BMC Medical Education

RESEARCH

Open Access

Building resilience among undergraduate health professions students: identifying influencing factors

Soi Moi Chye[1], Yih Yih Kok[1], Yu Sui Chen[2] and Hui Meng Er[3*]

Abstract

Background Resilience contributes to mental well-being, hence expediting recovery from stressful events. Health professions students, in particular, often experience heightened levels of stress and anxiety due to academic demands and other stressors. This study aimed to explore the factors contributing to resilience and identify support systems that universities can implement to help undergraduate health professions students build resilience and manage their mental well-being.

Methods A total of 28 students from the fields of Medicine, Dentistry, Pharmacy, and Dietetics and Nutrition participated in semi-structured interviews. All interviews were audio-recorded and transcribed verbatim. The interviews were stopped when data saturation was achieved. The data were analysed using thematic analysis.

Results Thematic analysis of the interviews identified five key themes contributing to resilience: life experience, socioeconomic factors, personal attributes, support resources, and role modelling. Universities play a crucial role in fostering resilience among health professions students through soft skills training, workplace-oriented training, mentoring, and extracurricular activities. These opportunities enable students to develop and strengthen resilience in both formal and informal settings. Such initiatives not only equip students to manage future career challenges but also support their overall personal and professional development.

Conclusions This study provided a comprehensive understanding of the contributing factors to health professions students' resilience. The availability of support resources together with a nurturing environment provided by university are crucial. By fostering resilience, students are better prepared to navigate the challenges of the demanding professions and develop the emotional fortitude necessary for long-term success in healthcare.

Keywords Resilience, Mental well-being, Health professions, Undergraduate students, Extracurricular activities

*Correspondence:
Hui Meng Er
huimeng_er@imu.edu.my
[1]IMU Centre for Education & Department of Applied Biomedical Science and Biotechnology, School of Health Science, IMU University, Bukit Jalil, Kuala Lumpur 57000, Malaysia
[2]IMU Centre for Education & Department of Human Biology, School of Medicine, IMU University, Bukit Jalil, Kuala Lumpur 57000, Malaysia
[3]IMU Centre for Education & School of Pharmacy, Faculty of Medicine and Health Sciences, IMU University, Bukit Jalil, Kuala Lumpur 57000, Malaysia

Background

The World Health Organization (WHO) estimates that three-fourths of mental illness begins before the age of 24. Student life at universities presents unique challenges, such as transitioning from childhood to adulthood, academic stress, sometimes coupled with part-time employment and financial burdens. The likelihood of experiencing psychological distress is at a higher among university students compared to working adults [1]. In particular, health professions students experience more stress than other students because they are exposed to many academic, clinical, and psychosocial stressors such as heavy workloads, examinations and transition from basic science teaching to clinical training [2].

In most Asian families, academic achievement is strongly emphasised as a means of ensuring future success and stability for their children [3]. Consequently, Asian students experience high levels of stress and anxiety [4]. They face pressure to excel not just locally but on an international scale due to the increasing globalisation of education and job markets [5]. These factors are associated with high rates of internalising problems and addiction among university students in ASEAN countries [6]. Internalising problems include personal problems with peers, family, or partner, inadequate social support, and negative self-perception, while addiction is primarily linked to internet and alcohol use. Studies have found that 9% of Chinese students experienced high levels of depression [7], 21% of Japanese students experienced major depressive episodes over a period of a year [8], and 41% of Hong Kong students reported high levels of anxiety [9]. These data raise concerns as it has been reported that 75% of long-term mental disorders develop by the age of 25 [10]. In Malaysia, one of the leading countries for higher education in the Asia-Pacific region, poor mental health is not an exception [11]. In a study conducted at Universiti Sains Malaysia, 30% of medical students reported experiencing high levels of stress [11]. These chronic and persistent distressors have been associated with depression and anxiety. Therefore, there is an urgent need for the comprehensive and systematic development and implementation of mental health policies and practices [12].

Mental health encompasses a person's overall psychological well-being, including emotional, cognitive, and social functioning. While mental illness refers to specific disorders, mental health reflects an individual's broader state of mind and ability to manage life's pressures. Resilience supports mental health by helping individuals recover more quickly from stress, acting as a protective factor against mental health conditions such as depression and anxiety [13]. According to the World Health Organization (WHO), resilience is a key factor in mental health, helping individuals navigate stress and adversity. Resilience is the ability to adapt, recover, and thrive when facing obstacles, difficult situations, and adverse conditions. It involves maintaining psychological strength and emotional well-being in the face of challenges such as personal hardships and external stressors [14]. Socioeconomic factors, including financial instability and limited access to resources, can either impede or enhance resilience, depending on how individuals utilise coping strategies, support systems, and personal strengths [15]. Ultimately, resilience reflects the capacity to not only bounce back from adversity but also to learn and grow from experience [16].

Building resilience not only equips individuals to handle immediate stressors but also promotes long-term well-being and enhances quality of life [13]. Resilience reduces the risk of developing mental health issues, improves emotional recovery, and supports overall well-being [13, 17]. Resilience-building interventions often focus on areas like emotional intelligence, positive psychology, sociology, and philosophy [18]. Roslan et al. [19] highlight that resilience themes among physicians differ from other health professions due to their unique challenges. This suggests that the factors contributing to resilience in health professions students may also vary from those in other academic programmes.

