

Disparities in self-reported health measures amongst sexual minority compared to sexual majority university students

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Disparities in self-reported health measures amongst sexual minority compared to sexual majority university students

University students often experience significant changes to their environment and lifestyles which can present unique risk factors for health and wellbeing. This may particularly be the case for sexual minority students, given they are a group that suffer health disparities within the general population. Therefore, we sought to compare sexual minority university students self-reported health and health-related behaviours against sexual majorities within one university in the United Kingdom. Findings come from 566 students, of which 84% identified as sexual majorities and 16% as sexual minorities, that completed a cross-sectional online survey covering a range of health and wellbeing related questions. Analysis showed that sexual minority students had lower self-rated physical and mental health, greater nicotine intake, were more likely to report barriers to physical activity and healthy eating, were less confident in meeting physical activity guidelines, were more likely to report difficulty in motivation to eat healthily, and reported lower levels in feelings of belonging and social connection compared to sexual majority students. Based on these findings, it is suggested that sexual minority university students experience health disparities within higher education and that this warrants attention from relevant stakeholders concerned with health promotion and student welfare.

Keywords: LGB; sexual minorities; public health; university students

Subject classification codes: Health Policy and Student Wellbeing

Introduction

Attending university marks a significant period in peoples' lives. For young people, it is a life stage characterised by greater autonomy in decision making, establishing new social influences and peer networks, exposure to novel stressors, increased levels of independence and, for many university students, the requirement to self-manage their overall lifestyle. Importantly, the transition can result in behavioural and environmental changes that can cause adverse health outcomes for many young adults (Deliens et al., 2015). These adverse health outcomes may include poor mental health (Auerbach et al., 2018; Lipson et al. 2019), decreased physical activity (Vella-Zarb and Elgar, 2009), increased sedentary behaviours (Castro et al., 2020), disrupted sleep patterns (Russel et

al., 2019), sub-optimal dietary behaviours (Tanton et al., 2015), unfavourable changes to body composition (de Vos et al., 2015), elevated alcohol consumption (Wicki et al., 2010) and substance misuse (Bogowicz et al., 2018). Whilst not an exhaustive list, the literature indicates that university students may encounter unique health challenges compared to the general population.

These issues are particularly prevalent amongst Lesbian, Gay and Bisexual (LGB) or sexual minority university students when compared to sexual majorities. Within the general population, sexual minority groups report greater health-related problems, both physical and mental, when compared to sexual majority groups (Cochran et al., 2016). This is also observed within university populations. For example, Crawford and Ridner (2018) reported that, amongst a United States (US) student sample, sexual minorities had significantly lower well-being scores (yielded using the Public Health Surveillance Well-Being Scale) compared to heterosexual respondents. Bourdon et al. (2020) also reported that LGB students were more likely than heterosexual students to seek university services for anxiety and depression within a US sample. Other research findings include sexual minority students having higher rates of alcohol and substance use (Reed et al., 2010; Kerr et al., 2014), higher prevalence of eating disorders (Austin et al., 2013), reported problems with maintaining a healthy diet (Laska et al., 2015), lower levels of physical activity (Brittain and Dinger, 2015) and more reported barriers to physical activity (VanKim et al., 2016). Much of this research has been based in the US, with a distinct dearth of research in the United Kingdom (UK).

Taken together, available research points towards health disparities for sexual minority university students. This is particularly important within the university setting as many health-related behaviours and lifestyle factors are established during late adolescence and early adulthood (van Sluijs et al., 2021). This highlights the university setting as a key location for targeted health-promoting interventions which may have wide reaching influence on public health, particularly with the increasing trend of university attendance. In the academic year 2021/22, a total of 2.86 million individuals were registered at a higher education institution in the UK (House of Commons Library, 2023). This represents a significant proportion of the UK population and due to the university setting having unique risk factors for the development of health-negating

behaviours, the health of university students is a contemporary and significant public health issue.

Sexual minority university students may be a particularly at-risk group for adverse health outcomes as they occupy two populations that research has identified for having unique risk factors for health: university students and sexual minority youth. Of the large student population in the UK, a recent report from Stonewall and UCAS (2021) suggests 1 in 13 university applicants self-identify as LGBTQ+. It is important this community of students are considered within educational and health-related research, policy and practice. Thus, on account of the dearth of research in the UK context, the purpose of this study was to compare sexual minority university students self-reported health and health-related behaviours against sexual majorities. Based on current knowledge, we hypothesised that sexual minority students would rank lower across the health-related outcome measures than sexual majority students.

