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WIP: Exploring the Mental Health Challenges of Asian LGBTQIA+ Students in Engineering

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WIP: Exploring the Mental Health Challenges of Asian LGBTQIA+ Students in Engineering

Introduction

The purpose of this WIP research paper is to explore the mental health challenges faced by Asian LGBTQIA+ students in engineering programs. The heavy workloads and intense competition in engineering programs lead to significant stress (Jensen & Cross, 2020). Asian LGBTQIA+ students are facing pressures from the intersection of their identities, resulting in unique mental health struggles (Shen et al., 2023). Using Minority Stress Theory (Meyer, 2003) and Intersectionality (Crenshaw, 1989) as lenses, this research examines how the demands of engineering stress culture, along with discrimination based on race, ethnicity, and sexual orientation, affect the mental well-being of these students.

While Asians are often overrepresented in engineering fields, they are simultaneously underrepresented in discussions about marginalization (Yang, Antonio & Sheppard, 2023). Most previous LGBTQIA+ research has similarly focused on white individuals, leaving a significant gap in understanding the experiences of Queer People of Color (QPOC) (Jennings, Roscoe, & Kellam, 2020). This study aims to address the gap by focusing on the mental health challenges resulting from the intersection of Asian racialization and queer identity in engineering environments.

This study utilizes qualitative methods, especially in-depth interviews, to better understand the unique pressure and isolation faced by Asian LGBTQIA+ engineering students. Broadly, this paper emphasizes the need for inclusive and supportive environments for underrepresented groups in engineering programs. By analyzing students' coping strategies and identifying gaps in support, this research calls for culturally responsive mental health services.

Literature Review

The stress culture in engineering is a well-known factor contributing to students' mental health challenges. Jensen and Cross (2021) describe this culture as one of intense academic demands and competition, which can lead to anxiety, depression, and burnout. These pressures are particularly pronounced for students who experience additional marginalization based on their identities, such as race or sexual orientation, making it essential to examine how stress culture intersects with structural inequalities.

For Asian students, these challenges are further compounded by the "model minority" stereotype, which frames them as academically successful and emotionally resilient. Ng, Lee, and Pak (2007) critique this stereotype as harmful because it obscures the diversity within Asian communities and renders their struggles invisible. In engineering, where Asian students are overrepresented, this invisibility often results in a lack of attention to their unique challenges, particularly in discussions about mental health and inclusion.

Research on LGBTQIA+ students in STEM highlights additional gaps, especially for queer people of color (QPOC). Jennings et al. (2020) point out that most studies

center on white gay men, leaving groups like Asian LGBTQIA+ students underrepresented. Garcia et al. (2023) explore the narratives of Black and Hispanic queer students in engineering, focusing on how they navigate their identities within a predominantly white, heteronormative STEM culture. Their work provides valuable insights into the experiences of QPOC, which inspire my research to expand this focus by examining the specific challenges faced by Asian LGBTQIA+ students.

These individuals often experience exclusion both within racial communities and LGBTQIA+ spaces, compounded by the pressures of engineering's stress culture. To understand these intersecting challenges, my research applies intersectionality theory, as introduced by Kimberlé Crenshaw (1989), to examine how overlapping identities—such as race and sexual orientation—shape the experiences of Asian LGBTQIA+ students in engineering. Additionally, Miranda Fricker's (2007) concept of epistemic injustice highlights how marginalized groups may struggle to articulate their experiences or access resources, as their perspectives are often excluded from dominant narratives. These frameworks help reveal how structural inequalities and stress culture together impact the mental health and inclusion of Asian LGBTQIA+ students.

By focusing on this group, my study aims to address the gaps in current literature and provide new insights into how engineering education can become more inclusive. This research contributes to ongoing discussions about equity in engineering, advocating for more supportive environments that account for the needs of students with intersecting marginalized identities.

Proposed Research Design

This study examines how Asian LGBTQIA+ engineering students experience mental health challenges and perceive support within their programs. As such, my research questions are as follows:

1. What kinds of mental health challenges and supports are Asian LGBTQIA+ Students in engineering programs experiencing?
2. How do Asian LGBTQIA+ students in engineering programs perceive the current support available to them, and what additional measures do they feel could enhance their experience?

