

School Connectedness and Mental Health of LGBTQ+ Students in China: A Mixed-methods Study

Yize Huang¹,
Jiayi Zou²,
Xiaoyu Liu³
and Haoran Chen^{4,*}

¹University of Regina, Regina, SK
S4S 0A2, Canada

²Suzhou Foreign Language School
Wuzhong Campus, Suzhou, 215000,
China

³Shenzhen High School of Science,
Shenzhen, 518000, China

⁴Shanghai Concord Bilingual
School, Shanghai, 200000, China

*Corresponding author:
erichuang216@gmail.com

Abstract:

LGBTQ+ youth face significantly elevated risks of mental health issues within recent society, with notably higher levels of depression and suicidal ideation compared to the heterosexual population. Researchers focused on the mental health status and campus connection of LGBTQ+ students, exploring their potential role in alleviating the psychological distress of LGBTQ+ students. They referred to social identity theory, protective factor models, and numerous other theories. This study employed a mixed method combining structured questionnaires and open-ended questions to collect data from 177 high school and college students in China. Based on the data, the depression level of LGBTQ+ students was significantly higher than the heterosexual students. There was a trend of negative correlation between campus connection and depression, but the correlation did not reach statistical significance. Open-ended responses allowed researchers to understand their past experiences and further observe the real situation of sexual minority students on campus, such as the importance of teachers' understanding and acceptance, companionship from peers, and gender-inclusive policies. It also made researchers aware of the widespread existence of campus discrimination and social isolation. The study drew on useful strategies during the same period or earlier, such as enhancing campus inclusiveness through institutional guarantees, curriculum reforms, and psychological counseling support, and establishing student-led student unions to improve the living conditions and further mental health of LGBTQ+ adolescents.

Keywords: LGBTQ+ students; mental health; school connectedness; depression; social identity theory

1. Introduction

The visibility of LGBTQ+ individuals in the public sphere has been steadily increasing. However, despite improvements in external environments, sexual minority adolescents continue to experience substantial psychological stress, with mental health disorders being prevalent. As noted by Russell and Fish, LGBTQ+ youth are at a significantly higher risk for depression and anxiety compared to their heterosexual peers. This disparity in mental health primarily stems from societal prejudice, discriminatory experiences, and the resulting internalized stigma [1]. These psychological stressors not only increase the likelihood of developing depression but also significantly affect academic performance, interpersonal relationships, and self-esteem among LGBTQ+ adolescents. Moreover, they are associated with higher rates of suicidal ideation and behaviors.

In one study involving 246 LGBTQ youth aged 16 to 20, 17% of participants were diagnosed with conduct disorders, 15% with major depressive disorder, and 9% with post-traumatic stress disorder (PTSD). A total of 31% reported having attempted suicide, with 7% indicating a suicide attempt within the past 12 months. More than one-third of LGBTQ youth reported suicide attempts—a proportion significantly higher than that of the general adolescent population [2]. This elevated risk is not inherently linked to sexual or gender identity itself, but is closely related to the surrounding social environment.

In addition to familial acceptance and emotional support, parenting styles also exert a profound influence on the mental health of LGBTQ+ adolescents. A study conducted by the University of Texas at Austin revealed that parental psychological control—such as interfering with emotional expression and self-identification—is significantly associated with depressive symptoms among LGBTQ+ youth. This correlation is particularly notable when parents are unaware of their child's sexual orientation, as controlling behaviors may further intensify depressive emotions [3].

One of the theoretical foundations of this study is the Social Identity Theory, which posits that an individual's self-concept is partly derived from their membership in social groups. For LGBTQ+ individuals, if their gender or sexual orientation is stigmatized or marginalized within the school environment, this can undermine their sense of identification and belonging to the school community, thereby increasing psychological stress and the likelihood of depressive symptoms.

In addition, the study draws on the Protective Factor Model, which emphasizes that positive social environmental variables—such as teacher support, peer acceptance, and school connectedness—can buffer the negative impact of

adverse environments on the mental health of minority populations. As such, school connectedness, as a form of social support, may play a pivotal protective role in the psychological adjustment of LGBTQ+ adolescents.

The school environment, as a central component of adolescent life, is considered one of the key determinants of mental health. School connectedness—defined as students' perceived sense of belonging, respect, and social support within the school—is recognized as a critical protective factor against negative emotional outcomes. For example, the presence of student-led, LGBTQ+-affirming organizations such as Gender and Sexuality Alliances (GSAs) has been associated with lower rates of peer victimization and higher perceptions of school safety, which in turn contribute to reduced negative health outcomes among LGBTQ+ youth [4,5].