Resilience is shaped by influences such as learning environment, socioeconomic status, resource availability, and cultural background. Cultural background plays a particularly important role in resilience development. For example, Asian cultures emphasise collectivism, prioritising harmony, emotional interdependence, and community [20], while Western cultures often adopt a more individualistic, task-oriented approach [21]. These cultural differences may affect the coping mechanism of health professions students in various regions and contexts. The current literature lacks sufficient exploration of resilience among health professions students in Asia, highlighting the need for deeper investigation. Understanding how resilience is constituted in these students is essential for developing tailored strategies to foster resilience and prepare them to meet the unique challenges of their future professions. This study aims to explore contributing factors to undergraduate health professions students' resilience and hence to identify effective support systems that universities can introduce to assist them in building resilience and prevent burnout, and develop the emotional strength needed for long-term success in the healthcare field.

Materials and methods

Ethics approval

The study protocol was approved by the IMU Joint Committee on Research and Ethics (MHPE I-2023(01)). Participants were briefed on the study's objectives and

project details via Microsoft Teams. Microsoft Teams was utilised for student interviews due to its user-friendly interface and accessibility. As a secure, virtual platform, it allows for remote, real-time communication, which is especially important for conducting individual interviews with participants who may be in different locations. Microsoft Teams enables both video and audio communication, allowing researchers to capture not only verbal responses but also non-verbal cues, which are essential for understanding complex topics like resilience. Additionally, its recording feature allows for the accurate transcription and analysis of data.

Study participants

The study participants were students from the Bachelor of Medicine and Bachelor of Surgery, Bachelor of Dental Surgery, Bachelor of Pharmacy (Hons), and Bachelor of Science (Hons) in Dietetics with Nutrition programmes at the IMU University. Convenience sampling was employed to select participants who were available within the study's timeframe. Their participation was based on voluntary consent, with a clear understanding of confidentiality.

This study's inclusion criteria required participants to be actively enrolled in the above-mentioned programmes at the IMU University to ensure that their insights into resilience were current and relevant. Exclusion criteria encompassed students not enrolled in these programmes or those who had graduated. Additionally, students who did not complete the interview process or provided incomplete responses were excluded, as were those who did not consent to participate or were unwilling to fully engage with the study procedures.

Data collection

This study was conducted using a qualitative research approach according to the Standards for Reporting Qualitative Research (SRQR) guidelines [22]. To explore the factors contributing to students' resilience and how institutions can assist them in developing resilience. Semi-structured individual interviews were carried out using an interview guide consisting of a set of predetermined open-ended questions to ensure consistency across all interviews (Table 1). The initial interview guide was developed by two of the researchers (SMC and HME) and reviewed by two others (YSC and YYK). Their feedback was incorporated to improve the clarity of the interview questions. The guide was divided into two sections with a total of nine questions: contributing factors to resilience (7 questions), and strategies to build resilience (2 questions).

Table 1 Questions covered in the semi-structured interview

Sections	Interview questions
Contributing constructs/factors of resilience	1. How would you define resilience? 2. In your opinion, how important is health professions students to have resilience? 3. What are some examples of resilience that you have encountered in your life? 4. What are the factors that contribute to your resilience? 5. How do you develop or strengthen your resilience? 6. In your experience, what are the challenges that make it difficult for you to stay resilient?
Strategies to build resilience	7. How can the university help to build resilience among health professions students? 8. What are your suggestions for programmes that will help students to develop resilience?

Data collection took place between July 2023 and November 2023. Students were informed of the research purpose, their voluntary participation, and the confidentiality and anonymity of the data processing. Each interview was conducted in English by SMC using the Microsoft Teams platform and lasted between 40 and 60 min. During the interview, the interviewer remained neutral, setting aside her own views and reactions, and listening from a researcher's perspective.

The interviews were concluded once data saturation was reached, which involved systematically tracking the emergence of new codes or themes during the coding process and identifying when the data began to repeat without offering any new insights [23]. All interviews were audio recorded.

Data analysis

Inductive thematic analysis was carried out on the interview data using the method described by Braun & Clarke, (2006) [24]. The researchers worked closely with the data, allowing the themes to develop organically rather than imposing a structure beforehand. First, the interviews were transcribed verbatim, with each interview listened to at least three times to ensure the accuracy of the transcripts. To ensure consistency and reliability in coding during the thematic analysis, the interview transcripts were independently coded by two researchers (SMC and HME), who read and re-read the transcripts to become familiar with the data, allowing them to identify relevant codes. The research team held regular meetings to compare the initial codes generated. The researchers openly shared their perspectives and the reasoning behind their coding choices. These discussions helped identify areas of agreement and disagreement in the coding process. If disagreements between coders arose during the thematic analysis, they were resolved through a collaborative process. Through an iterative process, the coding scheme's consistency was improved. Once the coding framework was finalised, the transcripts were reviewed again using the agreed-upon codes to ensure consistency. The thematic structure, including the main themes and subthemes, was reviewed by all researchers to ensure that it

accurately represented the data and maintained consistency across the dataset.

To ensure reflexivity, the interviewer remained neutral during the interviews. Potential biases were managed by using a pre-determined interview guide to ensure consistency in data collection and by conducting multiple rounds of independent coding and thematic analysis. The research team also engaged in discussions to validate the coding and theme organisation, ensuring that diverse perspectives were considered and that the final themes were grounded in participants' experiences. Furthermore, participants were informed about the study's objectives and their role in it, which helped in minimising biases related to their expectations or perceptions of the research.

