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Gender, psychological well-being, and burnout among students in Malaysian higher institution: The mediating effect of social support

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Abstract In the hallowed halls of academia, a silent epidemic rage, where the pursuit of knowledge clashes with the crushing burden of burnout, leaving college students struggling for solace and sanity. This study uses the demand resource theory to determine the role of social support as the mediating factor in the relationship between psychological well-being and burnout in a population of undergraduate students in Klang Valley, Malaysia. Four hundred sixty-one respondents who participated in this study were students from four public universities in Malaysia. A self-report questionnaire comprising questions on the Burnout Clinical Subtype Questionnaire, Multidimensional Scale of Perceived Social Support, and Psychological Well-being Scale was used for data collection. Data was analyzed using IBM SPSS version 23 and Partial Least Square version 3. Findings revealed that female students experience more burnout than male students; students in their fourth year of study experienced more burnout than students in previous years of study; there is a significant negative relationship between students' psychological well-being and burnout; and social support mediates the relationship between psychological well-being and burnout among students. Theoretical and practical implications are discussed.

Keywords: demand resource theory, students' mental health, higher education

1. Introduction

Burnout is a ubiquitous phenomenon that can manifest among individuals engaged in intellectually immersive endeavours, particularly within the ambit of higher education (Costa et al., 2012). Research indicates that burnout, whether in occupational or educational contexts, comprises three dimensions: emotional exhaustion, cynicism, and diminished professional efficacy (Kaggwa et al., 2021; Maslach & Jackson, 1981; Portoghese et al., 2018). Academic cynicism is a sceptical and distrustful attitude towards the value and integrity of academic pursuits; emotional exhaustion pertains to a state of profound tiredness and depletion of emotional energy within an educational context; and diminished academic efficacy signifies a reduced sense of achievement and effectiveness in scholarly endeavours.

Academic burnout transcends geographical and cultural boundaries across diverse educational institutions and policies (Walburg, 2014). School burnout manifests as distinct psychological symptoms from the stress and academic pressures experienced during higher education studies (D'aurora & Fimian, 1988). A recent European study observed that Hungarian students exhibited heightened levels of emotional exhaustion, cynicism, and diminished sense of accomplishment, indicative of symptoms associated with burnout (Jagodics & Szabó, 2022). Similarly, a meta-analytical study of burnout among university students in low and middle-income countries found the prevalence of burnout among students to be around 12.1% (Kaggwa et al., 2021). Burnout exerts a multifaceted influence on the academic performance of college students. It diminishes their motivation, exacerbates psychological distress, and disrupts their overall mental well-being (Barbayannis et al., 2022; March-Amengual et al., 2022). Chronic academic burnout can cause lasting physical health problems, including cardiovascular issues, weakened immunity, and chronic fatigue. It also contributes to persistent mental health issues like anxiety and depression, impacting overall well-being beyond college (Edú-valsania et al., 2022; Madigan & Curran, 2021).

Indeed, an emerging issue in academia is the escalating prevalence of academic burnout, which is paralleled by a surge in psychological distress epidemics, including depression, anxiety, and stress (Barbosa et al., 2016; March-Amengual et al., 2022; Yu & Chae, 2020). This phenomenon is particularly pronounced among university students, posing a significant concern that warrants investigation and intervention. The observable upward trend of psychological distress among college students worldwide is not inconspicuous in Malaysia. A study revealed a 27.5% prevalence of mild depression and a 9.7% prevalence of severe psychological issues among Malaysian university students (Islam et al., 2016). Also, notable findings that emerged in a study of 506 students hailing from four public universities in Malaysia found that approximately 27% of the students reported experiencing moderate depression, while a substantial 34% acknowledged experiencing moderate anxiety levels. Empirical

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research indicates that individuals exhibiting higher levels of psychological well-being demonstrate enhanced adaptive capabilities in managing challenging circumstances, particularly when they employ constructive and efficacious coping strategies (Daykin et al., 2018; Rehman et al., 2020; Shin & Park, 2022).

