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Loneliness Rates Among Undergraduates According to the National College Health Assessment From 2008 to 2019

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ABSTRACT. The present study documented undergraduate loneliness rates from fall 2008 to spring 2019. Participants consisted of undergraduates who completed the National College Health Assessment II (NCHA II) during this time period. The NCHA II assessed loneliness by having students self-identify if they had felt "very lonely" within the last 12 months. We found that 54.90% to 67.40% of undergraduates self-identified as feeling "very lonely" during these survey periods. Results indicated that most undergraduates experienced loneliness, and undergraduate loneliness rates had been increasing, even after controlling for gender, race, response rate, residential status (domestic versus international), public versus private, school type (two-year versus four-year), and school size (< 5,000, 5,000–20,000, and > 20,000).

Keywords: loneliness, undergraduates, national assessment, cross-temporal data, counseling

Loneliness—also referred to as perceived social isolation—is the aversive perception of a discrepancy between one's desired and actual social relationships in either quantity or quality (Hawkley & Capitanio, 2014; Peplau & Perlman, 1982). Due to its subjective nature, people can experience loneliness despite being in the company of others (House et al., 1988; Matthews et al., 2017; Pinquart & Sorensen, 2001; Stoliker & Lafreniere, 2015). One's experience of loneliness may be influenced by factors such as frequency of social interactions, physical proximity to others, level of social support, and level of disconnectedness from one's social networks (Bell & Gonzalez, 1988; Cacioppo & Hawkley, 2009; Hudson et al., 2000; Wright et al., 2013). Although loneliness can occur among any age group, CIGNA (2018) reported that Generation Z has the highest loneliness rate among five generations (Generation Z, millennials, Generation X, Baby Boomers, and the Greatest Generation).

Among Generation Z, loneliness may be particularly prevalent among college students (Cutrona, 1982; Ponzetti, 1990), potentially stemming from the numerous stressors experienced by adolescents transitioning into emerging adulthood (ages 18–29) as they navigate new social contexts (Qualter et al., 2015). This heightened susceptibility to loneliness warrants immediate concern, as loneliness is significantly correlated with negative health consequences such as impaired sleep quality (Matthews et al., 2017); hazardous lifestyle choices, such as binge drinking, drug abuse, and overeating (Hoover et al., 1979; Knox et al., 2007; Sherry et al., 2012); and increased risk of depression and suicide (Hoover et al., 1979; Matthews et al., 2017; Van Orden et al., 2008; Weber et al., 1997; Westefeld & Furr, 1987).

To our awareness, only two cross-temporal studies have examined U.S. undergraduate loneliness rates. In a meta-analysis, Clark et al. (2014) found that loneliness in both high schoolers and undergraduates slightly declined between 1978 and 2012. In the other study, Buecker et al. (2021) found a modest increase in loneliness among emerging adults from 1976 to 2019. One possible explanation for Clark et al. (2014) and Buecker et al.'s (2021) discrepant findings may be that they did not examine identical data sources, ranges of years, and age groups (Buecker et al., 2021). For instance, Clark et al. (2014) included data from high school students who completed Monitoring the Future

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surveys (MtF), whereas Buecker et al. (2021) neither included high school students nor examined data from MtF. In the present study, we attempted to reconcile these contradictory findings by using data from the American College Health Association's (ACHA) National College Health Assessment II (NCHA II). This assessment has health data from 2000 to the present from students from over 1,100 public, private, two-year, and four-year colleges or universities. For the purposes of this study, we specifically examined loneliness data collected from 2008 to 2019 (ACHA, n.d.). The NCHA first assessed loneliness in 2008 using a single item; however, since 2019, the NCHA has assessed loneliness using a different measure. Thus, the longest time span that was available to examine loneliness trends among undergraduates was from 2008 to 2019.