Results

Participants' demographic data

The demographic data of the participants are presented in Table 2. This study included both domestic and international students, who had varied experiences, cultural backgrounds, and support systems that could have influenced their resilience and responses. Some of the international students encountered additional challenges such as cultural adjustment and language barriers, which impacted their resilience differently from the domestic students. Different disciplines (Medicine, Dentistry, Dietetics with Nutrition, and Pharmacy) were included in our study to gather views from a broader representation of health professions. This approach provided a comprehensive understanding of resilience across diverse educational and professional contexts.

Table 2 Students' profile participated in the study ($n=28$)

	N	%
Gender		
Male	11	39.29%
Female	17	60.71%
Nationality		
Malaysian	23	82.14%
Sri Lanka	2	7.14%
Singapore	1	3.57%
Maldives	1	3.57%
Taiwan	1	3.57%
Academic Programme		
Medicine	10	35.71%
Dentistry	6	21.43%
Dietetics with nutrition	7	25%
Pharmacy	5	17.86%
Year of study		
1	2	7.14%
2	13	46.43%
3	11	39.29%
4	2	7.14%

Understanding of resilience

Most interviewees described resilience as the ability to cope under stress and bounce back after encountering obstacles. Some indicated that resilience involved not only overcoming obstacles, but also facing future challenges with greater strength. When asked how important it was for health professions students to possess resilience, the interviewees stated that a heavy workload, challenging life circumstances, and encounters with patients' suffering and death necessitated a robust ability to adapt.

Contributing factors to resilience

Five themes emerged from the thematic analysis of the interviews: life experiences, socioeconomic factors, personal attributes, support resources, and role modelling. The themes and sub-themes are shown in Fig. 1.

Life experiences

Life experiences are personal experiences that can be classified under three sub-themes: academic experiences, social encounters, and unforeseen events.

Academic experiences

Interviewees remarked that managing multiple responsibilities concurrently such as academic work, extracurricular activities, and adjusting to a new environment could be overwhelming. However, these challenges could be overcome with the appropriate support from those around them. Through these experiences, they developed resilience skills.

> *It was in the first year of my degree life when I was juggling different responsibilities because I was involved in the volunteering club and then I was also involved in my university clubs as well as the academic responsibilities and to adapt to the new surrounding and some family issues here and there. So yeah, I think I've experienced it, and it wasn't easy. But I think it was because of resilience like you said, I was able to overcome all the challenges one by one. (P26)*

Social encounters

Some interviewees narrated their experiences of isolation, loneliness and depression, due to factors such as bullying by friends, moving to a new environment, or academic stress. After readjusting their mindset and adaptation to new situations, they were able to have a positive experience.

> *I had a very difficult time making friends. There were few people who spread rumours about me cheating*

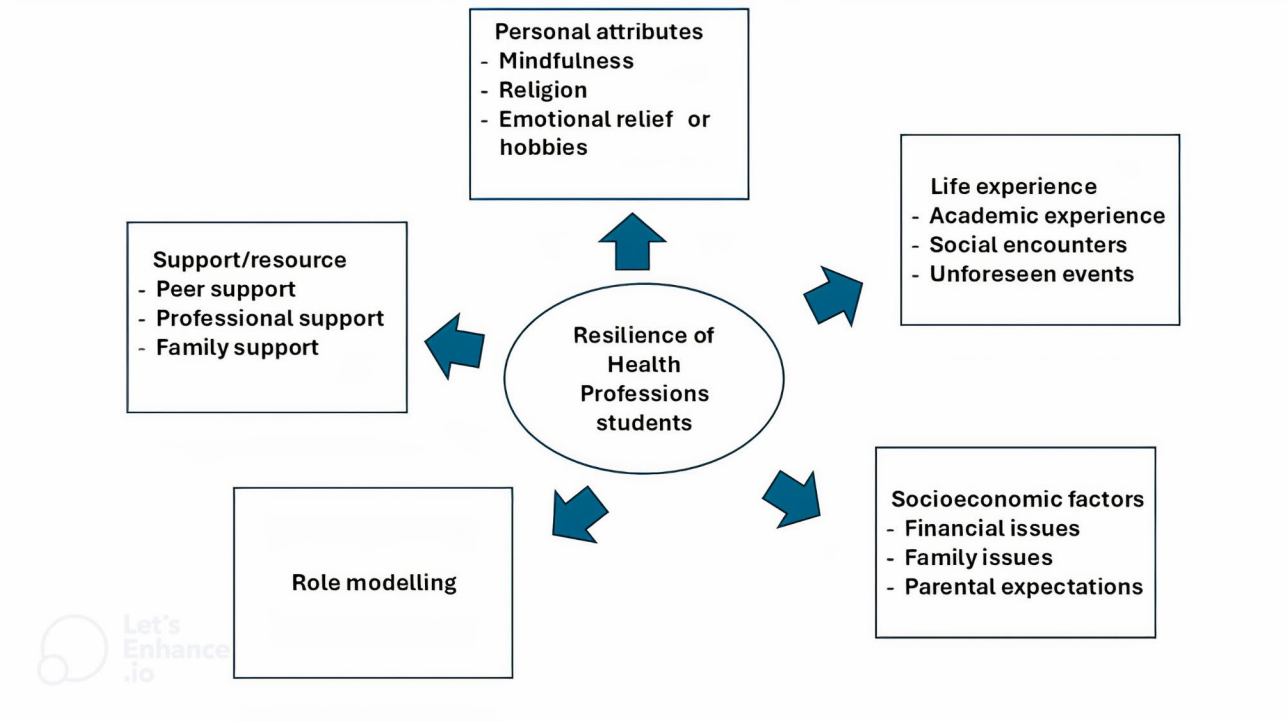

Fig. 1 Summary of themes and sub-themes on contributing factors to health professions students' resilience