Although evidence is available on issues relating to the mental health of university students in Malaysia, including anxiety and stress (Wong et al., 2023) and burnout among medical students in Malaysia (Tee et al., 2022; Yusoff et al., 2010), specific evidence on the role of psychological well-being in the burnout of Malaysian university students in various fields of study is scarce. Also, due to the inconsistent findings on gender differences in psychological distress among Malaysian youths (Ibrahim et al., 2017; Yaacob et al., 2009), the present study seeks to investigate potential variations in a possible outcome of psychological distress based on gender among Malaysian students. Also, evidence on the role of social support as a potential coping mechanism is limited in the Malaysian context; therefore, research is necessary to enhance scholarly comprehension of burnout and its underlying processes among Malaysian students across diverse academic disciplines. Hence, the current study aims to make the following contributions. Firstly, we build upon the existing literature on demand resource theory intending to test its assumptions and reinforce its applicability within the Malaysian higher education context by leveraging variance-based structural equation modelling to offer a model that accurately predicts burnout. Secondly, we aim to provide evidence that would guide resource allocation for categories of students most plagued with burnout with a particular focus on gender and level of education. Thirdly, examine the role of social support as a mediating factor in students' psychological well-being and burnout relationships. Such insights hold the potential to create a positive ripple effect, possibly mitigating the upward trajectory of academic burnout and informing interventions aimed at improving students' psychological well-being and other positive educational outcomes.

1.1. Theoretical background

This study builds on the foundation of the Demand-Resource theory (DRT). The basic assumption of the DRT is that burnout is a product of an imbalance between work demands and resources (Bakker & Demerouti, 2017). Job demands require psychological effort and are related to some physiological costs (Edú-valsania et al., 2022). These include stress, exhaustion, time pressure, conflicts with clients, superiors, peers, etc. Job resources are the psycho-social, organizational and physical attributes of work that suppress job demands, occupational stressors, and their resultant mental and physical implications. Research indicates that job resources are motivational driven and improve work engagement and organizational commitment (Dubbelt et al., 2016). Therefore, the more job resources there are, the less burnout individuals will experience from psychological stress on the job. The demand resources model has been a consistent framework in studying burnout syndromes (Jagodics & Szabó, 2022).

Social support plays an essential role in the demand resource theory as it cushions the effect of job stressors and improves well-being. Research indicates that burnout among nurses increases when work demands increase and reduces when resilience and social support levels are high (Yang & Gu, 2019). Social support has proved a vital resource and a significant mediator in studies conducted using the demand resource theory among teachers and nurses (Okojie et al., 2023; Wang et al., 2024). A ten-year longitudinal study found that an increase in psycho-social resources was associated with a reduction in depressive symptoms among residents of San Francisco over two decades ago (Holahan et al., 1999). Although the job demand-resource model has provided a comprehensive paradigm for understanding the antecedents of burnout in many organizational contexts, its understanding within the educational context is limited (Jagodics & Szabó, 2022).

In the higher education context, typical demands on higher education students are academic pressures, financial stressors, social expectations, time management and maintenance of psychophysiological well-being (Adeyemi et al., 2019; Daud et al., 2020; Fischetti et al., 2020; Joo et al., 2008; Wolters & Brady, 2021)—these relentless demands in combination, shape students' potential for academic excellence and their psychological well-being. The current study aims to provide an understanding of the underlying mechanism by which psychological well-being influences burnout among university students in an attempt to validate some of the assumptions of the demand resource theory in the higher educational context and, where possible, provide insights for refinement. It examines disparities that may exist in student burnout at each level of study. In addition, it provides insight into the gender disparity that may exist in burnout within the educational context, as research on gender differences in burnout tends to produce inconsistent findings, and where some significant findings exist in the corporate world, effect sizes are small, e.g. women were a little more emotionally exhausted, while their male counterparts where a little more depersonalized (Purvanova & Muros, 2010).

The first objective of the study is to determine the gender-related differences in students' burnout. We argue that academic burnout is a significant problem that can lead to long-term difficulties adapting to educational environments and potential dropouts. This is a common issue that affects students of all genders, at every academic level, and from primary school to postgraduate studies (Admin et al., 2023; Erschens et al., 2019; Fiorilli et al., 2022; March-Amengual et al., 2022; Vinter et al., 2021; Yang & Chen, 2016). Research indicates that female students experience burnout more frequently than their male counterparts (Andrade et al., 2023; Mahfouz et al., 2020). For example, a study of 494 Italian university students discovered that female students experienced higher levels of exhaustion, cognitive impairment, and emotional impairment than male students (Fiorilli et al., 2022). However, some studies have found no significant differences in academic burnout

between male and female students. For instance, a study focusing on 97 medical students in Korea revealed no significant difference in academic burnout between the sexes. However, female students scored higher on positive relations with others, whereas male students scored higher on cynicism. Male students tend to give up academics earlier when they experience severe academic burnout (Jihye Yu & Chae, 2020).