In examining the correlation between time and loneliness rates, it is important to consider whether this relation is associated with changes in the population of interest or changes in the composition of the sample. For instance, it is possible that the samples skewed more female over time, and women might have reported experiencing more loneliness than men (Borys & Perlman, 1985; Nicolaisen & Thorsen, 2024). As another example, the population of international students might have increased as a result of the growing diversity of college campuses. This demographic shift could contribute to an increase in loneliness rate as international students may feel lonely adjusting to an unfamiliar environment (Sherry et al., 2010). Other possible conflating variables include race (Diehl et al., 2018; Taylor & Nguyen, 2020), response rate (Fosnacht et al., 2017; Perneger et al., 2014; Rindfuss et al., 2015), public versus private (Ketchen Lipson et al., 2014), school type (two-year versus four-year), and school size (Ketchen Lipson et al., 2014). Thus, we examined the correlations between time and loneliness rates while taking into account these potentially conflating variables. By accounting for these factors, we aimed to provide a more nuanced understanding of the trends in undergraduate loneliness rates over time.

Given the limited prior research on this specific time frame and population, our approach was not hypothesis-driven. The primary goal of the present study was to document loneliness rates among undergraduates in the United States from 2008 to 2019 according to data from the NCHA II. A secondary goal was to test whether we would also see Clark et al.'s (2014) finding of a weak decrease in loneliness from 1978 to 2012 when the range of years was restricted to 2008 to 2012, and whether we would see Buecker et al.'s (2021) finding of a weak increase in loneliness from 1976 to 2019.

Method

Data

To assess loneliness rates in undergraduates from 2008 to 2019, we conducted a secondary analysis of the NCHA II. Like other versions of the NCHA, the NCHA II is a comprehensive, nationally representative survey that covers a broad range of mental and physical health issues among college students in the United States (Lederer & Hoban, 2022). The NCHA has demonstrated past reliability and validity with its data through systematic evaluation and comparison with other nationally representative data sets, including the National College Health Risk Behavior Survey (Douglas et al., 1997) and the College Alcohol Study (Lee et al., 2000).

The NCHA has been administered during the fall and spring semesters at postsecondary institutions that choose to participate. The NCHA has provided data only from schools that used random selection (by student or classroom) to administer the survey. Some institutions offered incentives to students for completing the survey, whereas others did not. The NCHA was administered only on paper until 2003, when the NCHA-Web version first became available. The format of administration of the NCHA (i.e., paper or web) was left to each institution's discretion.

Data from the NCHA II range from fall 2008 to spring 2019 (ACHA, n.d.). However, because the ACHA did not publish findings on undergraduates separate from graduate students until spring 2011, we requested undergraduate demographic and loneliness data using the NCHA Data Request Form for survey periods prior to spring 2011. For survey periods from spring 2011 to spring 2019, we extracted undergraduate demographic and loneliness rates from the ACHA's published reports. These data are publicly available and anonymous; thus, we received exemption from Pepperdine University's IRB for our study.

Sample

From fall 2008 to spring 2019, undergraduates from 1,532 American colleges/universities participated in ACHA-NCHA II. Approximately 92% of respondents were 18–29 years old, and 65% were women. The racial and ethnic breakdown was approximately 70% White, 12.40% Asian or Pacific Islander, 11% Hispanic or Latino/a, and 6.50% Black or African American. Other groups included approximately 4% Biracial or Multiracial, 2.75% Other, and 2% American Indian or Alaskan Native.

Instrument

The NCHA II measured loneliness by asking students if they had felt "very lonely" in the last 2 weeks, in the last 30 days, and in the last 12 months. The NCHA II categorized and reported the percentage of students who

answered in the affirmative to any of the three questions as being lonely within the last 12 months. We used these reported (collapsed) percentages in our analyses.

Coding for Survey Period

Survey period consisted of the academic term (fall, spring, or summer) and the calendar year (e.g., 2012). We coded the survey period with a linear step value of 1 for each subsequent survey period. Thus, the coding of the variable survey period was *1 = fall 2008*, *2 = spring 2009*, *3 = summer 2009*, . . ., and *32 = spring 2019*. Because the ACHA does not administer the NCHA during the summer academic terms, we did not have loneliness rates for summer academic terms.