Moreover, high levels of school connectedness have been shown to significantly reduce the risk of mental health challenges among adolescents. Specifically, in schools that implement LGBTQ+-inclusive curricula, students report stronger feelings of safety at both individual and institutional levels, alongside marked reductions in bullying. These factors collectively enhance psychological adjustment and strengthen a sense of belonging within the school environment [6,7]. A stable school climate has also been linked to improved academic performance among LGBTQ+ student populations [8].

Positive school connectedness not only fosters greater self-esteem among LGBTQ+ adolescents but also serves to buffer the dual pressures arising from external discrimination and internal identity conflicts, thereby effectively reducing the risks of depression and anxiety.

While numerous studies have investigated the relationship between school climate and the mental health of LGBTQ+ youth, most have focused on Western contexts. Empirical research specific to the cultural context of China remains relatively limited. Furthermore, existing literature often employs cross-sectional designs, lacking detailed comparisons across different school types and campus climates with respect to the effects of school connectedness. To address these gaps, the present study targets high school and university students in China, employing a questionnaire-based approach to empirically examine the relationship between school connectedness and depression levels among LGBTQ+ students. Open-ended questions are included to capture individual subjective experiences and compensate for the limitations inherent in purely quantitative methods.

This study proposes the following hypotheses: First, LGBTQ+ students will report significantly higher levels of depressive symptoms compared to heterosexual students. Second, school connectedness will be significantly nega-

tively correlated with depression levels among LGBTQ+ students. Open-ended questions are also designed to explore the practical effects of school connectedness and to investigate students' subjective experiences and needs related to psychological support and social belonging.

2. Method

This study employed a mixed-methods approach, combining quantitative survey analysis with open-ended thematic exploration, aiming to examine the relationship between school connectedness and depressive symptoms among LGBTQ+ students. Two versions of the questionnaire were developed and distributed. The first version served as a preliminary pilot, and while 77 valid responses were collected, the data from this version were excluded from the final statistical analysis due to limitations in scale structure—such as insufficient coverage of certain dimensions of school connectedness—and the absence of logic-check mechanisms.

Nevertheless, the depression-related items on the Likert scale in the first version showed a high degree of consistency with those in the revised second version, indicating a level of trend stability. Therefore, the first-round data were partially used as supplementary qualitative references.

The final analysis was based on the revised second version of the questionnaire, which yielded 177 valid responses. The dataset was complete, structurally sound, and met the conditions required for statistical analysis.

Participants

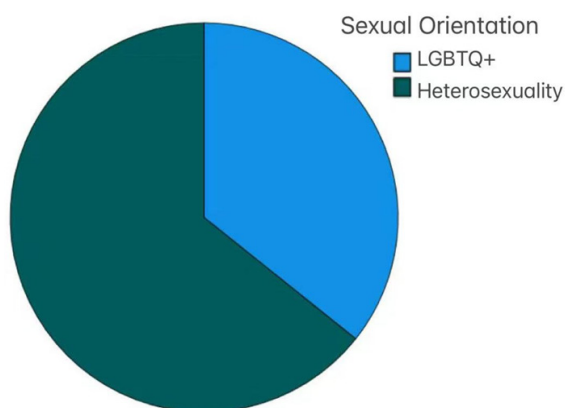


Fig. 1 Proportion of Heterosexual and LGBTQ+ Participants.

The second version of the questionnaire employed a convenience sampling method to recruit 177 high school and university students currently enrolled in academic institutions. Among the participants, 107 identified as hetero-

sexual, accounting for 59.7% of the total sample, while 70 identified as LGBTQ+, representing 40.3% (see Figure 1). Participants ranged in age from 16 to 25 years and included individuals identifying as male, female, and non-binary. All participants voluntarily completed the questionnaire after providing informed consent. The study ensured anonymity and the protection of data privacy throughout the research process.

2.1 Measurement Instruments

This study utilized a structured questionnaire to conduct the quantitative survey, supplemented by two open-ended questions designed to capture students' individualized experiences.