Similarly, a study conducted among 506 first-semester university students in Spain found no significant differences in burnout levels between the male and female respondents. Interestingly, the study revealed a significant difference between sexes in depersonalization, a dimension of academic burnout. This emphasizes the need for further research to explore the relationship between gender and burnout and the factors contributing to depersonalization among male and female students (March-Amengual et al., 2022).

A study conducted among medical students in Malaysia in 2016 found no significant correlation between burnout prevalence and sex (Chin et al., 2016). However, another study found that male students, Malaysians, third-year medical school students, and those with lower CGPA scores had a significantly higher risk of academic burnout (Daud et al., 2020). Interestingly, a recent study conducted during the COVID-19 pandemic in Malaysia revealed that female clinical-year undergraduate medical students exhibited significantly higher levels of anxiety and burnout than their male counterparts (Tee et al., 2022). However, studies have shown that academic burnout is not limited to medical students and that the findings on gender differences among university students are contradictory. Therefore, it is necessary to investigate further gender differences among students enrolled in Malaysian public universities and to develop effective strategies for resolving academic burnout. As a result, this study hypothesizes that:

H1. The occurrence of burnout among university students varies by gender.

The second objective of the study is to assess the variations in students' burnout based on their academic year of study. University students experience different challenges and adjustments every academic year. First-year students experience a transition period in which they experience academic adaptation and social adjustment. This triggers emotional exhaustion and burnout. However, a recent study examining the experiences of first-year college students in health science and non-health science fields, found that academic burnout levels were relatively low, even among health science first-year students. Specifically, first-year students are more susceptible to psychological distress than to burnout (March-Amengual et al., 2022). However, freshman medical students are still vulnerable to academic burnout (Barbosa et al., 2016). A study of Korean medical students found that academic burnout varies significantly by year of study. This study revealed that first and second-year preclinical students experienced more severe academic burnout than third- and fourth-year clinical students, with significant differences in emotional exhaustion and cynicism (Jihye Yu & Chae, 2020). Among clinical medical students, a Malaysian study identified that Year 3 clinical students exhibited higher rates of burnout and anxiety than their Year 4 and Year 5 counterparts because Year 3 students are still adjusting to clinical responsibility and developing effective coping mechanisms. Conversely, Year 4 and Year 5 students experienced the same situation and decomposed their psychiatry posts, which may have given them greater awareness and understanding of mental health issues (Tee et al., 2022). Another study focusing on medical students at Jazan University reported a high level of burnout among students in their fifth year and the lowest level among sixth-year students (internship). However, this difference was insignificant (Mahfouz et al., 2020). Given these, the current study hypothesizes that:

H2. Burnout among university students in their academic years differs annually, and students' burnout increases as they progress through higher academic years of study.

The third objective of the study is to determine the effect of psychological well-being on students' burnout. The relationship between psychological well-being and burnout has been studied extensively in the existing literature. Academic burnout occurs when individuals experience increased life stress (Lin & Huang, 2014). Decreased psychological well-being can be an early warning sign for imminent burnout. One study found that students with psychological distress had a higher prevalence of burnout (March-Amengual et al., 2022). Furthermore, previous studies found that psychological well-being negatively correlates with academic burnout (Indreswari et al., 2022; Yu & Chae, 2020). Thus, psychological well-being can be a risk and protective factor against academic burnout. Individuals with higher psychological well-being can cope with difficult situations by employing effective coping strategies. They may seek social support and participate in self-help activities that can help prevent or mitigate burnout (Freire et al., 2016). However, research shows that university students who experience anxiety or depression are more likely to experience burnout when exposed to stress (Koutsimani et al., 2019). Considering Malaysia is a collectivist society, the existing cultural fusion of various ethnic groups and an inclusive curriculum design, suggests that students are well-positioned for better psychological well-being and lower burnout. Hence this study aims to explore these unique social and educational contexts. Therefore, we hypothesize that:

H3. Lower levels of psychological well-being are associated with higher levels of student burnout.

The fourth objective of the study is to determine the potential mediating role of social support in the relationship between psychological well-being and students' burnout. Existing research has briefly investigated the relationship between psychological well-being and burnout among university students. However, the underlying association requires further investigation. Social support is a crucial factor that influences student burnout. It is negatively associated with academic burnout and vice versa (Karimi et al., 2014; Ye et al., 2021). One study showed that lower perceptions of social support are

predictors of burnout syndrome among postgraduate nursing students (Galdino et al., 2016). Studies have shown that social networks such as parental support (Olwage & Mostert, 2014), classmate support (Abarghuei et al., 2016), family functionality (Andrade et al., 2023), and peer support (Yu et al., 2021) are significantly associated with burnout. Hence, It follows that when individuals perceive their social network as supportive, their psychological well-being increases and the likelihood of burnout decreases (Admin et al., 2023).

