	--	0-1
F2F Psychological assault	22.22	64	--	--	0-1
F2F Physical assault	14.93	43	--	--	0-1
F2F Sexual assault	16.32	47	--	--	
<i>Perpetration</i>					
Psychological cyber IPV	46.53	134	--	--	0-1
Sexual cyber IPV	27.08	78	--	--	0-1
Stalking cyber IPV	55.90	161	--	--	0-1
F2F Psychological assault	20.49	59	--	--	0-1
F2F Physical assault	15.28	44	--	--	0-1
F2F Sexual assault	16.32	47	--	--	0-1
<i>Minority stressors</i>					
Vicarious trauma	89.24	257	4.48	2.41	0-6
Discrimination/harassment	65.28	188	2.43	2.40	0-6
Family of origin	63.19	182	2.32	2.32	0-6
Disclosure	--	--	5.73	2.69	1-11

*Note.* IPV = Intimate Partner Violence. F2F = Face-to-face.

Table 2

*Fit indices for the latent class models with two to six classes based on cyber and face-to-face IPV types in LGB emerging adults*

Number of classes	LMR <i>p value</i>	BLRT <i>p value</i>	Entropy	AIC	BIC	SSABIC
1	---	---	---	3925.996	3969.951	3931.898
2	661.210 (.001)	-1950.998 (.001)	.906	3281.804	3373.378	3294.100
3	559.532 (.001)	-1615.902 (.001)	.949	2740.672	2879.864	2759.361
4	133.583 (.001)	-1332.336 (.001)	.939	2631.274	2818.085	2656.358
5	110.020 (.07)	-1264.637 (.001)	.942	2545.760	2780.190	2577.237
6	54.512 (.07)	-1209.066 (.001)	.949	2516.880	2798.928	2554.751

*Note.* LMR = Lo–Mendell–Rubin adjusted likelihood ratio test. BLRT = Bootstrapped likelihood ratio test. AIC = Akaike information criterion. BIC = Bayesian information criterion. SSABIC = Sample size adjusted bayesian information criterion.

Table 3

*Multinomial logistic regressions using 3-step procedure for demographic variables and IPV types as predictor of latent classes*