Analytical Procedures

We used SPSS Version 25 to conduct statistical analyses. For data from fall 2008 to spring 2019, we computed the Pearson correlation coefficient for the relationship between survey period and the percentage of students who self-identified as being "very lonely" in the last 12 months. Our decision to focus on the 12-month prevalence of loneliness was informed by the guidelines outlined by the National Institute of Mental Health (n.d.). Although point prevalence measures (i.e., last 2 weeks and last 30 days) provide valuable information, the 12-month period prevalence best reflects both transient and persistent experiences of loneliness throughout the past year.

Each data collection was done randomly; therefore, it is possible that some students completed more than one survey. To account for this possibility, instead of using $\alpha = .05$, we used $\alpha = .01$. The more stringent α level of .01 compensates for artificially small standard errors if some students completed the NCHA in multiple survey periods.

Results

Loneliness Rates

As shown in Table 1 and Figure 1, undergraduate

TABLE 1

Percent of Undergraduates Who Self-Identified as Feeling "Very Lonely" in the Last 12 Months From Fall 2008 to Spring 2019

Term	Year	Percent Lonely	Sample Size	Response Rate (%)*	Gender (% Female)	Race (% White)	Residential Status (% Domestic)	4-year vs. 2-year (% 4-year)	Public vs. Private (% public)	School Size (% midsize)	Reference Footnote
Fall	2008	61.0	22,717	22	69.6	77.1	93.7	92.5	55.0	40.0	1
Spring	2009	58.8	69,928	20	65.0	76.7	93.1	94.0	64.1	50.4	2
Fall	2009	57.2	28224	21	65.1	72.0	90.9	89.5	54.4	38.6	3
Spring	2010	57.6	80,069	21	64.3	73.1	93.1	86.3	64.0	41.7	4
Fall	2010	54.9	25,858	19	65.1	66.1	92.6	92.3	61.5	41.0	5
Spring	2011	58.8	83,252	21	65.7	75.3	92.8	93.8	65.1	44.2	6
Fall	2011	58.3	23,289	21	67.6	77.0	92.9	90.9	52.3	40.9	7
Spring	2012	58.4	75,222	20	66.3	74.5	92.8	94.3	58.2	34.8	8
Fall	2012	57.5	23,857	16	67.8	72.8	92.6	94.1	45.1	37.3	9
Spring	2013	57.0	94,812	18	65.9	67.4	92.8	83.0	68.6	52.9	10
Fall	2013	57.7	25,566	17	67.8	69.5	92.5	87.7	59.6	38.6	11
Spring	2014	60.6	65,719	18	66.4	78.0	93.1	94.3	56.4	31.4	12
Fall	2014	60.5	20,839	15	65.8	68.3	94.4	97.1	52.9	41.2	13
Spring	2015	60.5	73,316	18	68.3	69.9	94.5	95.4	66.7	41.7	14
Fall	2015	59.5	16,084	15	68.0	78.0	95.4	92.5	60.0	30.0	15
Spring	2016	60.8	57,336	16	58.2	64.2	95.3	93.4	63.5	33.6	16
Fall	2016	62.3	26,745	17	70.0	70.7	95.4	94.1	56.9	33.3	17
Spring	2017	64.4	46,132	19	69.0	73.3	94.4	97.8	46.7	37.0	18
Fall	2017	64.4	25,184	17	67.0	74.7	95.8	90.4	50.0	30.8	19
Spring	2018	64.4	70,900	15	71.3	64.7	95.8	97.9	68.6	36.4	20
Fall	2018	65.0	18,834	15	68.0	65.5	94.6	92.5	65.0	42.5	21
Spring	2019	67.4	51,830	17	70.0	63.6	95.5	89.8	66.3	38.8	22

Note. 1–5, 11,13 M.T. Hoban (personal communication, August 20, 2021). 6–10, 12, 14–22 Data come from ACHA-NCH.
* Response rates come from full reports of web survey administration only (per M.T Hoban's advice, personal communication, February 2, 2024)

loneliness rates were the lowest at 54.90% in fall 2010 and the highest at 67.40% in spring 2019. We found a strong positive correlation between survey period and loneliness rate (percentage of students who self-identified as being "very lonely" in the last 12 months) between fall 2008 and spring 2019, $r(20) = .80$, $p < .001$.