Furthermore, environmental support systems helped Taiwanese international students possess a high level of resilience to maintain their psychological well-being and indirectly influence their susceptibility to burnout (Tran et al., 2023). Social support is a buffer in the relationship between psychological well-being and burnout. However, few studies have investigated the mediating effect of social support on the relationship between psychological well-being and student burnout in higher education. A survey of Chinese universities found that social support significantly mediates the relationship between burnout and subjective well-being (Rehman et al., 2020). Therefore, further understanding of the role of social support is crucial for developing coping strategies to avoid academic burnout among university students. Consequently, we hypothesize that:

H4. Social support mediates the relationship between psychological well-being and student burnout.

2. Materials and Methods

2.1. Participants and procedures

This study was conducted in Klang Valley, Malaysia. Klang Valley was chosen mainly because it has the highest concentration of undergraduate students in Malaysia. A stratified random sampling was employed to ensure a proportional representation of undergraduate students from public universities in the Klang Valley, Malaysia. The population was divided into strata based on university affiliation, and respondents were selected proportionally from each subgroup. The target population consisted of students from Universiti Putra Malaysia (UPM), Universiti Kebangsaan Malaysia (UKM), Universiti Islam Antarabangsa Malaysia (UIAM), and Universiti Pertahanan Nasional Malaysia (UPNM), with a total population of approximately 56,915 students. Specifically, UPM had 19,244 students, UKM had 14,971 students, UIAM had 20,000 students, and UPNM had 2,700 students. The sample size was determined using Cochran's formula (1977), with a 95% confidence level and a 5% margin of error. This yielded an initial sample size of 384 respondents. To account for potential non-responses or incomplete surveys, a 20% buffer was added, resulting in a final target sample size of 461 respondents. The sample was proportionally allocated across the four universities as follows: 156 respondents from UPM, 121 from UKM, 162 from UIAM, and 22 from UPNM, based on the respective population sizes of each university. Although the sample size from UPNM (22 respondents) is relatively small, this approach ensures that all universities are represented. The small sample size for UPNM is acknowledged as a limitation, particularly for subgroup-specific analyses. A self-report questionnaire was administered to respondents in classrooms, university libraries and halls of residences.

2.2. Measures

In addition to gathering sociodemographic information, participants in this research were also queried about their burnout, social support, and psychological well-being.

Burnout. The Burnout Clinical Subtype Questionnaire Students Survey (BCSQ-12-SS) designed by Montero-Marin et al. (2011) was used to measure burnout among students in this study. The questionnaire comprises three subtypes of burnout, which are the frenetic subtype (overload), the under-challenged subtype (lack of development), and the worn-out subtype (neglect). Items were measured on a 7-point Likert-type scale ranging from (1) Strongly disagree to (7) Strongly agree. Examples of items used in the analysis from the BCSQ-12-SS are 'I neglect my personal life to pursue great accomplishments in studying' and 'I feel that my current studies are hampering the development of my abilities'. The reliability score of the BCSQ-12-SS in the study was 0.94.

Psychological well-being. A short version of the Psychological Well-being Scale (PWB) tool by Ryff & Keyes (1995) was used to assess the psychological well-being of participants in this study. Items were measured on a 7-point Likert-type scale ranging from (1) Strongly disagree to (7) Strongly agree. Examples of items on the PWB scale are 'In many ways, I feel disappointed about my achievements in life' and 'I live life one day at a time and don't think about the future'. Cronbach's alpha (α) for this scale was 0.90.

Social support. This study measured social support using the twelve-item Multidimensional Scale of Perceived Social Support (Zimet et al., 1988). Respondents answered this questionnaire on a 7-point Likert type Scale ranging from (1) Strongly disagree to (7) Strongly agree. Sample items include 'I get the emotional help and support I need from my family' and 'My family is willing to help me make decisions'. The Multidimensional Scale of Perceived Social Support reported a Cronbach's alpha (α) value 0.90.

2.3. Analytical strategy

Data analysis was conducted using IBM SPSS version 23 and Partial Least Square version 3 (PLS 3.2.8) software. Using SPSS, the researchers examined the descriptive statistics of the respondents. We analyzed the differences in respondent's

burnout based on gender and years of study. We conducted an independent sample t-test to test if there is a statistically significant mean difference in burnout between male and female students. The observations were independent of each other, the students were selected based on random sampling, and the assumption of homogeneity of variance was not violated. Results reveal that Female students (M = 38.6, SD = 12.7) compared to male students (M = 35.1, SD = 9.0) demonstrated significantly higher burnout scores, t (459) = -3.3, p = .00.