in PE exam. So, and then umm, it was quite a difficult time. I felt very lonely, very isolated because I didn't know how to make friends as well. I wasn't willing to speak up. I was afraid of talking to people, it was difficult to make friends and uh at that time..... I tried to figure out how to get along with people. I just kept looking for solutions. I guess that's considered resilience. (P2)

Unforeseen events

Some interviewees discussed their experiences with unforeseen events in life such as the Covid-19 pandemic, tsunamis, and disasters. Through these challenges, they gained insights into handling stress and anxiety, as well as the importance of seeking professional assistance when needed. These experiences contributed to the development of resilience.

I was in the COVID batch. Yeah...so, during my high school times. I had online lessons and wasn't really coping well with the lessons online. My grades were dropping. I went from an A student to like a C student a D student..... So, I just had to take matters into my own hands and just like sacrifice sleep to just study and keep studying ..... I had tuition teachers, so I asked my tuition teachers the questions that I had, and then they were very willing to help me. And then, uh... when I got my results for IGCSE, I went from like a C, D student to a straight A student. (P1)

Socioeconomic factors

The sub-themes underlying socioeconomic factors include financial issues, family issues, and parental expectation. While navigating these challenges, interviewees-built resilience by developing coping strategies, adaptability, perseverance, self-motivation, and emotional strength, all of which are crucial resilience skills.

While finance was not good, I was paying for my father's dialysis and medications through tuition that I would do. I would basically go to children's homes, and I would teach them chemistry, bio, physics, math, economics, so whatever they wanted, I would teach. So that gave me a sense of understanding. If you really want to do something, if you really want to fix a problem, you can. It's just a matter of sitting down, figuring out how to do it and having the willpower to do it. (P13)

Personal attributes

Personal attributes including mindfulness, religion, emotional relief, and hobbies, play a significant role in overcoming challenges, as affirmed by the interviewees.

Mindfulness

Some interviewees commented that reframing one's mindset, establishing life goals, nurturing personal beliefs, fostering self-awareness, and effectively coping with stress are crucial for overcoming challenges and embracing personal growth.

> *For me, was to reframe my thinking and instead of thinking like, I'm the person with dyslexia. I'm bad at reading and bad at writing. Instead, you think in terms of a growth mindset, I can learn to write better. I can learn to read well and that is that frame of mind. It's like whatever failures that you've encountered, you just treat that as an opportunity to learn and grow. (P3)*

Religion

Some interviewees commented that trusting in God's plan brings peace amid challenges.

> *I'm a Christian, so for me I'm just like if anything happens, it's OK. It's just part of God's plan. Plan it is what it is, you know, like it kind of helps you. (P24)*

Emotional relief/hobbies

Interviewees noted that activities such as jogging, meditation, and cooking help to ease stress during challenging times. Developing a hobby is an important component of resilience, contributing to the "feel good" factors that prevent one from losing hope and confidence.

> *Because I'm a person who loves to cook, so when I'm very stressed, I will take some time to …. cook myself a meal. So, I will feel more destressed and have better control of my life because this is one of the things that I think I can do well, at least. (P18)*

Support resources

The sub-themes under support resources include peer, senior, professional, and family support. Interviewees opined that spending time with loved ones is crucial. Moreover, support and encouragement from parents and teachers significantly reduces anxiety caused by academic stress.

> *I've had extra remedial sessions with some of the teachers in school and some of them sat down with me …… tell me, OK, this is what you need to do and this is how you go about doing it …… after I followed the advice, I realised that it gave me a boost of confidence because I realized that, uh, I can be so much better than I am right now. (P3)*

Role modelling

A few of the interviewees shared that they learned from their lecturers, Dean and friends how to manage work and life commitments. They perceive them as their role models, whose qualities, achievements and behaviour inspire them. For example, one interviewee commented that the determination and perseverance of a friend motivated her, and this fostered the growth of resilience within herself.

> *But what motivates me to be better is that I really look up to a lot of people, not just the lecturers, the Dean or sometimes my friends. Also, a lot of people have very admirable traits of them. They're so good. I want to be better because I want to make people feel the same way that they make me feel. (P23)*

Resilience-building strategies

Resilience-building strategies highlighted by the interviewees included soft skills training, workplace-oriented training, mentoring and extracurricular activities.

Soft skills training

The interviewees suggested that the university should offer soft skills training to enhance communication, public speaking, stress management, time management, problem-solving, reflection, mindfulness, meditation, journaling and emotional handling. These are essential skills for building resilience. Face-to-face small group discussion sessions were suggested to improve engagement and effectiveness.

Workplace-oriented training

The interviewees preferred real-life scenarios to enhance the authenticity of the training. One example could involve placing students in a simulated situation where they encounter a distressed patient who is shouting. Students would be required to effectively calm the patient and address the underlying problems.

