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Perceptions of the LGBTQ College Campus Climate Scale: Development and Psychometric Evaluation

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ABSTRACT

This article reports the development and psychometric properties of scores on a new scale designed to assess views of the university/college campus climate concerning LGBTQ students and issues: Perceptions of the LGBTQ College Campus Climate Scale. This 6-item scale includes two subscales: College Response to LGBTQ Students and LGBTQ Stigma. We provide evidence for structural validity (via exploratory and confirmatory factor analyses) and reliability for scores on this new measure. Supporting construct validity, Perceptions of the LGBTQ College Campus Climate full scale and subscales were each positively correlated with experiences of LGBTQ victimization on campus, anxiety, and depression and negatively correlated with satisfaction with college and intention to persist in college. Relationships with mental health and academic outcomes held true, even after controlling for LGBTQ victimization experiences, providing support for incremental validity. Implications for future research and practice are discussed.

KEYWORDS

LGBTQ; campus climate; discrimination; heterosexism; cissexism; scale development

The campus climate concerning LGBTQ students and issues can vary significantly across institutions of higher education. For example, each year the Princeton Review identifies the 20 friendliest and most unfriendly LGBTQ colleges/universities (https://www.princetonreview.com/college-rankings/ranking-methodology), and the Campus Pride Index rates universities on their inclusive LGBTQ practices, policies, and programs (https://www.campusprideindex.org/searchresults/display/472884). Recent legislative attacks on LGBTQ students and issues (e.g., 2016 defunding and disbanding of the Office of Diversity and Inclusion and LGBTQ resources at the University of Tennessee–Knoxville) provide recent examples of how macro-level policies can affect perceptions of the LGBTQ campus climate and exacerbate minority stressors at the individual level (Boehnke, 2016; Urquhard, 2016). Understanding perceptions of the LGBTQ campus climate is important for prospective LGBTQ students' decision-making process and for various stakeholders on campus who want to understand what the climate is like for LGBTQ students and make improvements.

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The importance of the LGBTQ campus climate and the continued need to conduct research on it is clearly evident. Surprisingly, research in this area is limited and has been mostly descriptive (e.g., Brown, Clarke, Gortmaker, & Robinson-Keilig, 2004; Chester, Ehrenfeld, & Eckstrand, 2014; Rankin, 2003; Rankin, Weber, Blumenfeld, & Frazer, 2010; Tetreault, Fette, Meidlinger, & Hope, 2013; Waldo, 1998), often reporting the frequency of different types of campus climate perceptions and experiences, and/or qualitative (e.g., Blumenfeld, Weber, & Rankin, 2016; Craig, Austin, Rashidi, & Adams, 2017; Garvey, Taylor, & Rankin, 2015; Yost & Gilmore, 2011). These studies have defined the LGBTQ campus climate in diverse ways, from experiences on campus, to perceptions of the campus, and more recently to structural inclusion (c.f., Woodford, Kulick, Garvey, Sinco, & Hong, 2018). As such, associated methods of assessing climate have also varied greatly, including how LGBTQ people are treated on campus, attitudes toward LGBTQ people, institutional support for LGBTQ issues, and inclusion of LGBTQ issues in the curriculum and campus resources. The majority of these studies have focused on actual discrimination and victimization experiences and perceived safety (e.g., Brown et al., 2004; Palkki & Caldwell, 2018; Reed, Prado, Matsumoto, & Amaro, 2010; Woodford, Han, Craig, Lim, & Matney, 2013; Woodford & Kulick, 2015) rather than perceptions of the campus climate concerning LGBTQ students and issues. This research has indicated that a large percentage of LGBTQ students, faculty, and staff experience sexual orientation and/or gender identity-based discrimination and harassment. For example, 89% of LGBTQ respondents in a large national sample reported experiencing derogatory remarks, 48% verbal harassment, 39% graffiti, and 11% physical assaults on campus within the past year (Rankin et al., 2010). In addition, only 44% believed that their college provided visible administrative leadership on LGBTQ issues, and 37% believed their college was comprehensively addressing LGBTQ issues on campus.