A one-way between-subjects ANOVA was performed to compare the effect of five levels of study on students' burnout. Results revealed that there was a statistically significant difference in mean burnout between at least two groups (F (4, 456) = [7.766], p = 0.00). Tukey's HSD Test for multiple comparisons found that the mean value of burnout significantly differed between first-year and fourth-year students (p = 0.035, 95% C.I. = [-10.40, -0.246]). There was a statistically significant difference in burnout between second and fourth-year students (p = 0.001, 95% C.I. = [-9.07, -1.60]). There was also a statistically significant difference in burnout between third- and fourth-year students (p = 0.02, 95% C.I. = [-7.75, -.43]).

2.4. Measurement model evaluation

The examination of the study's measurement model encompassed an analysis of its reliability, convergent, and discriminant validity aspects. All variables were subject to reflective measurement. Notably, the factor loadings for all constructs consistently exceeded the threshold of 0.50 as seen in Figure 1, signifying robust convergent validity. The computed indices for composite reliability (CR), Cronbach's alpha, and average variance extracted (AVE) all notably exceeded their stipulated thresholds of 0.6, 0.7, and 0.5, respectively (Hair et al., 2017). This observation, as elucidated in Table 1, underscores a noteworthy level of measurement reliability. In the present study, the assessment of discriminant validity, an essential element in model evaluation, was performed using both the Fornell-Larcker criterion and the Heterotrait-monotrait ratio of correlations (HTMT). Table 1 reveals that the square root of the AVE for each construct is greater than the correlation between each construct and all other constructs in the model. This indicates that the assumptions of discriminant validity have been met going by (Fornell and Larcker, 1981). Similarly, the ratio of correlations between constructs of different traits should be less than 0.9, indicating the presence of discriminant validity, according to (Henseler et al., 2015).

Table 1 Validity and reliability of measures.

Fornell-Larcker criterion					HTMT						
	Construct	1	2	3	1	2	3	α	Rho_A	CR	AVE
1	BO	0.812						0.935	0.939	0.945	0.659
2	PWB	-0.812	0.819		0.877			0.902	0.904	0.924	0.671
3	SS	-0.409	0.385	0.885	0.440	0.419		0.908	0.914	0.935	0.784

2.5. Structural model

Findings from PLS-SEM reveal that a significant association supported hypothesis 3 at a p=.00 significance level (see Table 2). Psychological well-being was found to be significantly and negatively associated with burnout (β=-0.769, t=21.84, SD=0.035, f2=1.529, p=.00).

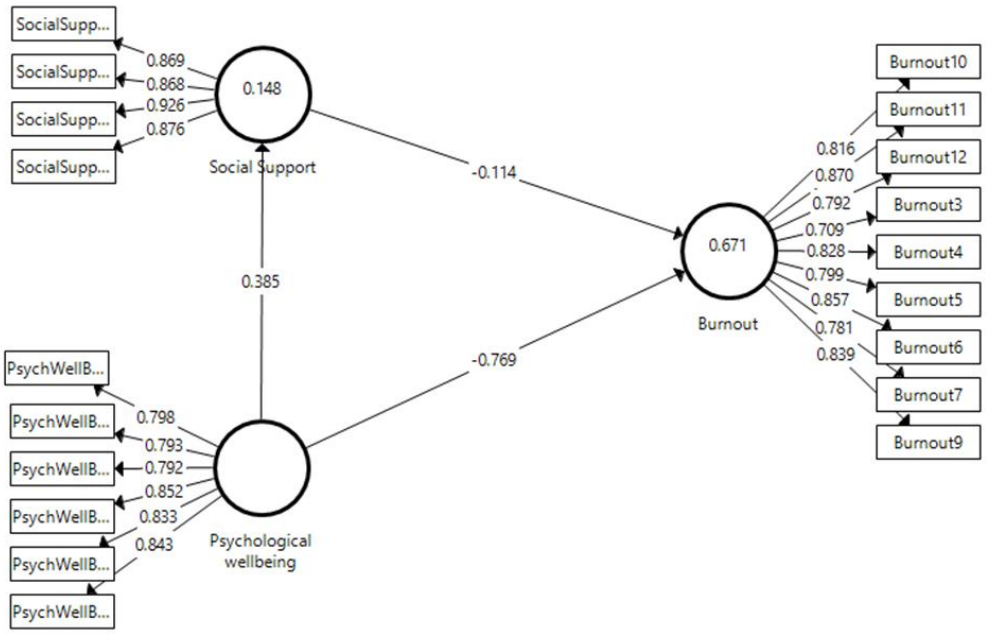

Figure 1 Structural model of the study.