Mentoring

The interviewees stated that the mentoring system in university played an important role, whereby the mentors, including faculty, peers, or senior students, could provide guidance in managing challenges. Additionally, the university should provide counselling to assist students in times of difficulty. The counsellors could guide them in decision making.

Extracurricular activities

Some interviewees suggested that the university should provide opportunities for students to organise extracurricular events. Through these, students could acquire leadership, communication and time management skills that would help them navigate challenges and setbacks effectively.

Discussion

In this study, the interviewees demonstrated an understanding of resilience as a process involving negotiation, management, and adaptation to significant sources of stress or trauma [25]. The potential to adapt, recover from challenges, and enhance abilities when confronted with adversity aligns with the concept of dynamic resilience, which is the ability of a system or individual to adapt and recover from stressors or perturbations in a dynamic and complex environment [26]. This is especially essential for health professionals who are required to work under pressure in healthcare settings facing resource constraints.

The Conceptual Framework of Resilience (CFR), as outlined by de Oliveira Durso et al. [27], provides a comprehensive understanding of how students cope with stress and adversity in higher education settings. According to the CFR, the major sources of stress in higher education include low initial motivation, personal health challenges, faculty deficiencies, interpersonal conflicts, and competing professional obligations. These stressors can negatively affect students' academic progress, potentially leading to mental health issues or even dropout. However, the CFR emphasises that protective mechanisms, such as adaptability, self-control, strong relationships with faculty, peer integration, and family support, serve as critical buffers that help students manage these challenges and succeed in their studies. Our findings are aligned with the CFR, which identify heavy academic workload, examinations, and busy schedules commonly faced by health professions students as the primary sources of stress. This is in agreement with the broader literatures that academic stress significantly impacts students' mental well-being [28]. Furthermore, as highlighted in Gu's (2018) socio-ecological perspective on resilience, students face various risks and adversities throughout different phases of life, and their ability to access resources in these contexts plays a crucial role in resilience-building [29]. Stressors faced by the students in this study include natural disasters such as tsunamis and the COVID-19 pandemic, to personal and social issues such as family problems, bullying, and heavy workload. Despite these stressors, involvement in extracurricular activities was recognized as a way for students to build resilience. Through participation in extracurricular activities, students develop key skills like leadership, time management, communication, and problem-solving, which contribute to their capacity to handle adversity and succeed academically. These findings underscore the importance of nurturing resilience through both institutional support mechanisms and the development of individual protective factors to help students manage stress and persist in their academic journeys.

Personal attributes can function as protective mechanisms for individuals facing stress and adversity. Research has shown that personality traits can affect anticipatory stress vulnerability and coping effectiveness in occupational critical care situations [30]. The sub-themes within personal attributes encompass mindfulness, religion, and hobbies. Mindfulness enhances resilience by helping individuals manage stress, adapt to change, and overcome adversity. Practising mindfulness can lead to the development of resilience, which in turn contributes to better emotional regulation and overall well-being [31]. Religion guides individuals through life challenges. Research suggests that religion and spirituality can enhance resilience by providing individuals with a sense of meaning, purpose, and support, which helps them cope with adversity and maintain well-being [32]. This was affirmed by the students interviewed in the study. Moreover, the interviewees revealed that engaging in hobbies helped alleviate stress in difficult situations. According to Iwasaki et al., hobbies can improve resilience by providing mental health benefits, boosting mood, building skills, fostering social connections, encouraging goal achievement, redirecting attention from stressors, and promoting a sense of adventure [33]. Hence, it is important for health professions students to explore hobbies while pursuing their academic studies, fostering well-rounded development and mental well-being.

The resilience of students was found to be significantly influenced by the support of their families and friends. Consistent with established resilience factors, the presence of robust social networks plays a crucial role in an individual's ability to respond to adversity [34]. Acknowledging the centrality of social networks is particularly relevant as higher education students navigate the transition to adulthood, offering insights into the significance of relationships and their impact on stress [35]. Based on our thematic analysis, the support resources included peer, family, and professional support. Parental support and encouragement can ease anxiety about academic failure. According to Cheng et al. (2012), family members offer practical social support, encompassing both financial support and emotional assistance, which has been identified as a predictor of academic success [36]. Friends play a significant role in providing emotional support as individuals navigate the challenges of adulthood. Unlike parent-child relationships, friendships are characterised by equality, mutuality, and the absence of hierarchical

dynamics, factors that have been shown to enhance students' subjective well-being [37].

Most of the interviewees in the study expressed a willingness to seek professional assistance when confronted with challenges. This finding contrasts with that of Picton and Kahu (2022) which revealed that despite students' awareness of professional support services offered by their institutions, there was hesitancy in utilising them [38]. The concealment of personal information related to distress, embarrassment and negative experiences stands as a significant impediment to help-seeking behaviour in higher education students [39]. These students typically turn to professional help only when their stress levels reach moderate or high levels [40]. A possible explanation for our study finding is that health professions students have better awareness of mental health issues as this is a topic that is normally incorporated into health professions curricula. Besides supporting resilience, self-awareness and ability to seek help when needed are crucial for health professionals as they enable better patient care and professional growth.