Methods

Study design

A descriptive study based on the analysis of cross-sectional survey data from a subsample of university students who participated in a larger study focused on student health and well-being was undertaken (Roberts et al, 2023). The original survey was an exploratory study which captured a range of health and well-being measures. In the current study, we report the main self-rated health and health-related behaviour outcomes from the original survey which are detailed below. Details of the survey design can be viewed elsewhere (Roberts et al, 2023; Roberts et al, 2024) and full dataset can be viewed via the link provided in our data availability statement. Ethical approval was granted at faculty level prior to data collection (Code: 212214)

Data were collected at one university in the UK between April and June 2023. To be eligible for participation, respondents were required to be an active student at the university, with no exclusion criteria against year of study, level or programme. Email invitations to participate in the study were sent on behalf of the researchers by

administrative staff at the university. All programme leaders across the institution were contacted to request permission to post on their course page within the virtual learning environment which would have students from all levels of study enrolled on.

Upon completion, participants could enter a prize draw for two £100 supermarket vouchers. We suspect this will have attracted a large number of students to participate beyond interest in the research per se. A possible limitation then, which may influence any survey based research, is that participants ‘skipped’ through or did not give due attention with the motivation being only to enter the prize draw. Measures were put in place to mitigate against this such as keeping the survey as brief as possible, advertising it widely as an opportunity to share their student voice and making it so that entry into the prize draw came after full completion. Whilst accepting this limitation, we also stress that such remuneration was in an attempt to go some way to addressing the power imbalances often present between researchers and participants by trying to ‘give something back’ within the (limited) budget from the grant that supported this research. We described in (Roberts et al, 2023; Roberts et al, 2024) that the survey was also developed over a series of group workshops with students, all of which were paid for their time.

Participants

There were a total of 590 valid responses to the original survey, which represents 4.7% of the total student population at the university (n = 12554). Of these, 15% (n = 89) identified as a sexual minority: Gay or Lesbian (n = 20), Bisexual (n = 50) and Other/Prefer to self-describe (n = 19). For this study, we removed those that selected ‘Prefer not to say’ (n=24) in response to sexual orientation. Therefore, the total sample reported on in the current study is 566, with 84% identifying as sexual majorities and 16% as sexual minorities. Breakdowns of the demographic details of participants are displayed in Tables 1 and 2.

[Tables 1 and 2 here]

Survey measures

Demographics

In the first section of the survey broader demographic questions were included. Data were collected on age, gender, sexuality, ethnicity, year of study and programme of study.

Self-reported health

General health was assessed through a single-item self-rated health quality measure (Bowling, 2005). The measure included a 5-point Likert scale (Very good, Good, Fair, Poor and Very poor) which asked respondents, “In general, how would you rate your physical health?”. The same question was used for mental health. This single item measure has been shown to be of comparable validity to multi-item health-oriented questions (Ahmad et al., 2014) and was favoured due to its ease in administration and reduction in time to complete the survey.

Sleep quality

The Single-Item Sleep Quality Scale (Snyder et al., 2018) was used to assess sleep quality. The scale yields a possible score of 0-10, with 10 indicating ‘Excellent’ and 0 ‘Terrible’. The scale asks respondents to rate their overall sleep quality for most nights in the past 7 days.

Social connection and sense of belonging

Social connection and sense of belonging amongst university students has been identified as a predictor of a range of health outcomes (van Gijn-Grosvenor and Huisman, 2020). As such, participants were asked to respond to the following statement on a 5-point-Likert-Scale (Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree), "I feel part of the student community and have a sense of social connection to the university".

Physical activity

Current PA levels was assessed with a single item, that is, “In the past week, on how many days have you done a total of 30 min or more of physical activity, which was enough to raise your breathing rate? This may include sport, exercise and brisk walking or cycling for recreation or to get to and from places but should not include housework or physical activity that is part of your job” (Milton, Clemes, and Bull, 2012). The scale has demonstrated good validity in comparison to accelerometers (Wanner et al., 2014). For the Single-Item Measure, those reporting zero days of activity were classified as ‘inactive’, those reporting between 1 and 4 days were considered ‘fairly active’, and those reporting 5 days or more were considered ‘active’ (Milton et al., 2017).