Transgender and gender nonbinary college students experience cissexism, misgendering, and incorrect use of pronouns on campus (Goldberg, Kuvalanka, & Dickey, 2018) and report more experiences of discrimination and harassment than their cisgender counterparts (Dugan, Kusel, & Simounet, 2012).When compared to their heterosexual counterparts, LGBTQ participants reported more discrimination and harassment, greater negative perceptions of the general campus climate, less satisfaction with their college's response to LGBTQ issues, and more likelihood of leaving their college (Rankin et al., 2010). Other research also has demonstrated that LGBTQ students have more negative experiences and attitudes about their campus climate than heterosexual students (Rankin, 2003; Waldo, 1998; Yost & Gilmore, 2011).

A few studies have assessed campus climate via an author-developed item or items reflecting perceived attitudes toward LGBTQ persons on campus (e.g., Brown et al., 2004; Woodford & Kulick, 2015, Woodford, Kulick, & Atteberry, 2015) that

lack adequate psychometric support. These studies found that perceived negative attitudes toward sexual minorities on campus were related to more experiences of heterosexist harassment and less institutional satisfaction, but not related to academic disengagement, anxiety, depression, alcohol abuse, nor negative physical health symptoms (Woodford & Kulick, 2015; Woodford, Kulick, et al., 2015). In another study, Garvey et al. (2015) assessed perceptions of the general campus climate that are not specific to LGBTQ issues. They found that perceptions of LGBTQ welcoming and comfortable classrooms were uniquely related to more positive perceptions of the general campus climate among LGBTQ community college students, but an LGBTQ-inclusive curriculum, institutional support for LGBTQ students, and use of LGBTQ campus resources were not related.

Three studies (Coulter & Rankin, 2017; Waldo, 1998; Yost & Gilmore, 2011) included author-developed scales reflecting perceptions of campus climate concerning LGBTQ students and issues. These measures were not developed as part of a scale development study; instead, they were developed to help answer larger research questions. Waldo (1998) included four items, two of which targeted likelihood of LGBTQ harassment on campus and LGBTQ acceptance on campus, but the other two items were not provided. The alpha for scores on this scale was low ($\alpha = .65$), cross validation of the factor structure was not conducted, and limited evidence of construct validity was provided. Providing some support for construct validity, Waldo (1998) found LGBTQ students reported more negative perceptions of the LGBTQ campus climate than heterosexual students.

Yost and Gilmore (2011) included three items that targeted witnessing derogatory remarks toward and harassment of LGBTQ students on campus and the provision of a healthy learning environment for LGBTQ students. No evidence for reliability or structural validity of scores was provided. Providing some support for construct validity, LGBTQ students reported more negative perceptions of the LGBTQ campus climate than did heterosexual and cisgender students. Among a small subsample ($n = 60$) of LGBTQ students, Yost and Gilmore also found that more negative perceptions of the LGBTQ campus climate were related to more negative perceptions of the general campus climate, campus diversity climate, and LGBTQ supportive classroom climate, as well as to more experiences of LGBTQ victimization.

Coulter and Rankin (2017) included 10 items drawn from the larger parent studies (Rankin, 2003; Rankin et al., 2010) that are proprietary, where permission to use is at the discretion of the copyright holder. These items target perceptions of how homophobic and sexist the campus climate is, acceptance level of LGBTQ individuals in their classes, and witnessing LGBTQ harassment. Although an exploratory factor analysis (EFA) was conducted, important information needed to assess the quality of the EFA results was not included (e.g., decision rules used to determine the number of factors, type of rotation used, communalities, factor loadings and cross loadings). Reliability estimates were good, but cross validation of the factor

structure was not conducted. The only evidence provided to support construct validity was the finding that after controlling for pertinent demographic variables, perceived inclusivity of LGBTQ persons was significantly associated with lower odds of sexual assault, but witnessing LGBTQ harassment on campus was not.