It was evident that students could learn to cope with stress and overcome challenges through role modelling. According to Abaza et al. (2018), role modelling is a powerful way to inspire and teach others how to navigate and overcome challenges. By openly displaying vulnerability and demonstrating how to cope with difficult situations, individuals can set an example for others to follow. This can be particularly impactful in professional settings, as leaders who demonstrate resilience help create a culture of adaptability and support [41]. Having a mentor or role model has been linked to higher levels of resilience, as individuals can draw comparisons by observing how a role model has overcome hardship and feel inspired to be resilient when facing challenges [42]. Indeed, one of the eight roles of medical teacher is "role model as teacher and practitioner" [43].

Higher education plays a significant role in preparing students for the challenges of the modern work environment, in which stress, conflict, and challenging individuals and situations are inevitable [43]. It has been noted that traditional university teaching practices do not adequately prepare students for the workplace [44]. However, students will feel empowered to overcome these challenges in the future if resilience is fostered and opportunities are provided for them to develop strategies for overcoming challenges in the workplace. It has been suggested by many researchers that resilience should be integrated into the curriculum [45, 46]. In particular, a special emphasis was placed on the importance of building resilience during transitions from higher education to the workplace (including fieldwork placements), which is not surprising considering the challenges students face during these transitions [47].

The participants highlighted the crucial role that mentoring systems play in fostering resilience. When students encountered challenges, mentors and counselors offered crucial guidance on problem-solving strategies, enabling them to better manage difficult situations. This aligns with previous research showing that mentoring can enhance emotional support and resilience by providing students with problem-solving frameworks [48]. Additionally, senior-junior sharing sessions were identified as valuable opportunities where seniors relayed their experiences and effective strategies for adapting to various circumstances, echoing findings that peer mentoring aids in resilience by offering practical insights [49]. Students further developed resilience by stepping out of their comfort zones, engaging in new activities like event organisation and leadership roles, which is consistent with literature suggesting that taking on novel responsibilities cultivates adaptability and resilience [50]. The balance between extracurricular activities and academic responsibilities also played a key role in building resilience, as managing multiple commitments enhances one's ability [51]. Moreover, most of the participants in this study have suggested that face-to-face interactive sessions via small group discussions can create a more engaging and effective learning environment. They provide students with opportunities to actively participate, practice communication skills, develop critical thinking and problem-solving skills, and feel a sense of belonging within the learning community. It was supported by Ilic et al. (2015) that group discussion is effective as it facilitates communication, information dissemination, and mutual support [52].

Many participants in our study suggested incorporating soft skills training, including communication skills, stress management, time management, problem-solving, and emotional handling workshops. Studies have proved that soft skill training can improve resilience by optimizing mental and physical health, building inner strength, creating new goals, developing confidence, learning from mistakes, boosting performance, and adapting to change. By intentionally developing these skills, individuals can become more resilient and better equipped to navigate life's challenges. According to Chen, (2011), problem-based learning may contribute to nursing students' resilience, since it provides students with a sense of responsibility, allowing them to receive critical feedback, and encourages them to reflect upon their performance [53]. Apart from that, there are two fundamental factors to consider when determining the right time to deliver resilience training: an appropriate time and an amount of time that is acceptable [54]. It is possible to initiate future resilience training at the beginning of the semester so that participants may be able to apply the skills acquired when dealing with future challenges. Since students may

often have competing priorities, the length and duration of the training should be adjusted accordingly [55]. To enhance the buy-in and engagement of the students, it is crucial that the objectives and relevance of these training are made clear to the students.

Limitations of the study

This study was conducted in one private university in Malaysia. emphasising health professionals as a collective group. Despite the shared commonalities among health professionals, the individual context of each profession may vary. Acknowledging the influence of cultural differences on resilience, this could impact the generalisation of the findings across international settings. In this study, the interview participants mentioned some strategies that helped them build resilience. A survey involving a larger student population should be carried out to confirm the perceptions of the students as well as to determine the effectiveness of these strategies.

Conclusions

In light of the increasing complexity and challenges within healthcare settings, it is imperative for health professions students to appreciate the significance of resilience and take proactive steps to develop skills that enhance their resilience during their academic endeavours. Through life experiences, they can develop coping strategies and adaptability. While personal attributes play a crucial role in overcoming challenges, seeking support and encouragement from parents and peers has proven beneficial in alleviating stress during challenging times. In contrast with previous reports, it was found that health professions students were generally aware of mental health issues and expressed willingness to seek professional support when necessary. Notably, the study revealed that role modelling could contribute positively to the development of resilience.

Higher education plays an important role in equipping students with the skills to navigate the complexities of the modern workplace. Resilience training is essential to empower students to overcome future workplace challenges and should therefore be integrated into both curriculum and extracurricular activities. Essential soft skills training at the university encompasses communication, public speaking, emotional management, time management, problem-solving, reflection, mindfulness, meditation, and emotional handling. Small group discussion incorporating real-life workplace scenarios have been suggested for optimal effectiveness. Mentoring by faculty, peers, and senior students could offer guidance in overcoming challenges, alongside counseling services provided by the university to aid students during difficult times. The findings of the study have led to a better understanding of contributing factors to undergraduate students' resilience and have provided evidence for institutional strategies to support health professions students' well-being, growth, and future success.

Acknowledgements

We would like to thank IMU University for funding this research. Also, we wish to thank all the students who participated in this research.