As previously noted, we considered whether changes in loneliness rates were due to shifts in the population or sample composition. Our analyses examined the correlations between loneliness rates and the following potentially conflating variables: gender, race, response rate, residential status (domestic versus international), public versus private, school type (two-year versus four-year), and school size. For these variables, we entered the percentages for the category with the largest average across the 22 surveys (see Table 1).

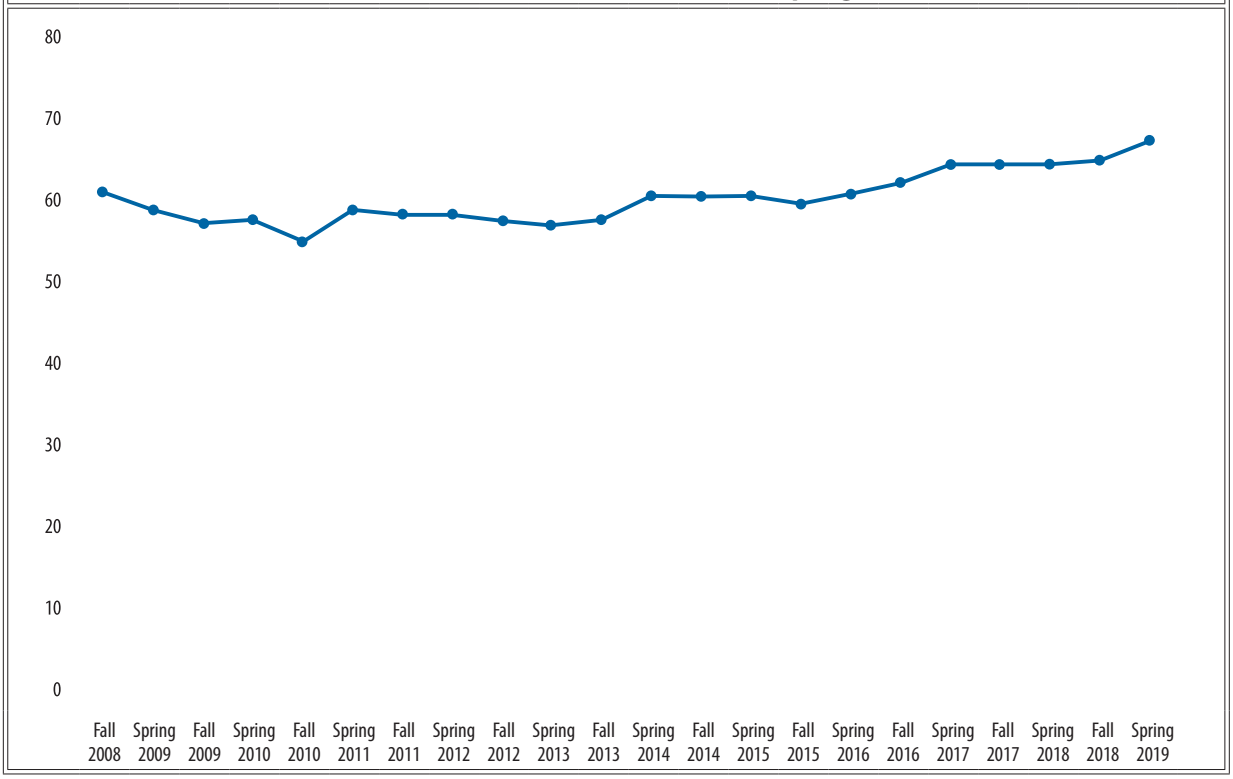
The mean percentage of students experiencing loneliness was notably high ($M = 60.32\%$, $SD = 3.18\%$; see Table 2). Loneliness rate showed the strongest correlation with survey period (time), $r(13) = .80$, $p < .001$. In addition to time, the percentage of domestic students was also strongly correlated with loneliness rate, $r(13) = .79$, $p < .01$. The percentage of domestic students was also strongly correlated with time, $r(13) = .80$, $p < .001$, suggesting that the number of domestic students taking the survey has been increasing. However, even when controlling for the percentage of domestic students and the other possibly conflating variables, the partial correlation between loneliness rate and survey period remained highly significant, $r(13) = .66$, $p = .004$.