Depressive symptoms were assessed using a simplified version of the Patient Health Questionnaire (PHQ-9), which consists of nine items rated on a four-point scale from 0 (Not at all) to 3 (Nearly every day). A typical item includes: "Over the past two weeks, have you felt down, hopeless, or depressed?" The scale demonstrated good internal consistency in the present sample (Cronbach's $\alpha = 0.84$).

School connectedness was measured using a self-constructed five-point Likert scale (1 = Strongly disagree, 5 = Strongly agree), encompassing three dimensions: teacher support, peer relationships, and sense of belonging. A sample item is: "I feel that I am an important member of the school community." This scale showed high internal consistency (Cronbach's $\alpha = 0.88$) and a satisfactory Kaiser-Meyer-Olkin (KMO) value of 0.826.

Additionally, the questionnaire included two open-ended questions:

1. "Please describe your most representative experience of feeling either supported or excluded at school."
2. "What kind of psychological support would you like to receive from your school, teachers, or peers?"

2.2 Data Collection Procedure and Data Analysis

The questionnaire was distributed online via the Wenjuanxing platform, using an anonymous response format. Logical validation items were included to filter out invalid data. The survey was conducted over a period of three weeks, resulting in the collection of 177 valid responses, with a response validity rate of 92.6%.

3. Results

3.1 Descriptive Statistics

Figure 2 illustrates the scatterplot relationship between

school connectedness and total depression scores. The plot reveals a discernible negative correlation trend—students reporting higher levels of school connectedness tend to have lower overall depression scores. This pattern supports the hypothesis that school connectedness functions as a potential psychological protective factor, particularly

for students at elevated psychological risk. Although the data points exhibit a certain degree of dispersion, the overall slope is clearly negative, indicating an inverse relationship between levels of emotional distress and perceived social connectedness.

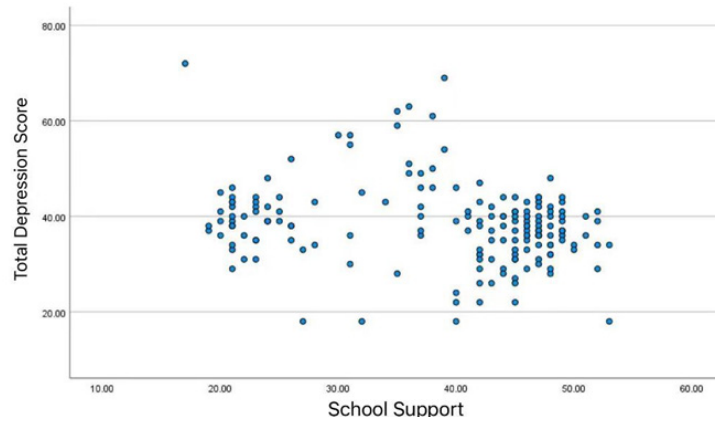


Fig. 2 Relationship Between Total Depression Scores and School Connectedness

Table 1. Descriptive Statistics of Total Depression Scores for LGBTQ+ and Heterosexual Students

	Sexual orientation	N	mean	Standard deviation	Standard error of mean
Total depression score	LGBTQ+	70	40.5571	9.84611	1.17684
	heterosexual	108	36.9537	7.12162	68528

Table 2. Independent Samples t-Test for LGBTQ+ Group

		Levene’s test for equality of variances		T-Test for equality of means		
		F	tSig.	df	Sig. (2-tailed)	
Total depression score	Equal variances assumed	2.597	109	2.830	176	005
	Equal variances not assumed			2.646	115.186	009

Table 3. Independent Samples t-Test Results for Total School Connectedness Scores between LGBTQ+ and Heterosexual Students

	Sexual orientation	N	mean	Standard deviation	Standard error of mean
School support score	LGBTQ+	70	36.8571	11.29613	1.35015
	Heterosexual	108	39.4074	9.69540	93294

Table 4. Independent Samples t-Test for School Connectedness Scores Between LGBTQ+ and Heterosexual Students

Independent sample test						
		Levene’s test for equality of variances		T-Test for equality of means		
		Sig.	t	df	Sig. (2-tailed)	
School support score	Equal variances assumed	9.208	003	-1.605	176	110
	Equal variances not assumed			-1.554	131.316	123

Descriptive statistics of total depression scores for LGBTQ+ and heterosexual students are shown in Table 1. According to Table 2, the results of the independent samples t-test indicate that the difference between the two groups is statistically significant, $t(176) = 2.830$, $p = .005$. As shown in Table 3, the mean total depression score for LGBTQ+ students ($M = 36.86$, $SD = 11.30$) was lower than that of heterosexual students ($M = 39.41$, $SD = 9.70$), with a slightly larger standard deviation.