Author contributions

SMC contributed to the data acquisition, data analysis and interpretation, drafting and critical revision and approval of the article.YYK contributed to the data analysis and interpretation, critical revision and approval of the article. YSC contributed to the design of the study, data analysis and interpretation, critical review, and approval of the article.HME contributed to the conception and design of the study, data analysis and interpretation, critical review and approval of the article.

Funding

The study was funded by the IMU University (formerly known as International Medical University) Research Grant (MHPE I-2023(01)).

Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

This study was approved by was approved by the IMU Joint Committee on Research and Ethics (MHPE I-2023(01)). Written informed consent was obtained from all the participants involved in these interviews and to audio record these interviews.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Received: 11 May 2024 / Accepted: 3 October 2024
Published online: 18 October 2024

References

1. Pedrelli P, Nyer M, Yeung A, Zulauf C, Wilens T. College students: Mental Health problems and treatment considerations. Acad Psychiatry. 2015;39:503–11.
2. Gonçalves A, Fontes L, Simães C. Stress and burnout in health professionals. Occupational and Environmental Safety and Health; Springer Nature Switzerland AG; 2019.
3. Yim EPY. Effects of Asian cultural values on parenting style and young children's perceived competence: a cross-sectional study. Front Psychol. 2022;13:905093.
4. Kramer EJ, Kwong K, Lee E, Chung H. Cultural factors influencing the mental health of Asian americans. West J Med. 2002;176:227–31.
5. Liu A, Xie Y. Why do Asian americans academically outperform whites? – the cultural explanation revisited. Soc Sci Res. 2016;58:210–26.
6. Dessauvagie AS, Dang HM, Nguyen TAT, Groen G. Mental Health of University Students in Southeastern Asia: a systematic review. Asia Pac J Public Health. 2022;34:172–81.
7. Song Y, Huang Y, Liu D, Kwan JS, Zhang F, Sham PC, Tang SW. Depression in college: depressive symptoms and personality factors in Beijing and Hong Kong college freshmen. Compr Psychiatry. 2008;49:496–502.
8. Tomoda A, Mori K, Kimura M, Takahashi T, Kitamura T. One-year prevalence and incidence of depression among first-year university students in Japan: a preliminary study. Psychiatry Clin Neurosci. 2000;54:583–8.
9. Wong JG, Cheung EP, Chan KK, Ma KK, Tang SW. Web-based survey of depression, anxiety and stress in first-year tertiary education students in Hong Kong. Australian New Z J Psychiatry. 2006;40:777–82.