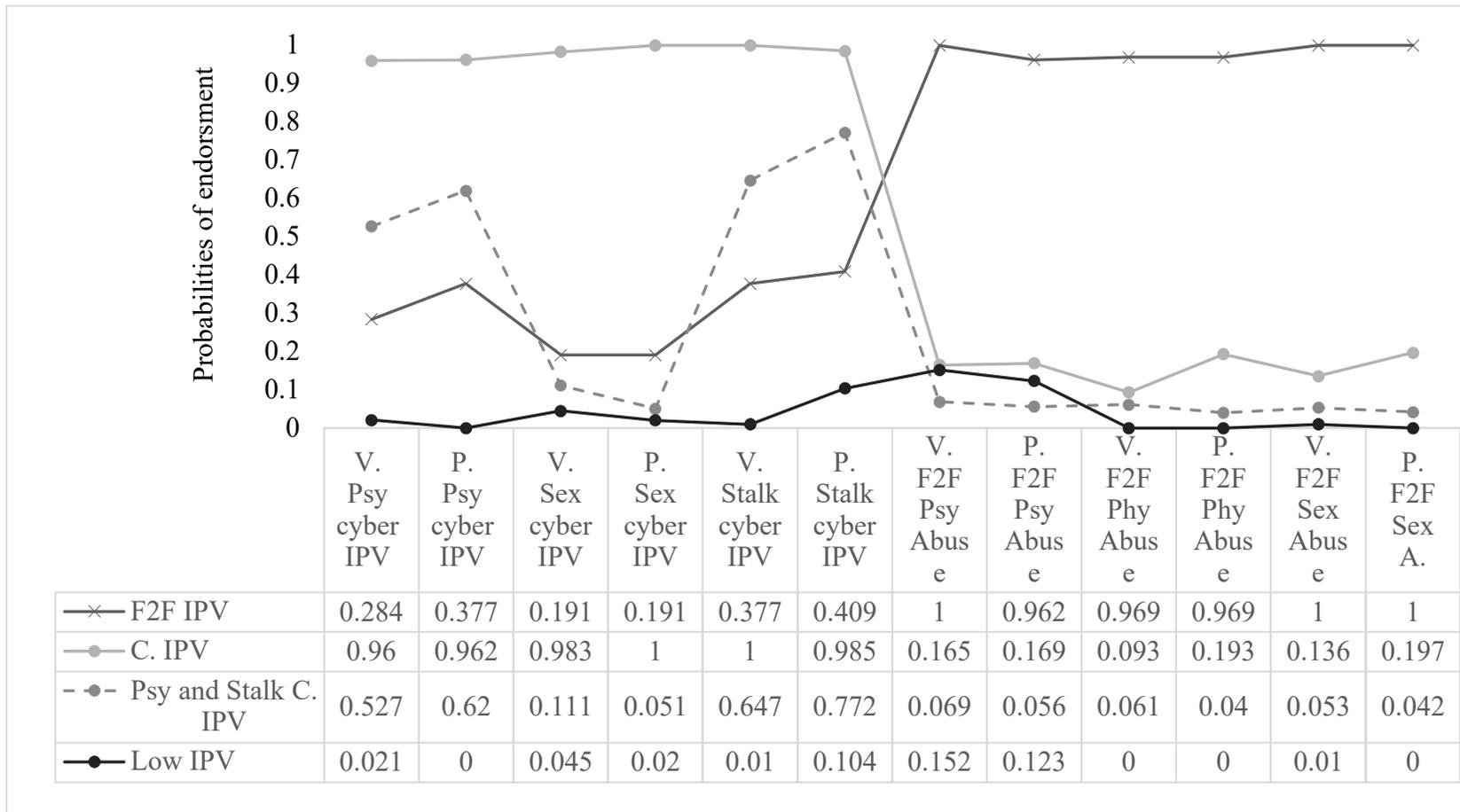
Variables	<i>Class 1 vs. Class 4</i>			<i>Class 2 vs. Class 4</i>			<i>Class 3 vs. Class 4</i>		
	Estimate	SE	z-test	Estimate	SE	z-test	Estimate	SE	z-test
<i>Demographic</i>									
Age	-.028	.076	-.366	.005	.063	.083	.055	.063	.884
Sex	.244	.576	.424	1.795	.477	3.766	.089	.415	.215
+Bisexuals vs. Gay	.515	.590	.873	.139	.523	.266	-.328	.445	-.736
+Bisexuals vs. Lesbian	.514	.628	.818	-.018	.477	-.038	.233	.503	.463
+Non-Hispanic White vs. People of color	.235	.429	.548	.583	.348	1.674	.640	.337	1.898
<i>IPV type</i>									
Vicarious trauma	-.220	.110	-1.996*	-.017	.164	-.101	.268	.102	2.611**
Discrimination/harassment	.203	.169	1.202	.571	.165	3.456**	-.004	.134	-.030
Rejection by the family	.094	.175	.539	.320	.136	2.357*	.015	.139	.107
Disclosure	-.168	.077	-2.196*	-.305	.106	-2.861**	-.082	.064	-1.272

*Note.* Class 1 = Face-to-face IPV ( $n = 32$ ; 11.11%), Class 2 = Cyber IPV ( $n = 66$ ; 22.91%), Class 3 = Psychological and stalking cyber IPV ( $n = 89$ ; 30.90%), Class 4 = Low IPV ( $n = 101$ ; 35.06%). +Reference group

\* $p < .05$

\*\* $p < .01$

Figure 1



Profile plot and probabilities from LCA of cyber and face-to-face IPV types

Note. V = Victimization. P = Perpetration. Psy = psychological. Phy = physical. Sex = sexual. Stalk = Stalking. F2F = Face to face. C = Cyber. IPV = Intimate partner violence. A = Abuse. F2F IPV = Face-to-face IPV ( $n = 32$ ; 11.11%). C. IPV = Cyber IPV ( $n = 66$ ; 22.91%). Psy and Stalk C. IPV = Psychological and stalking cyber IPV ( $n = 89$ ; 30.90%). Low IPV ( $n = 101$ ; 35.06%).