Respondents were also asked about awareness of UK government physical activity guidelines, confidence in adherence to guidelines and if they felt they experienced any barriers to engaging in physical activity whilst at university.

Eating behaviours

Participants were asked to select their response to the statement, “I can motivate myself to eat appropriately” with responses along a 5-point Likert scale (Strongly agree, Agree, Neutral, Disagree, Strongly disagree). Participants were also asked if they felt they experienced any barriers to healthy eating.

Alcohol and nicotine consumption

Reported alcohol consumption was assessed using the question: “How often do you have a drink containing alcohol?”. Nicotine consumption was estimated using a single question “How often do you consume any nicotine containing products? E.g., cigarettes, electronic cigarettes (vapes)?” with responses on an 8-point scale (never, less than once per week, 1-2 times per week, 3-4 times per week, 5-6 times per week, 1-2 times per day, 3-4 times per day, and 5 or more times per day).

Data analysis

Data were analysed using IBM SPSS Statistics for Windows (Version 28, IBM Corp., Armonk, NY, USA). Descriptive statistics were used to summarise the distributions of the responses to the questions. Numerical responses were summarised with mean and standard deviation and median and inter-quartile range for parametric and non-parametric data, respectively. Categorical responses were summarised using counts and percentages. Tests for difference were conducted on 2 groups: sexual majorities and sexual minorities. Sexual majorities represent any respondent that identified as heterosexual and the sexual minority group included any respondent that identified as gay, lesbian, bisexual or other.

For the purpose of analysis, responses for alcohol intake were recoded into three categories: low (never, less than once per month, 1-2 times per month), medium (less than once per week, once per week), and high (2-4 times per week, 5-6 times per week, every day). Responses for nicotine consumption were recoded into three categories: low (never, less than once per week, 1-2 times per week), medium (3-4 times per week, 5-6 times per week, 1-2 times per day), and high (3-4 times per day, 5 or more times per day).

Numerical data were deemed to be non-parametric and were analysed using independent-samples median test. Chi-squared tests were used to compare the distribution of categorical responses to the question across the demographic variable. Fisher-Freeman-Halton testing was applied when the Chi-squared assumption of values <5 within cells was violated. All statistical tests were conducted using a two-sided significance level of 5% ($p < 0.05$).

Results

Self-rated health

There were significant differences in both self-reported physical ($p < 0.001$) and mental ($p < 0.001$) health, with sexual minority students reporting lower self-rated health on both scales than sexual majority students.

Sleep quality

There was no significant difference between groups for reported sleep quality ($p = 0.255$).

Sense of belonging and social connection

There was a significant difference in responses to sense of belonging and feelings of social connection at the university ($p = 0.032$), with sexual minorities being more likely to report a lower sense of belonging and social connection.

Physical activity

There was no significant difference in current physical activity status between groups ($p = 1.33$). A significant difference was found for reporting perceived barriers to physical activity between sexual majorities and minorities ($p = 0.003$), with sexual minorities being more likely to report experiencing barriers to physical activity.

Participants were asked if they were aware of the UK physical activity guidelines, with no significant difference between groups in awareness ($p = 0.094$). Those that reported being aware of the guidelines ($n = 253$) were asked to rate their confidence in meeting the guidelines on a scale (Extremely confident, Somewhat confident, Neutral, Somewhat not confident and Extremely not confident). A significant difference was

found, with sexual majorities being more likely to report confidence in meeting the guidelines than sexual minority students ($p = 0.01$).

Eating behaviours

Sexual minorities were significantly less likely than sexual majorities to agree with being able to motivate themselves to eat appropriately ($p < 0.001$). A significant difference was also found for reporting perceived barriers to eating healthily between sexual majorities and minorities ($p = 0.009$), with sexual minorities being more likely to report experiencing barriers to healthy eating.

Alcohol and nicotine intake

There was no significant difference in reported alcohol intake between groups ($p = 0.147$). Sexual minorities reported a significantly greater nicotine intake than sexual majority students ($p < 0.001$).