10. Kessler R, Amminger P, Aguilar-Gaxiola S, Alonso J, Lee S, Ustun B. Age of onset of mental disorders: a review of recent literature. Curr Opin Psychiatry. 2007;20:359–64.
11. Yusoff MSB, Abdul Rahim AF, Yaacob MJ. Prevalence and sources of stress among Universiti Sains Malaysia medical students. Malays J Med Sci. 2010;17:30–7.
12. Shapiro SL, Shapiro DE, Schwartz GE. Stress management in medical education: a review of the literature. Acad Med. 2000;75:748–59.
13. Cleary M, Kornhaber R, Thapa DK, West S, Visentin D. The effectiveness of interventions to improve resilience among health professionals: a systematic review. Nurse Educ Today. 2018;71:247–63.
14. Smith BW, Tooley EM, Christopher PJ, Kay VS. Resilience as the ability to bounce back from stress: a neglected personal resource? J Posit Psychol. 2018;13:321–33.
15. Ungar M. Resilience, trauma, context, and culture. Trauma Violence Abuse. 2013;14:255–66.
16. Masten AS. Global perspectives on resilience in children and youth. Child Dev. 2014;85:6–20.
17. Southwick SM, Bonanno GA, Masten AS, Panter-Brick C, Yehuda R. Resilience definitions, theory, and challenges: interdisciplinary perspectives. Eur J Psychotraumatol. 2014;5:25338.
18. Helmreich I, Kunzler A, Chmitorz A, König J, Binder H, Wessa M, Lieb K. Psychological interventions for resilience enhancement in adults. Cochrane Database Syst Rev. 2017;2017:CD012527.
19. Roslan NS, Yusoff MSB, Morgan K, Ab Razak A, Ahmad Shauki NI. What are the common themes of Physician Resilience? A Meta-synthesis of qualitative studies. Int J Environ Res Public Health. 2022;19:469.
20. Cui T, Wang C, Xu J. Validation of academic resilience scales adapted in a collective culture. Front Psychol. 2023;14:1114285.
21. Boyle GJ, Wongsri N, Bahr M, Macayan JV. Cross-cultural differences in personality, motivation and cognition in Asian vs. western societies. Pers Individ Differ. 2020;59:109834.
22. O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. Acad Med. 2014;89:1245–51.
23. Saunders B, Sim J, Kingstone T, Baker S, Waterfield J, Bartlam B, Burroughs H, Jinks C. Saturation in qualitative research: exploring its conceptualization and operationalization. Qual Quant. 2018;52:1893–907.
24. Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol. 2008;3:77–101.
25. Cassidy S. Resilience building in students: the role of academic self-efficacy. Front Psychol. 2015;6:1781.
26. Stainton A, Chisholm K, Kaiser N. Resilience as a multimodal dynamic process. Early Interv Psychiatry. 2019;13:725–32.
27. de Oliveira Durso TD, Duarte JS, Brito JF. Conceptual framework of resilience in higher education: the student perspective. J Educ Psychol. 2021;113:591–604.
28. Barbayannis G, Bandari M, Zheng X, Baquerizo H, Pecor KW, Ming X. Academic stress and Mental Well-being in College students: correlations, affected groups, and COVID-19. Front Psychol. 2022;13:886344.
29. Gu Q. (Re)conceptualising teacher resilience: A social-ecological approach to understanding teachers' professional worlds. Resilience in education: Concepts, contexts and connections. Resilience in Education; Springer Nature Switzerland AG 2018. pp 13–33.
30. Schlatter S, Louisy S, Canada B, Thérond C, Duclos A, Blakeley C, Lehot JJ, Rimmelé T, Guillot A, Lilot M, Debarnot U. Personality traits affect anticipatory stress vulnerability and coping effectiveness in occupational critical care situations. Sci Rep. 2022;12:20965.
31. Oh VKS, Sarwar A, Pervez N. The study of mindfulness as an intervening factor for enhanced psychological well-being in building the level of resilience. Front Psychol. 2022;13:1056834.
32. Lassi S, Mugnaini D. Role of religion and spirituality on mental health and resilience: there is enough evidence. Int J Emerg Ment Health Hum Resil. 2015;17:661–3.
33. Iwasaki Y, MacTavish J, MacKay K. Building on strengths and resilience: leisure as a stress survival strategy. Br J Guid Counc. 2010;33:81–100.
34. Bartoş SE, Langdridge D. LGBQ resilience: a thematic meta-synthesis of qualitative research. Psychol Sex. 2019;10:234–47.
35. Manago AM, Taylor T, Greenfield PM. Me and my 400 friends: the anatomy of college students' Facebook networks, their communication patterns, and well-being. Dev Psychol. 2012;48:369–80.
36. Cheng W, Ickes W, Verhofstadt L. How is family support related to students' GPA scores? A longitudinal study. High Educ. 2012;64:399–420.
37. Ratelle CF, Simard K, Guay F. University students' subjective well-being: the role of autonomy support from parents, friends, and the romantic partner. J Happiness Stud. 2013;14:893–910.
38. Picton C, Kahu ER. I knew I had the support from them': understanding student support through a student engagement lens. High Educ Res Dev. 2022;41:2034–47.
39. Masuda A, Boone MS. Mental health stigma, self-concealment, and help-seeking attitudes among Asian American and European American college students with no help seeking experience. Int J Adv Couns. 2011;33:266–79.
40. Stallman HM, Beaudequin D, Hermens DF, Isenberg D. Modelling the relationship between healthy and unhealthy coping strategies to understanding overwhelming distress: a bayesian network approach. J Affect Disord. 2021;3:1–7.
41. Abaza MM, Nelson KG. Leading by example: role modeling resilience helps our learners and ourselves. Acad Med. 2018;93:157–8.
42. Halpin SN, Dillard RL, Idler E, Clevenger C. The benefits of being a senior mentor: cultivating resilience through the mentorship of health professions students. Gerontol Geriatr Educ. 2017;38:283–94.
43. Harden RM, Lilley P. The eight roles of the medical teacher: the purpose and function of a teacher in the healthcare professions. Edinburgh: Elsevier; 2018.
44. Cuadra D, Famadico L. Male nursing students' emotional intelligence, caring behavior, and resilience. Int J Arts Sci. 2013;6:243–60.
45. Slavin SJ, Schindler DL, Chibnall JT. Medical student mental health 3.0: improving student wellness through curricular changes. Acad Med. 2014;8:573–7.
46. Wankel LA, Wankel C. Integrating curricular and co-curricular endeavors to enhance student outcomes. Leeds: Emerald Group Publishing Limited; 2016. pp. i–xxi.
47. Grant-Smith D, Gillett-Swan J. WIL wellbeing: exploring impacts of unpaid practicum on student wellbeing. Perth, WA: National Centre for Student Equity in Higher Education, Curtin University; 2017.
48. Schwartz S, Lowe A, Rhodes J. Mentoring relationships and resilience among college students: a longitudinal study. J Youth Adolesc. 2018;47:1804–15.
49. Colvin JW, Ashman M. Roles, risks, and benefits of peer mentoring relationships in higher education. Mentor Tutoring: Partnersh Learn. 2010;18:121–34.
50. Davies S, Randall R, West MA. Developing leadership through student activities: the role of experiential learning. J Leadersh Educ. 2015;14:36–47.
51. Turner M, McCarthy V. Extracurricular activities, resilience, and academic performance in university students. J Educ Psychol. 2017;109:886–901.
52. Ilic D, Nordin RB, Glasziou P, Tilson JK, Villanueva E. A randomised controlled trial of a blended learning education intervention for teaching evidence-based medicine. BMC Med Educ. 2015;15:39.
53. Chen JY. Problem-based learning: developing resilience in nursing students. Kaohsiung J Med Sci. 2021;27:230–3.
54. Peng L, Li M, Zuo X, Miao Y, Chen L, Yu Y, Liu B, Wang T. Application of the Pennsylvania resilience training program on medical students. Pers Individ Differ. 2014;61:47–51.
55. Steinhardt M, Dolbier C. Evaluation of a resilience intervention to enhance coping strategies and protective factors and decrease symptomatology. J Am Coll Health. 2008;56:445–53.

Publisher's note