In addition to the partial correlation, one can control for the possibly conflating variables by running a hierarchical (sequential) regression with these variables entered in the first block as control variables and then entering the main variable of interest, which was survey period, in the second block. When we did this, the hierarchical regression with just the control variables identified above resulted in an R^2 of .73 [$F(7, 14) = 5.30$, $p = .004$]. When we next entered survey period, R^2 was .85 [$F(8, 13) = 8.90$, $p < .001$], which was an R^2 change of .12. This change was significant, $F(1, 13) = 10.42$, $p = .007$ (see Table 3).

Regardless of which statistical procedure was used, we arrived at the same conclusion: even after controlling for gender, race, response rate, residential status (domestic versus international), public versus private, school type (two-year versus four-year), and school size, survey period still accounts for a significant amount of the variance in

FIGURE 1

Percent of Undergraduates Who Self-Identified as Feeling "Very Lonely" in the Past 12 Months From Fall 2008 to Spring 2019



loneliness rate. In other words, the positive relationship between survey period and loneliness rate remained.

Reconciling Findings of Buecker et al. (2021) and Clark et al. (2014)

Consistent with Buecker et al.'s (2021) finding of an increase in loneliness rates from 1976 to 2019, we found an increase in loneliness rates from 2008 to 2019. Whereas their analyses were with emerging adults (ages 18–29), our analyses were with undergraduates. Undergraduates could be over the age of 29, but almost all undergraduates in our sample were 18–29 years old.

In addition, we examined if we would observe Clark et al.'s (2014) finding of a small decrease in loneliness among college students from 1978 to 2012 for NCHA loneliness data from 2008 to 2012. We found a weak negative correlation, $r(7) = -.34$, $p = .37$. This correlation, however, was not statistically significant.

TABLE 2

Descriptive Statistics and Zero-Order Correlations.

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. Percent Lonely	60.32	3.18	-								
2. Survey Period	16.50	9.72	.80***	-							
3. Response Rate	18.09	2.29	-.42	-.78***	-						
4. Percent Female	66.92	2.70	.46*	.33	-.13	-					
5. Percent White	71.47	4.76	-.28	-.50*	.51*	.08	-				
6. Percent Domestic	93.82	1.35	.79***	.80***	-.62**	.27	-.30	-			
7. Percent 4-year Institution	92.44	3.64	.35	.26	-.25	.21	.06	.36	-		
8. Percent Public Institution	59.13	6.92	.04	.08	-.08	-.11	-.47*	.15	-.25	-	
9. Percent Midsize Institution	38.96	5.73	-.32	-.43*	.34	-.11	-.16	-.42	-.35	.42*	-

Note. Number of Survey Periods: 22
*$p < .05$. **$p < .01$. ***$p < .001$.