Figure 2 demonstrates a negative correlation between total depression scores and school connectedness, indicating that higher levels of school connectedness are associated with lower levels of depressive symptoms among students.

Moreover, Table 4 shows that LGBTQ+ students reported slightly lower levels of school connectedness compared to their heterosexual counterparts; however, the difference between the groups was not statistically significant, $t(176) = -1.154$, $p = .123$, with a small effect size (Cohen's $d \approx -0.20$).

Overall, the findings support Hypothesis 1: LGBTQ+ students exhibit significantly higher levels of depression compared to heterosexual students. They also partially support Hypothesis 2, indicating that school connectedness is negatively associated with depression levels to some extent.

3.2 Open-ended Response Analysis

Participants were provided space to share personal stories if they chose to do so. Among the 177 collected questionnaires, the open-ended responses from LGBTQ+ students revealed a striking duality in their campus experiences—ranging from moments of warmth and support to instances of exclusion and hostility.

Some respondents recalled positive school experiences, such as understanding and acceptance from teachers—“The teacher spoke with me privately and told me that no matter what my identity is, she supports me.” The presence of same-sex or bisexual friends also fostered a sense of belonging—“My British roommate, who is also bisexual, took me to a party with her.” In addition, psychological counseling services offered by some schools were cited as vital emotional resources.

In contrast, many students described experiences of prejudice and hostility from peers, including instances of extreme school violence. One student recounted, “A male classmate didn't like me and cornered me in the restroom, holding a utility knife to my neck.” Others experienced coldness or rumors after coming out, and some reported feeling isolated due to the absence of LGBTQ+-related student organizations.

In response to the question regarding desired support, many students voiced a strong need for systemic improvement at the school level. Suggestions included enhancing mental health education and awareness of gender diversity, encouraging teachers to avoid heteronormative assumptions in daily interactions and to convey inclusive messages, establishing dedicated counseling services and support groups for LGBTQ+ individuals, and fostering peer environments where identity-related topics are approached with genuine understanding and attentive listening rather than jokes or silence.

For LGBTQ+ adolescents, “being heard” is often far more meaningful than simply “being advised” [9].

4. Deeper Thoughts

Deeper questions still need to be asked: why is such a group discussed? Why is this group so easily marginalized? Why is it that different genders and identities react differently to similar pressures? The following is an explanation from a few theoretical perspectives in social psychology.

Social Identity Theory (Tajfel & Turner) People tend to define themselves through group affiliation, creating “in-group preferences” and “out-group devaluations”. Since the LGBTQ+ community is often seen as “non-mainstream”, it is easy to be classified as an outgroup and be excluded or ignored in the campus culture. **Belief Congruence Theory (Rokeach)** explains that people are more willing to accept people with the same beliefs even if they have different identities, and that the values and lifestyles of the LGBTQ+ community are often seen as different parts of the community, and that the lack of congruence in values can lead to exclusion or even hostility.

Belongingness Theory states that individuals have a basic need to belong, which is to be accepted and valued by others. In school contexts, this need is met through the emotional and social connections students have with teachers, peers, and the overall school environment. For LGBTQ+ adolescents, the rejection and coldness they experience because of their gender identity or sexual orientation often diminishes their sense of belonging and increases the risk of psychological distress.

For example, a student who expressed support for same-sex marriage in a class discussion was criticized by his peers for being ‘untraditional’, even though he was very popular on other topics.

4.1 Reasons for Bullying or Marginalization of the Group

Scapegoat Theory (Scapegoat Theory & Frustration-Aggression Hypothesis) When people become frustrated

with the reality of academic pressure, family pressure, etc., they tend to turn their emotions towards the “easy to attack” groups in society.”LGBTQ+ youth, because of their unique identity and small percentage, are often the target of alternative attacks. Just as the road rage crowd will seek out novice or inexperienced drivers to vent their frustrations while travelling.

Minority Stress Theory, Meyer, 2003 These stresses include social stigma, discrimination, identity concealment, and internalized homophobia, all of which can have a negative impact on their mental health. When schools are able to create safe, inclusive and affirming environments, these pressures can be effectively buffered and adverse psychological outcomes such as depression can be reduced.