To move beyond the largely descriptive research base and problematic measurement issues, a scale is needed to assess the LGBTQ college campus climate. Past studies largely consist of a series of author-developed questions or questions (some of which are proprietary) derived from various institutional campus climate surveys that vary in how they operationalize the LGBTQ campus climate and lack adequate psychometric support. Thus a psychometrically supported scale that researchers can use freely for non-commercial purposes is needed. Quality assessment tools are needed to capture LGBTQ perceptions and experiences on campus so that they are not erased and so that various stakeholders can better understand what the climate is like for LGBTQ students and how it may be affecting their academic, psychological, and physical wellbeing.

The purpose of this study was to develop a brief scale to assess perceptions of the university/college campus climate surrounding LGBTQ students and issues and to provide initial psychometric support. We define the LGBTQ campus climate as perceptions of (1) attitudes and behaviors toward LGBTQ individuals on campus, (2) the type of campus environment that exists for LGBTQ students, and (3) the university/college's approach/response to LGBTQ students and issues. Our study consisted of item development, exploration of the factor structure using both exploratory and confirmatory factor analyses, inspection of internal consistency, and examination of construct and incremental validity.

Construct validity is often supported via a new scale's associations with other constructs based on theory (Messick, 1992). Organizational psychology (Schein, 1990) and stigma (Herek, Gillis, & Cogan, 2009; Link & Phelan, 2001) theories posit that organizational norms shape members' attitudes and influence their behavior. Unfriendly LGBTQ campus climates may create norms that devalue and denigrate LGBTQ persons, which in turn influences perpetration of LGBTQ harassment and discrimination. Thus we hypothesized that scores on our newly developed scale would be related to more experiences of LGBTQ-related victimization on campus. Organizational psychology (Eisenberger, Cummings, Armeli, & Lynch, 1997) and minority stress (Meyer, 2003) theories and related research posit that a lack of organizational support and LGBTQ-based stigma can lead to negative outcomes for group members. Thus we also hypothesized that perceptions of a negative LGBTQ campus climate would be related to poorer academic (less satisfaction with college and less persistence attitudes) and mental health (anxiety and depression) outcomes. Incremental validity is often supported by demonstrating that a new scale adds to the prediction of theorized outcome variables over and above existing measures (Haynes & Lench, 2003). Thus we

hypothesized that the relationships between perceptions of the LGBTQ campus climate and mental health and academic outcomes would persist, even after controlling for LGBTQ victimization experiences.

Method

Participants

We recruited participants through research announcements sent via e-mail to the contact person for a variety of university/college LGBTQ-related groups and Listservs. We asked this person to forward the research announcement to their Listserv and/or to eligible students. The initial sample consisted of 655 participants who completed an online survey. Five participants who left at least one measure completely blank, one participant who was missing more than 20% of items for a particular measure, two participants who reported they did not take the survey seriously (Aust, Diedenhofen, Ullrich, & Musch, 2013), and one participant who reported being heterosexual and cisgender were eliminated from the dataset. This resulted in a final sample of 646 participants. Of these participants, all correctly answered two or more of the three validity items (e.g., To check that you are paying attention, mark "agree").

Of the 646 participants in the sample, 81% were assigned female at birth, 19% male, and 0% intersex. In terms of gender identity, 56% identified as women including 1% who identified as trans, 22% as men including 7% who identified as trans, and 21% as genderqueer/nonbinary. Participants self-identified as lesbian or gay (33%), bisexual (33%), pansexual (15%), asexual (9%), and different orientation (9%; e.g., asexual and gay/lesbian/bisexual, questioning/unsure, queer). Ages of participants ranged from 18 to 56, with a mean age of 20.54 years (SD = 3.23). The sample consisted of 69% White, 12% Asian American/Pacific Islander, 7% Latinx, 4% African American/Black, 7% multiracial, and 1% other individuals.

All participants were students enrolled in a college or university, with 25% being first year undergraduates, 22% sophomores, 20% juniors, 20% seniors, 11% graduate students, and 2% other. All but one participant provided the name of the college/university they attended, and 96 different colleges/universities were represented. Twenty-four percent of participants reported being first-generation college students (i.e., neither of their parents went to college and earned a bachelor's degree or higher). Participants reported residing in the Midwest (36%), South (26%), Northeast (24%), West (12%), and outside the United States/international students (2%). Percentages may not add up to 100% due to rounding.