TABLE 3

Beta Weights for Heriarchial Regression Predicting Loneliness Rate (Percent Lonely)

	Model 1				Model 2			
Variable	*B*	Std. Error	β	Sig	*B*	Std. Error	β	Sig
(Constant)	-129.44	47.13		.02	-62.67	42.31		.16
Response Rate	.34	.29	.24	.27	.71	.26	.51	.02
Percent Female	.31	.18	.26	.10	.13	.15	.11	.39
Percent White	-.17	.13	-.26	.21	-.02	.11	-.02	.90
Percent Domestic	1.87	.50	.80	.00	.94	.49	.40	.08
Percent 4-Year iiInstitution	.04	.14	.04	.79	.1	.11	.11	.41
Percent Public iiInstitution	-.07	.09	-.14	.46	-.04	.07	-.08	.61
Percent Midsize IInstitution	-.00	.11	-.00	.99	.07	.09	.13	.41
Survey Period					.28	.09	.87	.01
R Squared			.73				.85	
Adjusted *R* Squared			.59				.75	

Note. Number of Survey Periods: 22

Discussion

Findings on national loneliness rates among undergraduates are rare (Clark et al., 2014). To address this gap in the literature, we documented loneliness rates from 2008 to 2019 among undergraduates in the United States. We found that most undergraduates in the United States are lonely, supporting previous research claims (e.g., Diehl et al., 2018). Furthermore, our findings did not corroborate Clark et al.'s (2014) finding that undergraduate loneliness rates slightly declined from 2008 to 2012; instead, our findings indicated a general, incremental increase in loneliness rates from 2008 to 2019, supporting Buecker et al.'s (2021) finding that loneliness rates among emerging adults are increasing.

Regarding how demographic changes might have influenced loneliness rates, the negative correlation between response rate and survey period suggests that, as time progressed, fewer students participated in the survey. This finding could indicate a range of possible reasons, such as survey fatigue or declining engagement with surveys, which, in turn, could affect loneliness rates due to a smaller pool of survey respondents. On the other hand, the positive correlation between the percentage of domestic students and survey period indicates that, as time progressed, the number of domestic students increased. This demographic shift could reflect changes in university admissions policies, fluctuations in international student numbers due to geopolitical factors, or shifts in the rates at which the domestic population goes to college. An increase in domestic students could, in various ways, impact the social dynamics on campus, potentially contributing to feelings of loneliness—especially if they lead to a sense of cultural or social homogeneity. However, our analyses also suggest that survey period is still a strong predictor of loneliness, even after controlling for these variables. Although demographic changes may certainly play a role, they do not seem to fully account for the increase in loneliness.

Limitations

One limitation is the inability to distinguish between the percentage of participants who completed the survey on paper versus those who completed it online, as the mode

of survey administration can influence responses (Sax et al., 2008). In the present study, we only have response rate data for participants who completed the web survey, which limits our ability to fully understand how survey platform might have affected our responses. Despite this limitation, most students completed the survey online, and response rates for the web survey were also higher than for the paper survey; thus, it was recommended by the ACHA's Chief Research Officer to include data only from those who completed the web survey (M.T. Hoban, personal communication, February 2, 2024). Additionally, the correlation between loneliness rate and survey period remained strong even when response rate was controlled for, highlighting that it is unlikely to be influenced solely by mode of survey completion.

Another limitation is that loneliness was measured using a single item. In addition, we could not assess test-retest reliability because of the absence of repeated measures for all participants. Nonetheless, it is important to recognize the subjective nature of loneliness, which the single item measures directly by asking respondents to reflect on their personal feelings of loneliness. The use of this direct approach is supported by previous research indicating that single-item measures of loneliness—although lacking the depth and dimensionality of multi-item measures—can still effectively capture the construct (Mund et al., 2022).

Moreover, the single item does not differentiate between transient and persistent feelings of loneliness over the past 12 months. This distinction is crucial, as previous research suggests that the frequency and duration with which loneliness is experienced is critical in understanding its potential negative consequences (Martín-María, 2020). However, the single-item measure used in our study effectively captures the prevalence of loneliness among undergraduates, which was our primary objective. This foundation paves the way for more nuanced future investigations. We advocate for future studies—whether correlational or experimental—to delve deeper into the frequency and persistence of loneliness. Such research is crucial for expanding understanding of the complex relationship between loneliness and its psychological impact.