Table 2 Results of the path analysis: direct effect.

H		β	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	Sig	Conclusion
3	Psychological well-being -> Burnout	-0.769	-0.769	0.035	21.843	0	Significant

2.6. Mediation test of social support

Table 3 reveals that the association between psychological well-being was significant and negative. In the presence of social support, the relationship between psychological well-being and burnout was also significant (β= -0.044, t = 0.021, p = 0.034). Given the significant indirect effect, social support mediates the relationship between psychological well-being and burnout. Thus, the results support hypothesis 4. With the inclusion of social support in the model, the R^2 value for social support and subjective well-being was 0.148 and 0.671, respectively.

Table 3 The mediating effect of social support.

H		β	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	Sig	Conclusion
4	Psychological well-being -> Social Support -> Burnout	-0.044	-0.044	0.021	2.122	0.034	Significant

3. Discussion

The current study examines the role that gender, level of study, and psychological well-being play in the burnout of a sample of Malaysian public university students. Additionally, the study examines social support's role as a mediator in the relationship between student's psychological well-being and burnout. The study results reveal that female students experience more academic burnout than male students. The finding is consistent with previous studies (Andrade et al., 2023; Mahfouz et al., 2020), which found that female students report higher levels of burnout than their male counterparts. This suggests that female students may experience higher levels of societal pressure and gender role expectations (as daughters, mothers, and wives), which may contribute to increased academic burnout.

Students in their fourth year have significantly higher levels of burnout than previous years, suggesting that students may face more demanding academic workloads in their later years of study. This finding contradicts previous research (March-Amengual et al., 2022; Yu & Chae, 2020), which found burnout levels higher among freshman-year students. However, the findings are consistent with previous research by (Mahfouz et al., 2020), which found that students in later years of study are more likely to experience higher levels of burnout. Elevated levels of burnout in students in later years of study may arise from writing final-year projects, complex assignments, and exams. Increased burnout at this stage may also occur due to anxiety over transitioning from academia into work life as students are confronted with the complexities of the labour market and societal expectations of adulthood.

The findings from this study show that lower psychological well-being is associated with higher levels of burnout among students. This echoes the findings of previous studies (Indreswari et al., 2022; Jihye Yu & Chae, 2020), which found an inverse relationship between psychological well-being and academic burnout, suggesting that as one's psychological well-being diminishes, the likelihood of experiencing academic burnout increases. Students with dwindling psychological well-being may be unequipped with the coping skills and resilience to navigate the complexities and stresses of higher education. Psychological well-being, as elucidated in psychological literature, encompasses the presence of robust positive mental states and the attainment of optimal psychological functioning. It extends beyond the mere absence of mental illness and includes flourishing and thriving across diverse facets of one's life (Huppert, 2009; Ryff, 2015; Tang et al., 2019). Students who are inadequate in these aspects may find it challenging to attend classes regularly, sit for continuous assessments and exams and navigate through everyday academic life. Students with low psychological well-being may also be less motivated to excel in their studies. The pressure of anxiety and emotional turmoil may hinder students' development of enthusiasm for their studies, which may inadvertently lead to a lack of focus, absenteeism, and burnout.

The findings of this research substantiated the role of social support as a mediating factor that intervenes in the relationship between psychological well-being and burnout. The path model suggests that an increase in students' psychological well-being corresponds to an increase in their utilization of social support and a concurrent decrease in burnout. This finding is consistent with previous findings (Kim et al., 2018; Zhang et al., 2021), which found that social support, especially subjective support and active utilization of support resources, demonstrates a significant negative relationship with student burnout, suggesting its protective role in mitigating susceptibility to burnout among students from parents and peers. This finding also supports Rehman et al.'s (2020) finding that heightened levels of social support within an educational institution diminish the impact of burnout while concurrently augmenting psychological well-being.