Procedure

After participants clicked on the hypertext link provided in the e-mail research announcement, they were taken to an online informed consent and survey. To

reduce response biases, academic and mental health outcomes were assessed first. The other measures were randomly ordered in the survey followed by demographic questions. All participants were given the opportunity to enter a raffle drawing, awarding a $50 online merchant gift card to each of four randomly chosen persons, as an incentive to participate. A separate raffle database was used so participants' contact information could not be linked to their survey responses.

Measures

LGBTQ victimization

We assessed LGBTQ victimization using the 9-item Sexual Orientation-Based Campus Victimization Scale (Herek, 1993). We modified the scale to be inclusive of bisexual, trans, and queer identities by changing the instructions to "How often have you experienced the following at your university/college because someone assumed you to be a LGBTQ person?" Example items include "Personal property damaged or destroyed" and "Punched, hit, kicked or beaten." Participants responded to each item using a 3-point Likert-type scale from 0 (*never*) to 2 (*two or more times*). Mean scores were used with higher scores representing more experiences of LGBTQ victimization on campus. Validity of scores on the Sexual Orientation-Based Campus Victimization scale was supported in previous research by its positive associations with experiences of LGBTQ campus-based microaggressions (Woodford, Chonody, Kulick, Brennan, & Renn, 2015), stressful life events (Dragowski, Halkitis, Grossman, & D'Augelli, 2011), fearing for one's safety in school and the community (Pilkington & D'Augelli, 1995), and negative mental health outcomes (Dragowski et al., 2011). Alpha for the current sample was .77.

Satisfaction with college

We assessed overall satisfaction with college using Helm, Sedlacek, and Prieto's (1998) five-item College Satisfaction Scale. Sample items include "I would recommend this university to siblings or friends as a good place to go to college" and "Overall, my educational experience at this university has been a rewarding one." Each item is rated on a 7-point Likert-type scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Mean scores were used, with higher scores representing greater college satisfaction. Cronbach's alpha (.78) and structural validity (via exploratory factor analyses) were demonstrated. Construct validity was supported by its positive relations with perceived fair treatment by instructors and students, comfort in cross-cultural interactions, and respect for other cultures and by its negative relations with perceived racial tension and lack of support from faculty among a racial/ethnic diverse sample (Helm et al., 1998). Alpha for the current sample was .87.

Intention to persist in college

We assessed intention to persist in college using Pascarella and Terenzini's (1980) six-item Institutional and Goals Commitment subscale. Sample items include "It is important for me to graduate from college" and "It is likely that I will register at this university next fall." Each item is rated on a 5-point Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Mean scores were used, with higher scores representing greater intentions to persist in college. Cronbach's alpha (.71) and structural validity (via exploratory factor analyses) were demonstrated. Construct validity was supported by its ability to differentiate between students who dropped out and those who persisted at the university level (Pascarella & Terenzini, 1980). Alpha for the current sample was .61.

Anxiety

We assessed generalized anxiety disorder symptoms with Spitzer, Kroenke, Williams, and Löwe's (2006) 7-item GAD-7 scale. Participants were instructed to indicate how often they were bothered by various problems over the last two weeks. Sample items include "Worrying too much about different things" and "Trouble relaxing." Each item was rated on a 4-point Likert-type scale from 0 (*not at all*) to 3 (*nearly every day*). Mean scores were used, with higher scores representing more anxiety. Cronbach's alpha (.92), one-week test-retest reliability (.83) and structural validity (via exploratory factor analyses) were demonstrated. Construct validity was supported by its positive relations with measures of functional impairment and disability and independent diagnoses made by therapists and by demonstrating it was related but conceptually distinct from depression (Spitzer et al., 2006). Alpha for the current sample was .90.