Additionally, our results might have been affected by nonresponse bias due to low response rates averaging about 13% (Wu et al., 2022). Although it is true that a low response rate can bias results if there are significant differences in response rate between respondents and nonrespondents on the variables of interest, researchers have found that greater survey participation only minimally impacts survey results and data quality (Fosnacht et al., 2017; Perneger et al., 2014; Rindfuss et al., 2015). Additionally, a high rate of nonresponse only increases the potential for bias; it does not conclusively bias results (Massey & Tourangeau, 2013). Indeed, Fosnacht et al. (2017) found that most surveys with low response rates of even 5% to 10% were reliable, provided the administration included at least 500 students, a criterion that our study far exceeded.

Furthermore, although the NCHA provides national data from a large number of students, it is subject to self-selection bias. Students at participating schools were able to choose whether to participate or not. Self-selection prevents a sample from being representative of a population and, therefore, generalizable (Heckman, 2010). Individuals of certain demographics (e.g., female, higher socioeconomic status, White) are more likely to participate in survey research than individuals of other demographics (Goyder et al., 2002; Jang & Vorderstrasse, 2019; Smith, 2008). Data from the NCHA support this finding. In the NCHA II, female students made up an average of 65.59% of undergraduate participants. However, the National Center for Education Statistics (NCES) reports that female students actually made up around 58% of undergraduates between 2009 and 2019 (*COE - Undergraduate Enrollment*, 2021). In addition, White students made up an average of 70% of undergraduate participants in the NCHA II. However, according to the 2018 United States Census Bureau and the NCES, White students made up just over 50% of undergraduates in 2017 (US Census Bureau, 2018).

Directions for Future Research

One direction for future research is to investigate loneliness rates by different social categories (e.g., race, gender identity, income). As previously noted, loneliness rates and survey participation may vary significantly across demographics. Averaging rates across individuals from diverse demographic backgrounds may obscure important nuances and variations in the data (Speelman & McGann, 2016).

A second direction for future research is to take an intersectional approach when examining loneliness among college students. "Intersectionality" refers to an interdisciplinary analytical paradigm often used to examine individuals' experiences through the lens of intersecting, systematically oppressed identities in diverse contexts (Cole, 2009). Utilizing this paradigm can help illuminate the unique challenges faced by minoritized individuals (Robards et al., 2020). Existing research on minoritized undergraduate populations reveals that these groups often experience heightened levels of loneliness compared to other groups (Diehl et al., 2018). Moreover, a study by Elmer et al. (2022) examining loneliness rates among the LGBTQ+ found

that minoritization is closely associated with loneliness and that minority status contributes to cross-cultural loneliness. To increase awareness of how loneliness affects minoritized individuals and to more equitably address their social well-being needs, we strongly advocate for conducting research with minoritized communities using an intersectional framework.

A third direction for future research is to continue to examine loneliness rates cross-temporally while employing one consistent measure. Although the ACHA provides data on undergraduate loneliness from 2008 to 2023, the method for assessing loneliness changed in 2019 with the administration of the newest version of the NCHA (the NCHA III). Because this shift in measurement introduces a source of discontinuity in the data, we chose not to include data from the NCHA III. Furthermore, previous research (e.g., Conti et al., 2023) has found that the COVID pandemic had a profound influence on undergraduates' experiences with loneliness. Thus, we recommend that future studies examine loneliness from many years prior to and many years following the COVID pandemic to account for the influence it may have had on undergraduate loneliness.

In sum, this study investigated loneliness rates among undergraduates in the United States from fall 2008 to spring 2019 using data from the ACHA's NCHA-II. We found that (a) most undergraduates in the United States were lonely and (b) loneliness rates were increasing. A better understanding of loneliness rates can help inform practices aimed to prevent and combat loneliness and promote well-being among undergraduates.

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