Discussion

The purpose of this descriptive study was to compare self-reported health and health-related behaviours between sexual minority and sexual majority students within a UK university. To our knowledge, this is the first academic study of a wide range of health-related domains amongst UK university students focused on sexual orientation and the results indicate disparities between sexual minority and majority students. This was consistent across all health-related outcome measures apart from physical activity levels, sleep quality and alcohol intake. Briefly, sexual minorities had lower self-rated physical and mental health, higher nicotine intake, were more likely to report barriers to physical activity and healthy eating, were less confident in meeting physical activity guidelines, were more likely to report difficulty in motivation to eat healthily and reported lower levels of feelings of belonging and social connection compared to sexual majority students.

The findings on self-rated health and substance use are in line with previous research in US settings (Oswalt and Wyatt, 2011; Kerr et al., 2014; Crawford and Ridner, 2018; Bourdon et al., 2020). Due to the descriptive design of the current study, we do not infer causal reasons for these findings. However, two major theoretical frameworks within the literature that are often used for explicating health disparities among LGB people can help possibly explain the findings.

First, the minority stress framework identifies several types of stigma-related stressors that LGB adolescents may experience in addition to general stressors (Meyer, 2003). The model posits that stressful social conditions, including discrimination, stigmatization, or prejudice, contribute to sexual orientation disparities in both mental (Hatzenbuehler, 2009) and physical health (Lick et al., 2013). The higher rates of minority stress experienced amongst LGB adolescents may explain the higher rates of nicotine consumption due to use as a coping mechanism (Meyer, 2003).

Second, the psychological mediation framework proposed by Hatzenbuehler (2009) extends the minority stress framework by considering how stigma-related stressors might negatively affect psychological processes and in turn affect overall health and health-related behaviours. The framework suggests: (a) sexual minorities confront increased stress exposure resulting from stigma; (b) this stigma-related stress creates elevations in general emotional dysregulation, social/interpersonal problems, and cognitive processes conferring risk for psychopathology; and (c) these processes in turn mediate the relationship between stigma-related stress and increased risk for psychopathology (Hatzenbuehler, 2009).

Regarding barriers to physical activity, the finding that sexual minority students were more likely to report experiencing barriers compared to sexual majorities is perhaps unsurprising in light of the research that highlights this trend within the general population (Herrick and Duncan, 2018). This can be due to experiences of exclusion, avoidance of conventional gendered norms within physical activity settings (particularly competitive sport) and potential exposure to harassment and/or discrimination (Greenspan et al., 2019). This is important as regular physical activity is associated with a range of positive health outcomes that include social, emotional, mental, and physical benefits (Janssen and LeBlanc, 2010), and it is regarded as a vital component for promoting health and well-being globally (WHO, 2022). There is limited research on physical activity habits and behaviours in university students, and even less that is specifically focused on sexual minorities. The findings from this study justifies the need for future research into this area.

Our findings show sexual minority students were more likely to report barriers to healthy eating and to have difficulty in motivation to eat appropriately. There is a dearth of research on barriers to healthy eating amongst sexual minorities. VanKim and colleagues' (2016) qualitative study of LGB university students found that sexual orientation was not often associated with barriers to healthy eating amongst the sample. In fact, it was suggested that sexual minority status may facilitate healthy eating through involvement with social networks (e.g., LGB communities) that are often associated with social norms focused on particular eating habits such as vegetarianism and/or veganism. Despite this, without a more detailed dietary analysis it cannot be inferred that such habits result in optimal nutrition behaviours. However, it was also suggested by some participants in the study that they engaged in binge eating behaviours in response to stress that was associated with their sexual orientation (VanKim et al., 2016). More research is needed to better understand if there is a relationship between sexual orientation and eating habits, particularly amongst university students.

A sense of belonging and social connection within university settings are important to promote positive educational experiences (Pedler et al., 2022) and are associated with improved mental health (Stebleton, 2014; Thompson et al., 2019). Yet there is limited research on LGB university students' sense of belonging (Vaccaro and Newman, 2017). Nonetheless, research suggests LGB students may experience unwelcoming campus contexts (Rankin et al., 2010) or specific micro-contexts (Vaccaro, 2012) such as fraternities (Windmeyer, 2005), athletic facilities and teams (DeForr et al., 2018), and residential halls (Bilodeau, 2009). However, much of the work in this area is now over a decade old and was not conducted in a UK setting. Contemporary research is required to better understand LGB university students' sense of belonging and social connection.