Depression

Depression was assessed with the Patient Health Questionnaire-8 (PHQ-8; Kroenke et al., 2009), which consists of eight items reflecting Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria for the diagnosis of depressive disorders. Example items include "Little interest or pleasure in doing things" and "Poor appetite or overeating." Participants were instructed to respond to each item by indicating how often they have experienced each symptom over the past two weeks. Each item was responded to on a 4-point Likert-type scale from 0 (*not at all*) to 3 (*nearly every day*). Reported alphas were .86 and above (Kroenke, Spitzer, & Williams, 2001). Mean scores were used with higher scores representing greater levels of depression. Validity of scores on the PHQ-8 was supported by (1) similar findings of depression prevalence whether defined using DSM criteria or a PHQ-8 score greater than or equal to 10, (2) health-related impairment almost identical in depressed participants as defined by either method, and (3) presence of a diagnosed depressive disorder in participants with a PHQ-8 score greater than or equal to 10 (Kroenke et al., 2009). Alpha for the current sample was .89.

Results

We organize our results conceptually in terms of (1) item development, (2) exploratory factor analysis, (3) confirmatory factor analysis, and (4) construct and incremental validity.

Item development

We were interested in developing a brief scale to assess the general climate about LGBTQ persons and issues at an individual's university/college. We developed an initial list of 36 items to assess overall perceptions of campus climate, LGBTQ oppression and harassment, and LGBTQ visibility. We developed items based on a review of the literature as well as our own experiences of being LGBTQ on various college campuses. We then eliminated redundant items, items that we thought were outside the domain of interest, and items that were awkward or unclear. This reduced our initial item pool to 24 items. We then sent these 24 items to four reviewers knowledgeable about LGBTQ issues: one was an undergraduate student, two were graduate students, and one was a faculty member and former director of a university Pride center. Reviewers were instructed to examine the items for relevancy, representativeness, and clarity. They were also asked to provide any comments or suggested revisions on each of the items.

Based on this feedback, we dropped all the items assessing LGBTQ visibility (e.g., having "out" faculty, staff, and students, integration of LGBTQ issues in college courses, sponsoring LGBTQ-related groups, events, resources, and activities) because one reviewer noted that these were low-bar expectations, so even an unfriendly campus would likely have them. This feedback is also consistent with Garvey et al.'s (2015) finding that perceptions of an LGBTQ-inclusive curriculum and LGBTQ campus resources were not related to perceptions of the general campus climate among LGBTQ students. We also dropped items that focused narrowly on sexual orientation and items that were deemed redundant. We revised a few items to make them clearer, more inclusive of the whole LGBTQ spectrum, and/or to focus on students rather than faculty, staff, and students. We added an item about perceptions of the university's protection of LGBTQ students. This resulted in an initial 10-item scale. Responses for each item were rated on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores indicate more negative perceptions of the LGBTQ campus climate.

Exploratory factor analysis

To provide support for structural validity of our Perceptions of the LGBTQ Campus Climate Scale, we conducted an EFA using principal axis factoring. We

split the sample and used 200 participants (Sample 1) for the EFA and the rest for the confirmatory factor analysis (CFA; n = 446; Sample 2). Worthington and Whittaker (2006) noted that sample sizes of 150 to 200 are good for EFAs when communalities are greater than .50 or when factor loadings are greater than .40 and there is at least a 10:1 item per factor ratio. Preliminary analyses of the item correlation matrix suggested eliminating three redundant items due high inter-item correlations and one due to low correlations with all other items (Field, 2013). We subjected the remaining six items to the EFA. Results indicated that the data were appropriate for factor analysis (chi-square test of sphericity, $p < .001$) and the sample size was large enough to evaluate the factor structure (Kaiser-Meyer-Oklin measure of sampling adequacy = .82). Results of the parallel analysis using O'Connor's (2000) program for SPSS indicated a two-factor solution that accounted for 75% of the variance. We used promax rotation because we assumed that the factors would be correlated. Inspection of the factor correlation matrix supported this choice with the two-factor solution at .61 (Tabachnick & Fidell, 2013). Three items tapping into the college response to LGBTQ students loaded on Factor 1 (eigenvalue = 3.43) and accounted for 57% of the variance. Three items tapping into LGBTQ stigma on campus loaded on Factor 2 (eigenvalue = 1.07) and accounted for 18% of the variance. Table 1 shows the items, factor loadings, communalities (h^2), means, and standard deviations.