Implicit Stereotyping & Ingroup Bias Even if teachers or classmates do not discriminate on the surface, studies have shown that stereotypes can be unconsciously activated, such as “sexual minorities are unstable” and “they always draw attention to themselves”. They’re always drawing attention to themselves. “These prejudices lead to their conscious and unconscious exclusion from school. Occasional jokes among classmates, such as “Do you want the whole class to know that you are gay?”, even though they are not meant to be malicious, reinforce the impression that “coming out of the closet is the same as attracting attention”.

4.2 Environmental Impact

Self-Concept Clarity & Social Feedback (Self-Concept Clarity & Social Feedback): When LGBTQ+ students are exploring their selves, if the outside world continues to deliver negative feedback, it will result in a blurred self-concept, identity confusion, and ultimately, persistent psychological conflict.

Looking-Glass Self (Cooley): How an individual sees himself depends on how others see him. When LGBTQ+ students receive negative comments or silent denials from their teachers and classmates, they gradually internalize these perceptions, which in turn creates a negative self-image.

Gender and Indirect Aggression: Research shows that girls are more likely to be subjected to “indirect aggression” in the form of exclusion, verbal aggression, and isolation. Such attacks are often doubled for girls who are openly lesbian or transgender because they violate the dual norms of gender and sexual orientation.

Social Surveillance & Self-Presentation Stress (Social Surveillance & Self-Presentation, Goffman): When LGBTQ+ students are open about their identities, they may feel “observed” and “judged” by those around them, and those close to them may choose to distance them-

selves for “fear of being implicated”. They may also choose to distance themselves from those who were originally close to them out of fear of being implicated.

5. Discussion

This study examined the differences in depression levels between LGBTQ+ and heterosexual students and the buffering effect of campus connectedness on depression levels using campus connectedness as an entry point. Findings indicated that LGBTQ+ students had significantly higher levels of depression than heterosexual students, and a significant negative correlation was found between feelings of campus connectedness and levels of depression. This finding validates the two hypotheses proposed in this study and further supports the application of social identity theory and the protective factor model to the field of sexual minority mental health.

In contrast to established research, the main findings of the present study are generally consistent with those found in the relevant literature in Europe and the United States noted that in a sample of American adolescents, LGBTQ+ individuals had significantly higher levels of both depression and anxiety than the heterosexual group [1]. Similarly, the study in a multiracial context reached similar conclusions and specific forms of social support (e.g., emotional support and acceptance from family, friends, teachers, or peers) were shown to be effective in mitigating adolescents’ risk of developing negative emotions such as depression and anxiety [2]. In addition, research on transgender children has also shown that identity stress can lead to emotional problems, even in the presence of good family support [10]. The present study drew similar conclusions to the Western literature in the Chinese cultural context, suggesting a certain cross-cultural prevalence of mental health vulnerability among LGBTQ+ adolescents. At the same time, it should be noted that due to differences in cultural background, social policies and public attitudes, there may be some variation in the level of school connectedness and its protective effect in different regions, and further comparative studies in multicultural contexts can be conducted in the future to explore whether there is a consistent mechanism for regulating the mental health of LGBTQ+ adolescents by school connectedness across different cultures and social system contexts or whether there is a difference in protective effects.

The results of this study provide specific insights for school administrators, teachers, policymakers, and the public on how to improve the mental health of LGBTQ+ students. For example, future interventions should focus on synergistic promotion at the institutional, educational, and cultural levels: at the policy level, schools should es-

establish clear institutional guarantees of inclusiveness, such as anti-discrimination regulations and gender-friendly policies; at the educational level, LGBTQ+ content should be included in curricula and teacher training to enhance all members' awareness of and respect for diversity in gender and sexual orientation; and at the level of cultural development, student-led support clubs (e.g., GSAs) should be encouraged to form and develop. At the cultural level, student-led supportive clubs (e.g., GSAs) should be formed to develop a safe peer support network and create a campus atmosphere of diversity, respect, and acceptance [5,11]. However, it is important to note that the effectiveness of the above intervention recommendations is still largely limited by the higher-level institutional and educational policy environment. For example, in highly competitive and achievement-oriented education systems, schools tend to prioritize resources on "hard targets", such as promotion rates and standardized test scores. Such pressures not only undermine schools' attention to mental health and community building, but may also reduce the time and space for students to participate in clubs and receive peer support. In this context, although individual schools or teachers may have the concept and practice of inclusiveness, their intervention initiatives may be limited by factors such as resources, institutional orientation, and parental expectations. Therefore, efforts to enhance LGBTQ+ youth's sense of connectedness in schools require not only efforts at the school level, but also institutionalized recognition of the values of whole-person education and social-emotional learning (SEL) and resource support from higher levels of education policy. Only when the goal of education is shifted from being "test-centered" to "development-centered" will it be possible to achieve a structured approach to the promotion of a sense of connectedness in schools and the protection of mental health. There are still limitations to this experiment.