Theoretical Framework

I (I refers to the first author, Wanpeng, throughout this paper) adopt Minority Stress Theory (Meyer, 2003) as a key framework to understand how systemic stressors affect the mental health of Asian LGBTQIA+ students in engineering. The theory distinguishes between distal stressors, such as experiences of overt discrimination or microaggressions, and proximal stressors, which are internal processes like identity concealment, internalized stigma, and the anticipation of rejection. For instance, Asian LGBTQIA+ students may feel pressure to hide their identities in STEM environments due to fear of exclusion or negative consequences, which compounds their mental health burden. These stressors operate in addition to the high-pressure culture in engineering education and can lead to chronic psychological strain.

In addition, I use Intersectionality Theory, originally developed by Kimberlé Crenshaw (1989), to explore how overlapping identities—such as race, gender, and sexual orientation—create interconnected systems of disadvantage. This framework helps examine how multiple intersecting identities create unique challenges within complex social environments.

By integrating Minority Stress Theory and Intersectionality, this study offers a comprehensive framework for analyzing how systemic stressors and intersecting identities shape the mental health experiences of Asian LGBTQIA+ students. This theoretical approach aligns with the critical epistemological stance of this research, which aims to challenge dominant narratives and amplify marginalized voices in engineering education.

Positionality Statement

I am a Ph.D. student in Engineering Education and identify as an East-Asian cisgender gay man. My research is deeply informed by my lived experiences. Growing up in an environment that was unfriendly to LGBTQIA+ individuals shaped my commitment to understanding and amplifying the voices of queer students. As an East-Asian queer individual, I have encountered exclusion from queer student clubs in the U.S. and significant mental health challenges, often exacerbated by toxic cultural expectations within East-Asian communities. These experiences offer a nuanced perspective on participants' challenges, enabling an empathetic and culturally sensitive approach.

My position as both a researcher and an insider enables me to build rapport and trust with participants, fostering a safe and open environment for sharing authentic experiences. At the same time, I am critically aware that my positionality might influence how I interpret and represent their narratives. To actively address potential biases, I will employ several strategies. First, I will maintain a reflexive journal to document my assumptions, emotional responses, and potential influences on the research process. Second, I will seek regular feedback from peers, mentors, and advisors who bring diverse perspectives to challenge and refine my interpretations. Third, I will use robust qualitative methods, including member checking to ensure participants validate their contributions. By combining these approaches, I aim to uphold the integrity and credibility of my work while remaining critically aware of my own positionality.

Nadia, the second author, is my PhD advisor and identifies as a queer, neurodivergent woman. They are an advisor of Prism, an LGBTQIA+ student club and are a part of the ASEE Virtual Community of Practice focused on LGBTQIA+ students, faculty, and staff. They are serving as a critical friend on this project and are helping provide another perspective to research design, analysis, and interpretation.

Proposed Methods

Research Site and Participants: For this study, I recruited participants through my existing professional and personal networks, as well as community and organizational connections that cater to LGBTQIA+ individuals in engineering fields. The research

focused on students in engineering programs who identify as part of the LGBTQIA+ community and are of Asian descent. Given the exploratory nature of this study and the specific population being studied, I made every effort to identify all potential participants within my networks who met the criteria. From this pool, I purposefully selected six participants who best represent diverse and meaningful experiences within this group. The selection process aimed to capture diverse gender identities and sexual orientations, reflecting a broader range of challenges. Purposeful sampling ensured that participants provided insights aligned with the study's focus on intersectionality and minority stress in engineering education, allowing me to focus on participants whose narratives provided both depth and relevance to the research questions and aligned with the qualitative emphasis on rich, detailed data.

Data Collection: In this study, I conducted semi-structured interviews with six Asian LGBTQIA+ engineering students. At the time of writing this WIP paper, I had conducted one interview and reported preliminary analysis from that interview. The semi-structured format allowed for flexibility, enabling participants to share their experiences in depth while ensuring that key topics related to their mental health, racial identity, and LGBTQIA+ identity within engineering education are addressed. Interviews were audio-recorded with the participants' consent and transcribed using transcription software. After transcription, I cross-checked the transcripts against the original audio recordings to ensure accuracy and consistency.