3.1. Study contributions

The current study contributes to the body of knowledge in a few ways. First, we provided empirical evidence for the link between the demand resource theory and burnout in Malaysian higher education contexts, validating the assumptions of the DRT, showing that job resources in the form of social support help lessen the effects of stress that may affect students' psychological well-being. Hence, targeted interventions designed to improve students' social support can reduce burnout prevalence and improve their well-being. Sufficient support from parents, peers and educators can serve as a coping mechanism against academic stressors; it can provide the emotional support required to manage exhaustion and foster the development of favourable habits and attitudes, thereby combating burnout. This study also provides evidence suggesting that gender differences may exist in the levels of burnout experienced within academia. Hence, there is a need to incorporate gender-specific variables in future studies of college student burnout using the demand resource models as a framework. Our findings also suggest that gender-specific interventions may be required when addressing burnout among college students.

Findings from this study suggest that final-year students are the most vulnerable to burnout. The final year may represent the tipping point of accumulating chronic stressors among students over time. Hence, using the demand resource theory to study timing-related stressors within the university student population may help better extend the theory. The abrupt emergence of burnout in the final year may be the culmination of stressors and emotional exhaustion students have experienced throughout their academic careers. Hence, targeted interventions to improve students' resources and utilization may be designed for final-year students.

4. Conclusions

The current study applies the demand resource theory to understanding how the dynamics of gender, educational levels, psychological well-being and social support influence student burnout among a population of Malaysian public university students. Results from this study show that social support is a crucial resource that cushions stressors students are vulnerable to in higher education experience. It shows that gender differences exist in student burnout levels and that the level of academic burnout varies from enrolment to final year. The study contributes to the scholastic enquiry of academic burnout. Hence, Parents, educators, and other stakeholders within the higher education domain can leverage the findings of this study to enhance students' experience and provide tailored intervention strategies. The moderate coefficient of determination of social support suggests that more variables aside from psychological well-being may explain the variance in students' social support; hence, more research may be conducted in this area. Lastly, the study was conducted among students at public universities in Malaysia. Therefore, further research may be conducted among private university students to see if similar patterns emerge.

Ethical considerations

Ethical approval was obtained from the Ethics Committee for Research Involving Human Subjects, Universiti Putra Malaysia [UPM/ TNCPI/RMC/1.4.18.2 (JKEUPM)].

Conflict of Interest

The authors declare no conflicts of interest.

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References

Abarghuei, A., Falsafinejad, ., Ghavam, E., & Dortaj, . (2016). The Causal Relationship of the Social Support and Maladaptive Perfectionism with the Academic Burnout Mediated by the Self-Efficacy among Undergraduate Students of Shahid Chamran University. *Mediterranean Journal of Social Sciences*, *7*(4), 11–22. https://doi.org/10.5901/mjss.2016.v7n4S1p11

Admin, Firdausi, A. N., Fitryasary, R. I., Tristiana, D., Fauziningtyas, R., & Thomas, D. C. (2023). Self-efficacy and social support have relationship with academic burnout in college nursing students. *Journal of the Pakistan Medical Association*, *73*(02), S63–S66. https://doi.org/10.47391/JPMA.Ind-S2-15

Andrade, D., Ribeiro, I. J. S., & Máté, O. (2023). Academic burnout among master and doctoral students during the COVID-19 pandemic. *Scientific Reports*, *13*(1), 4745. https://doi.org/10.1038/s41598-023-31852-w

Andrade, D., Ribeiro, I. J. S., Prémusz, V., & Maté, O. (2023). Academic Burnout, Family Functionality, Perceived Social Support and Coping among Graduate Students during the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health*, *20*(6), 4832. https://doi.org/10.3390/ijerph20064832

Bakker, A. B., & Demerouti, E. (2017). Job demands-resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology*, *22*(3), 273–285. https://doi.org/10.1037/ocp0000056

Bankole Adeyemi, F. (2019). Peer group influence on academic performance of undergraduate students in Babcock University, Ogun State. *African Educational Research Journal*, *7*(2), 81–87. https://doi.org/10.30918/aerj.72.19.010

Barbayannis, G., Bandari, M., Zheng, X., Baquerizo, H., Pecor, K. W., & Ming, X. (2022). Academic Stress and Mental Well-being in College Students: Correlations, Affected Groups, and COVID-19. *Frontiers in Psychology*, *13*(May), 1–10. https://doi.org/10.3389/fpsyg.2022.886344

Barbosa, J., Silva, Á., Ferreira, M. A., & Severo, M. (2016). Transition from Secondary School to Medical School: The Role of Self-Study and Self-Regulated Learning Skills in Freshman Burnout. *Acta Médica Portuguesa*, *29*(12), 803–808. https://doi.org/10.20344/AMP.8350