Internal consistencies (alpha) for scores were .82 for the College Response to LGBTQ Students subscale, .83 for the LGBTQ Stigma subscale, and .85 for the full scale. Inter-item correlations for the College Response to LGBTQ Students subscale ranged from .56 to .67, with an average inter-item correlation of .61. Inter-item correlations for the LGBTQ Stigma subscale ranged from .60 to .66, with an average inter-item correlation of .63. Inter-item correlations for the full scale ranged from .27 to .66, with an average inter-item correlation of .49.

Confirmatory factor analysis

To determine if the two-factor structure of scores on our Perceptions of the LGBTQ Campus Climate Scale observed in Sample 1 would replicate in Sample 2 (n = 446), we conducted a maximum likelihood CFA allowing the two latent variables to be correlated using Amos 23. For the one participant who had missing data on one item, we identified the subscale on which the missing data item was located and then calculated the corresponding subscale mean. We used this mean score for the item that had the missing data. Univariate and multivariate normality was supported.

According to Weston and Gore (2006), when sample sizes are less than 500, models with a comparative fit index (CFI) and Tucker Lewis index (TLI) of .95 or greater and root mean square error of approximation (RMSEA) and root mean square residual (RMR) values less than .06 signify an excellent fitting model. Models with CFI and TLI values between .90 and .94 and RMSEA and

Table 1. Factor analysis of perceptions of the LGBTQ college campus climate scale.

Item No.	Item	Loadings		h^2	*M* (*SD*)
		Factor 1	Factor 2		
(a) College Response to LGBTQ Students					
6	My university/college is cold and uncaring toward LGTBQ students and issues.	.88	−.03	.73	2.31 (1.35)
4	My university/college is unresponsive to the needs of LGBTQ students.	.73	.10	.64	3.11 (1.46)
1	My university/college provides a supportive environment for LGBTQ students. (RS)	.73	−.04	.50	2.40 (1.26)
(b) LGBTQ Stigma					
3	Negative attitudes toward LGBTQ persons are openly expressed on my university/college campus.	−.07	.86	.68	3.18 (1.60)
2	Heterosexism, homophobia, biphobia, transphobia, and cissexism are visible on my university/college campus.	−.02	.76	.56	4.44 (1.75)
5	LGBTQ students are harassed on my university/college campus.	.16	.71	.67	3.02 (1.50)

Note. RS = reverse scored. Each item was rated on a 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores indicate more negative perceptions of the campus climate.

RMR values between .06 and .10 signify an adequate fit to the data. The *p* value for the RMSEA test for closeness of fit (PCLOSE) should be greater than .50 (Byrne, 2010). We found that our two-factor model was an excellent fit to the data, $\chi^2(8) = 9.89$, $p = .27$, CFI = .999, TLI = .997, RMSEA = .023 (PCLOSE = .84), and RMR = .046. Factor loadings were all statistically significant, and standardized values ranged from .76 to 87.

Alphas for scores were .84 for the College Response to LGBTQ Students subscale, .85 for the LGBTQ Stigma subscale, and .87 for the full scale. Inter-item correlations for the College Response to LGBTQ Students subscale ranged from .57 to .67, with an average inter-item correlation of .64. Inter-item correlations for the LGBTQ Stigma subscale ranged from .62 to .66, with an average inter-item correlation of .65. Inter-item correlations for the full scale ranged from .41 to .67, with an average inter-item correlation of .53. Thus the results provided additional support for the two-factor structure and internal consistency for scores on the Perceptions of the LGBTQ College Campus Climate Scale.

Construct and incremental validity

Descriptive statistics and bivariate correlations based on the full final sample ($n = 646$) among all study variables are shown in Table 2. Supporting construct validity, the College Response to LGBTQ Students subscale, the LGBTQ Stigma subscale, and the full scale were each significantly ($p < .05$) positively correlated with LGBTQ victimization on campus, anxiety, and depression and negatively correlated with satisfaction with college and intention to persist in college. Thus perceptions of a more negative LGBTQ campus climate were associated with more victimization experiences and poorer mental health and academic outcomes. To determine if perceptions of the LGBTQ campus climate were uniquely related to poorer mental health and academic outcomes, we conducted a series of partial correlations controlling for LGBTQ victimization experiences. Supporting incremental validity, our findings revealed Perceptions of the LGBTQ College Campus Climate

Table 2. Descriptive statistics and correlations for all study variables.