Taken together, this descriptive study highlights there are health disparities for sexual minority UK university students across a range of health-related domains. Important to highlight is that we are not able to infer reasoning or causes for these findings based on the data collected. It was the aim of this study to assess for differences and establish the 'what' of the phenomenon. The next step is to explore the 'why', and these findings outline that future research, particularly qualitative, is warranted to investigate this line of enquiry in more detail.

Limitations

There are limitations associated with this study that we acknowledge. Firstly, we did not conduct sub-analysis on individual minority groups (Lesbian, Gay, Bisexual and Other) due to low sample sizes. We recognise that differences in experiences exist across these groups (Worthen, 2013) and suggest future research that investigates differences between minority groups is warranted. The cross-sectional design of the study means we only present a snapshot of the areas investigated. Health-related behaviours and self-rated health are complex processes that cannot be fully understood through single time point methods which we acknowledge. Finally, as with any research using self-reported measures, there are potential limitations based on social desirability bias and other inaccuracies that may occur with this approach. Despite these limitations, this study offers a significant contribution to the literature on health and well-being for sexual minority university students and it is hoped the findings serve as a starting point for more focused future research.

Conclusions

In this study, sexual minority UK university students had lower self-rated physical and mental health, higher nicotine intake, were more likely to report barriers to physical activity and healthy eating, were less confident in meeting physical activity guidelines, were more likely to report difficulty in motivation to eat healthily and reported lower levels of feelings of belonging and social connection compared to sexual majority students. Therefore, it is suggested that sexual minority university students experience unique health needs that warrant attention from relevant personnel within higher education settings to improve health promotion. Such efforts may need to be tailored to meet the needs of this population and promote optimal health for sexual minority university students. Importantly, more research is needed to understand causations of health disparities and experiences of sexual minority students within university settings to help shape effective health promotion strategies.

Author contributions

JH and CR conceptualised the study, engaged with data collection, wrote the first draft and revisions of the manuscript. Both authors approve the final content of the manuscript.

Statements and declarations**Ethical considerations**

Ethical approval was granted by the University of Northampton Faculty of Arts, Science and Technology ethics committee prior to data collection (Code: 212214).

Consent to participate

Prospective participants were presented with a participant information sheet and consent form prior to entering the digital survey. Participants were only able to progress to the survey if they confirmed they provided informed consent to participate.

Consent for publication

Informed consent for publication was provided by the participants.

Declaration of conflicting interest

The authors declare no potential conflicts of interest with respect to the research, ownership, and/or publication of this article.

Funding statement

This work was supported by an Early Career Researcher grant from the University of Northampton.

Data availability

The data that support the findings of this study are openly available in University of Northampton PURE at [10.24339/ed0d11de-790a-4b58k-b523-8421c3eb8eeb](https://pure.nthampton.ac.uk/10.24339/ed0d11de-790a-4b58k-b523-8421c3eb8eeb)

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Table 1. Sexual majority participant demographics (n=477)

Self-reported characteristic	Count (%)
Gender	
Male	157 (33%)
Female	319 (67%)
Other	1 (0%)
Prefer not to say	0 (0%)
Age	
18-24	223 (47%)
25-34	164 (34%)
35-44	60 (13%)
45-54	25 (5%)
55-64	4 (1%)
65+	1 (0%)
Ethnicity	
Asian, Asian British, Asian Welsh	157 (33%)
Black, Black British, Black Welsh, Caribbean or African	149 (31%)
Mixed or multiple	5 (1%)
White	158 (33%)
Other	8 (2%)

Table 2. Sexual minority participant demographics (n=89)

Self-reported characteristic	Count (%)
Gender	
Male	10 (11%)
Female	65 (73%)
Other	13 (15%)
Prefer not to say	1 (1%)
Age	
18-24	63 (71%)
25-34	23 (26%)
35-44	2 (2%)
45-54	1 (1%)
55-64	0 (0%)
65+	0 (0%)
Ethnicity	
Asian, Asian British, Asian Welsh	9 (10%)
Black, Black British, Black Welsh, Caribbean or African	6 (7%)
Mixed or multiple	3 (3%)
White	69 (78%)
Other	2 (2%)