First, the sample size is relatively small and mainly comes from high schools and universities in specific regions, with limited sample representativeness, which may affect the external validity of the findings. Future research should expand the sample to cover more geographic regions, different types of schools, and student populations in different cultural contexts to enhance the generalizability and replication value of the findings or focus on a few regions to investigate the impact of provincial education policies or municipal education policies on students. Second, the cross-sectional design of this study only reveals the correlation between variables and cannot infer causality. Future research should carry out multivariate influence mechanism studies and try to introduce more possible mediators or moderators in order to construct a more complete psychological influence pathway model. For

example, self-esteem and self-efficacy, as individual-level psychological resources, may play a mediating role between campus connectedness and depressive symptoms, i.e., connectedness indirectly mitigates students' risk of depression by enhancing their self-esteem or efficacy. It was also necessary to test whether variables such as social support, peer relationship quality, and identity congruence moderated the protective effects of campus sense of connectedness on mental health. These variables were necessary for inclusion because recent research has shown that even in the context of high sense of campus connectedness, LGBTQ+ adolescents who lack social support, peer acceptance, or identity congruence still face a higher risk of depression and anxiety [12]. In addition, the scale data were all based on self-report, and there may be social desirability bias, especially when it comes to sensitive topics such as sexual orientation and mental health, respondents may tend to give more socially acceptable answers. Furthermore, the study was designed and analyzed with less control for other confounding variables that may affect the mental health of LGBTQ+ students, such as family support, socioeconomic status, ethnic background, and geo-cultural differences. These variables may work in conjunction with feelings of campus connectedness to influence levels of depression and, if uncontrolled, may interfere with the results of the study, affecting the accuracy of correlation interpretation and the validity of causal inferences. In future studies when designing survey instruments and data collection procedures, investigators should pay more attention to the improvement of protective measures, such as using platforms with higher confidentiality and introducing methods such as anonymous in-depth interviews, in order to improve the authenticity and representativeness of the data. Multi-source measurements can also be introduced, such as combining teacher assessment, peer evaluation and behavioral observation, to reduce the bias that may be caused by a single data source.

Considering that sexual orientation and gender identity are highly private and still sensitive in some cultural contexts, some students may not be able to fully reflect their true identity or psychological status due to concerns about privacy leakage or lack of trust in the researcher. In addition, many LGBTQ+ students may not yet be open about their gender identity or sexual orientation to their surroundings (including teachers, peers, or parents) in actual campus life. This "hidden population" phenomenon makes it difficult for school administrators and mental health service providers to accurately identify and address the actual needs of LGBTQ+ students, and may have contributed to the underestimation of the severity of mental health problems in this population in this study. Therefore, high school connectedness cannot be effectively demonstrated

to help LGBTQ+ students, but high feelings of connectedness and belonging do tend to affect LGBTQ+ students.

6. Conclusion

Research has shown that when people truly understand the situation and suffering of others, it inspires intrinsic motivation to help rather than just an obligatory response. Therefore, improving campus members' understanding of the situation of the LGBTQ+ community is key to changing prejudices and behaviors.

Schools should organize in-depth empathy training and situational simulation workshops, e.g. allowing heterosexual students to simulate the experience of being excluded and misunderstood. Guiding teachers to listen to anonymous statements from real LGBTQ+ students. Enhancing the experience by using visual materials and theatre teaching.

In conclusion, this study attempts to add to and enrich the empirical data in the field of LGBTQ+ students' mental health and to understand the role of a sense of campus connectedness in the mental health of students from protective minorities as well as the difficulties that LGBTQ+ practically encounter. It is hoped that by enhancing the sense of campus connectedness, schools can provide a more positive and psychologically supportive environment for all students, especially LGBTQ+ students. Then the study has the problems of small sample size and the possible influence of social approbation effect on the self-rating scale. The limitations should be avoided in subsequent studies.

Authors Contribution

All the authors contributed equally.

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