Variables	*M*	*SD*	1	2	3	4	5	6	7
1. LGBTQ Campus Climate—full scale	3.16	1.26	–						
2 2. College Response to LGBTQ Students Subscale	2.71	1.33	.88*	–					
3. LGBTQ Stigma Subscale	3.61	1.51	.90*	.58*	–				
4 4. LGBTQ Victimization	.11	.23	.35*	.25*	.37*	–			
5 5. Satisfaction with College	5.61	1.15	−.56*	−.59*	−.41*	−.22*	–		
6. Persistence Attitudes	4.41	.53	−.27*	−.29*	−.19*	−.04	.53*	–	
7. Anxiety	1.45	.80	.25*	.17*	.27*	.23*	−.29*	−.22*	–
8. Depression	1.29	.78	.24*	.18*	.24*	.21*	−.32*	−.26*	.76*

Note: *$p < .05$.

full scale, College Response to LGBTQ Students subscale, and LGBTQ Stigma subscale were each significantly ($p < .05$) positively correlated with anxiety ($rs = .19, .12$, and $.21$) and depression ($rs = .18, .13$, and $.18$) and negatively correlated with satisfaction with college ($rs = -.53, -.57, -.36$) and intention to persist in college ($rs = -.27, -.29, -.19$), respectively.

Discussion

We provide initial support for the reliability and validity of scores on the 6-item Perceptions of the LGBTQ College Campus Climate Scale for assessing LGBTQ students' perceptions of their college's response to LGBTQ students and LGBTQ stigma on campus. Reliability support was provided via excellent Cronbach's alphas that were .82 or higher. Structural validity was supported via exploratory and confirmatory factor analyses, both with high factor loadings.

Supporting construct validity, scores on the Perceptions of the LGBTQ College Campus Climate Scale full scale and both subscales (College Response to LGBTQ Students and LGBTQ Stigma) were positively correlated with more LGBTQ victimization experiences on campus. Our findings are consistent with previous research demonstrating that perceived negative attitudes toward sexual minorities, sexual orientation–related safety, and the LGBTQ campus climate were related to more experiences of heterosexist harassment (Woodford & Kulick, 2015; Yost & Gilmore, 2011). Our results are also consistent with organizational psychology theory (Schein, 1990), which postulates that the culture of an organization can influence the way its members think and behave. It may be that a more negative campus climate concerning LGBTQ issues might provide an environment that fosters LGBTQ victimization.

Construct and incremental validity of scores on the LGBTQ College Campus Scale was supported by negative relations with satisfaction with college and intention to persist in college and positive relations with both anxiety and depression. These relations persisted even after controlling for LGBTQ victimization experiences. Our findings both converge and diverge from previous research. Woodford and Kulick (2015) found that both perceived negative attitudes toward sexual minorities on campus and perceived sexual orientation–related safety were related to less institutional satisfaction, but not related to academic disengagement. In addition, their findings were nonsignificant when including other variables, such as heterosexist harassment, in multiple regression models. Woodford, Kulick, et al. (2015) found that perceived negative attitudes toward sexual minorities were not related to anxiety, depression, alcohol abuse, and negative health symptoms. Our findings suggest that a negative LGBTQ campus climate may have negative effects on both academic and mental health outcomes for LGBTQ students and that students' perceptions of their college's response to LGBTQ students and LGBTQ stigma on campus may be the key ingredients when assessing the LGBTQ college campus

climate. Taken together, our results provide initial support for use of the Perceptions of LGBTQ College Campus Climate Scale as a research tool to further our understanding of the general climate concerning LGBTQ students and issues at various universities and colleges. Its brevity makes it particularly useful for use in institutional and large-scale studies.