If a participant preferred to speak in Mandarin Chinese, the interview was conducted in Mandarin to create a more comfortable and natural conversational environment. As Mandarin is my native language, conducting the interview in Mandarin ensures that linguistic barriers are minimized, allowing participants to express themselves fully. Once the interview was transcribed, I translated the Chinese transcription into English. To maintain the integrity and accuracy of the data, the translated transcription was reviewed by other native Mandarin speakers in my program.

By ensuring accuracy in transcription and translation and employing a rigorous coding process, this study aimed to provide a detailed and nuanced understanding of the unique challenges faced by Asian LGBTQIA+ engineering students.

Below are some of the interview questions:
- Many engineering students describe feeling stressed and anxious. Does this resonate with you? If not, how would you describe how you feel as an engineering student?
- How has your racial identity [racial identity from pre-screening survey] influenced your experience in your program?
- Have you used any support resources in your program or school?
- Imagine an engineering program that is supportive of Asian LGBTQIA+ students. What might that program look like?

These questions are directly addressed through the interview questions focusing on participants' mental health challenges and perceptions of support systems.

Analytical Procedures:

Following the transcription of the interviews, I engaged in open coding (Saldaña,

2021) to identify key segments of data that aligned with my research focus on intersectionality and minority stress. Codes were then grouped into broader themes that reflected common experiences and unique challenges faced by the participants (Braun & Clark, 2006).

Thematic analysis allowed for flexibility in interpreting the data while maintaining a systematic approach, and it has been widely used in studies of marginalized groups. This ensures that the narratives of the participants are meaningfully represented in the analysis, aligning with the study's focus on mental health and intersectionality.

Trustworthiness

To enhance the research's trustworthiness, I implemented a comprehensive approach that addresses potential methodological limitations and ensures the credibility of the study. During the proposal development stage, I engaged in critical discussions with multiple researchers who highlighted the possible risks of insider bias. Their feedback was instrumental in preventing problematic presumptive assumptions, particularly regarding the experiences of Asian Queer individuals. For instance, they cautioned me against framing my initial research question to suggest that all Asian Queer individuals inherently face psychological challenges. By being receptive to this guidance, I carefully reconstructed my research approach to avoid overgeneralized narratives and ensure a more nuanced, respectful representation.

I developed a systematic method of tracking my personal perspectives through detailed identity mapping and ongoing reflective practice. At each significant research stage, I carefully reviewed these maps to understand and critically analyze how my personal background might influence data interpretation. This process of continuous self-reflection is designed to enhance the study's methodological transparency and reduce the impact of potential unconscious biases.

A critical strategy for establishing research trustworthiness is the implementation of member checking (Maxwell, 2013). After transcribing and analyzing interview data, I shared my findings with participants to validate the accuracy of their representations. This process allowed participants to review the interpretations, ensuring that the research findings genuinely reflected their experiences. While protecting participants' privacy and anonymity, member checking serves as a key mechanism for verifying the research's interpretive validity and strengthening the overall credibility of the study's findings.

By integrating these strategies of reflexivity, collaborative critique, and participant validation, I aimed to produce a methodologically sound research study that meets the highest standards of qualitative research trustworthiness.

Preliminary Findings

The preliminary findings from the first interview shed light on the mental health challenges faced by Asian LGBTQIA+ students in engineering and their views on the support they have received or need. The participant, Ming (pseudonym), is a cisgender gay man born in China and currently pursuing a PhD in computer science. Ming shared experiences that reveal how his academic and personal pressures

intersect.

Mental Health Challenges: When Ming moved to the United States for his PhD studies, he faced additional stress from adjusting to a new environment. He observed that "being a sexual minority in the U.S. often means receiving better and more equal treatment, which is a significant factor for many LGBTQIA+ individuals choosing to stay here." This motivated him to consider staying in the country after completing his studies, though it added pressure, as he felt the need to achieve more academically to secure a future in the United States. At the same time, his family held high expectations for his success, creating additional tension. This reflected broader patterns in Asian family culture, where academic achievement is often closely tied to familial pride and expectations of filial responsibility. Such cultural values can intensify stress for LGBTQIA+ students, who may already be navigating complex feelings of acceptance and belonging. Ming's reflection highlighted this tension: while striving to meet family expectations, he simultaneously grappled with concerns about how his queer identity might be perceived within his cultural context. He openly questioned how his life trajectory might have been different, expressing this thought by asking, "If I were straight, would life be easier? Would I have more choices, and maybe not feel compelled to stay in the U.S.?"