Limitations and directions for future research

While the results of the current study are encouraging, further support for reliability (e.g., test-retest reliability) and validity of scores on the Perceptions of LGBTQ Campus Climate Scale is needed. Although our scale's shortness is an asset and the inclusion of the LGBTQ group as a whole offers practical utility, especially in reducing participant burden, it may not tap into the unique perceptions of subgroups of LGBTQ persons based on gender and sexual diversity and the intersections of these with other identities such as race/ethnicity and social class. Future research might test the scale among subgroups of LGBTQ students and examine measurement and structural invariance between groups.

Our results may be limited by participant self-selection. That is, students who were out or interested in LGBTQ issues may have been more likely to partake in this study. Generalizability is also limited by the use of a convenience sample that was predominately White and female. Other samples and sampling methods are needed to replicate findings. Our results based on correlational, cross-sectional data are consistent with, but do not directly test, the directions of causality suggested in our links between negative LGBTQ campus climate, LGBTQ victimization, and poorer psychological and academic outcomes. Future research using longitudinal and experimental designs is encouraged. Our study is also limited by the low alpha gleaned for the measure we used to assess intention to persist in college. Future research might include an alternate academic persistence measure.

Investigations are needed that examine antecedents to and consequences of the campus climate concerning LGBTQ students and issues. Future research examining potential mediators and moderators (e.g., coping styles, social support, involvement in LGBTQ campus activities, LGBTQ microaggressions) in the link between the LGBTQ campus climate and psychological, social, and academic outcomes is warranted. Students can have different experiences based on their major and the department to which they belong. For example, Blumenfeld et al.'s (2016) findings suggest that certain departments, particularly in the social sciences, humanities, and fine arts, appear to be more supportive of LGBTQ students. Future research might examine if a positive department climate related to LGBTQ issues serves as a buffer between a negative LGBTQ campus climate and student academic and mental health outcomes. Given recent research demonstrating links between interpersonal and policy-related heterosexist discrimination and positive

coping responses (Dunn & Szymanski, 2017; Rostosky, Riggle, Horne, & Miller, 2009; Swank & Fahs, 2013), future investigations might examine the link between perceptions of negative LGBTQ campus climate and involvement in LGBTQ student activism on campus. Longitudinal research examining campus climate changes over time as well as their impact on relevant student outcomes is important. Further research is also needed to examine the efficacy of programs designed to improve the LGBTQ campus climate.

Practical implications

Our scale offers an accessible, practical, and useful tool for assessing perceptions of the LGBTQ college campus climate. It can be used freely for non-commercial purposes. It is our hope that with greater access to campus climate measures, more research can be done on LGBTQ students and the issues they face. College and university administrators can use the Perceptions of the LGBTQ College Campus Climate Scale to quickly and easily evaluate LGBTQ students' perceptions of their campus climate and/or to assess changes in those perceptions over specific time periods. It can also be used to evaluate programs designed to improve the campus climate concerning LGBTQ students and issues. Efforts aimed at improving the LGBTQ campus climate might include being caring and responsive to LGBTQ students and issues, decreasing negative attitudes and behaviors toward LGBTQ individuals, and publicly admonishing them when they do occur. Faculty and staff, including helping professionals, working at LGBTQ-unfriendly colleges need to be aware of the potential negative effects of the perceived negative climate on LGBTQ students and clients and intervene when appropriate. For example, a therapist working with a LGBTQ student at a college counseling center with a negative LGBTQ campus climate might ask questions about their perceptions of the LGBTQ campus climate and, if appropriate, facilitate exploration of how these might be connected to their mental health symptoms.

Conclusion

Our study makes a significant contribution to the existing literature on the LGBTQ university/college campus climate by attending to previous limitations concerning measurement issues. As such, we developed a brief 6-item measure, Perceptions of the LGBTQ College Campus Climate Scale, to quickly and easily evaluate LGBTQ students' perceptions of their campus climate. We provide evidence for structural, construct, and incremental validity, as well as reliability for scores on this new measure. We hope that the accessibility and quality of this new scale stimulates more sophisticated research on LGBTQ issues on college campuses. It can also serve as a relevant tool for college administrators, faculty, staff, and students involved in initiatives aimed at improving the campus climate for LGBTQ students.

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