He also described significant stress caused by his previous academic advisor, who often engaged in verbal abuse. "My former advisor was quite mean and sometimes made discriminatory remarks against LGBTQ individuals, women, and Asians, which I found very upsetting," he shared. Although he had not disclosed his sexual orientation to the advisor, the negative comments still deeply affected him emotionally. These experiences illustrate how academic stress and exposure to homophobia intersect to impact mental health.

Support Received and Desired: Ming discussed his use of mental health services, both through his school and outside referrals. He noted that counselors with an understanding of Asian cultural contexts provided helpful support, while those lacking this awareness often struggled to relate to his experiences. For example, one counselor, though well-meaning, suggested that he quit his program, which he felt demonstrated a lack of cultural understanding. "They would say things like, 'Why don't you quit?' or 'Why are you doing this research? You could quit and find another job, or go home and pursue something else, like a master's degree.' They did not understand why Asians might make certain decisions." This highlights the importance of culturally informed mental health services for Asian LGBTQIA+ students.

Despite these challenges, Ming reported feeling supported by his current professors and classmates. He emphasized the encouragement he received from Asian LGBT faculty members, whose presence inspired him to persevere. "(Asian) LGBT faculty members who inspired me in terms of life showed that (Asian) LGBT individuals can receive relatively equal treatment in the U.S.," he said, noting how representation had played a crucial role in helping him feel connected and motivated within his program.

Ming also demonstrated a strong sense of self-identity, which he credited to having worked on understanding and affirming his identity early in life. This self-awareness helped him develop personal coping mechanisms that allowed him to manage the various pressures he faced. However, he emphasized that external support systems,

particularly those that understand his cultural background and identity, are still essential for maintaining his mental health.

Future Work

The preliminary insights gained from the first participant have provided valuable perspectives on the unique mental health challenges faced by Asian LGBTQIA+ students in engineering. Building on this foundation, future research will expand the scope by interviewing a broader range of participants with diverse backgrounds. These will include, but are not limited to, individuals with varying gender identities and sexual orientations, different nationalities and cultural contexts, and those born in the United States versus those who immigrated. Special attention will be given to how family cultural expectations shape students' experiences, especially regarding mental health and career choices. Future interviews will explore the influence of family dynamics, including expectations of academic success and attitudes toward LGBTQIA+ identities.

Expanding the participant pool will enable comparative analysis across diverse subgroups and deepen understanding of how intersecting identities shape mental health challenges and coping strategies among Asian LGBTQIA+ engineering students. This continued work seeks not only to deepen the understanding of the mental health struggles in this population but also to highlight the heterogeneity within Asian LGBTQIA+ engineering students. By shedding light on a wide array of experiences, the research aspires to contribute actionable insights for fostering inclusive and culturally responsive mental health support systems in engineering education.

Conclusion

This research highlights the unique mental health challenges faced by Asian LGBTQIA+ students in engineering, drawing attention to a group that has been largely overlooked. By focusing on this doubly marginalized population, the study deepens understanding of how intersectional identities influence experiences in engineering fields.

The findings highlight actionable interventions for supporting Asian LGBTQIA+ students in engineering. The research goes beyond simplistic stereotypes, offering a nuanced examination of the challenges and needs of Asian students. Rather than relying on generalized assumptions, the study provides an in-depth, contextualized understanding of their unique experiences, challenges, and resilience strategies.

Furthermore, the research expands the existing literature on LGBTQIA+ experiences in academia by centering Queer People of Color (QPOC) perspectives. Unlike previous studies that predominantly focused on white gay male experiences, this research amplifies the voices and experiences of Asian LGBTQIA+ students, providing a more inclusive representation of queer experiences in engineering. By bringing visibility to this often-invisible group, the study challenges existing narratives about student experiences in engineering and opens critical pathways for more inclusive and supportive academic environments.

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