Chin, R. W. A., Chua, Y. Y., Chu, M. N., Mahadi, N. F., Yusoff, M. S. B., Wong, M. S., & Lee, Y. Y. (2016). Prevalence of Burnout among Universiti Sains Malaysia Medical Students. *Education in Medicine Journal*, *8*(3). https://doi.org/10.5959/eimj.v8i3.454

Costa, E. F. de O., Santos, S. A., Santos, A. T. R. de A., de Melo, E. V., & de Andrade, T. M. (2012). Burnout Syndrome and associated factors among medical students: A cross-sectional study. *Clinics*, *67*(6), 573–579. https://doi.org/10.6061/clinics/2012(06)05

D'aurora, D. L., & Fimian, M. J. (1988). Dimensions of life and school stress experienced by young people. *Psychology in the Schools*, *25*(1), 44–53. https://doi.org/10.1002/1520-6807(198801)25:1<44::AID-PITS2310250108>3.0.CO;2-7

Daud, N., Pa, M. N. M., Rahim, A. F. A., Ahmad, A., & Hassan, N. M. (2020). Academic Factors Associated With Burnout in Malaysian Medical Students: a Cross-Sectional Study. *Education in Medicine Journal*, *12*(2), 49–58. https://doi.org/10.21315/eimj2020.12.2.5

Daykin, N., Mansfield, L., Meads, C., Julier, G., Tomlinson, A., Payne, A., Grigsby Duffy, L., Lane, J., D'Innocenzo, G., Burnett, A., Kay, T., Dolan, P., Testoni, S., & Victor, C. (2018). What works for well-being? A systematic review of well-being outcomes for music and singing in adults. *Perspectives in Public Health*, *138*(1), 39–46. https://doi.org/10.1177/1757913917740391

Dubbelt, L., Rispens, S., & Demerouti, E. (2016). Gender discrimination and job characteristics. *Career Development International*, *21*(3), 230–245. https://doi.org/10.1108/CDI-10-2015-0136

Edú-valsania, S., Laguía, A., & Moriano, J. A. (2022). Burnout: A Review of Theory and Measurement. *International Journal of Environmental Research and Public Health*, *19*(3). https://doi.org/10.3390/ijerph19031780

Erschens, R., Keifenheim, K. E., Herrmann-Werner, A., Loda, T., Schwille-Kiuntke, J., Bugaj, T. J., Nikendei, C., Huhn, D., Zipfel, S., & Junne, F. (2019). Professional burnout among medical students: Systematic literature review and meta-analysis. *Medical Teacher*, *41*(2), 172–183. https://doi.org/10.1080/0142159X.2018.1457213

Fiorilli, C., Barni, D., Russo, C., Marchetti, V., Angelini, G., & Romano, L. (2022). Students' Burnout at University: The Role of Gender and Worker Status. *International Journal of Environmental Research and Public Health*, *19*(18), 11341. https://doi.org/10.3390/ijerph191811341

Fischetti, F., Latino, F., Cataldi, S., & Greco, G. (2020). Gender differences in body image dissatisfaction: The role of physical education and sport. *Journal of Human Sport and Exercise*, *15*(2), 241–250. https://doi.org/10.14198/jhse.2020.152.01

Fornell and Larcker. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research This*, *18*(1), 39–50.

Freire, C., Ferradás, M. D. M., Valle, A., Núñez, J. C., & Vallejo, G. (2016). Profiles of Psychological Well-being and Coping Strategies among University Students. *Frontiers in Psychology*, *7*. https://doi.org/10.3389/fpsyg.2016.01554

Galdino, M. J. Q., Martins, J. T., Haddad, M. do C. F. L., Robazzi, M. L. do C. C., & Birolim, M. M. (2016). Burnout Syndrome among master's and doctoral students in nursing. *Acta Paulista de Enfermagem*, *29*(1), 100–106. https://doi.org/10.1590/1982-0194201600014

Hair, J. F., Hult, T. G., Ringle, C. M., & Sarstedt, M. (2017). *A primer on Partial least squares Structural equation modeling (PLS-SEM)* (2nd ed.).

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Holahan, C. J., Moos, R. H., Holahan, C. K., & Cronkite, R. C. (1999). Resource loss, resource gain, and depressive symptoms: A 10-year model. *Journal of Personality and Social Psychology*, *77*(3), 620–629. https://doi.org/10.1037//0022-3514.77.3.620

Huppert, F. A. (2009). Psychological Well-being: Evidence Regarding its Causes and Consequences. *Applied Psychology: Health and Well-being*, *1*(2), 137–164. https://doi.org/10.1111/j.1758-0854.2009.01008.x

Ibrahim, N., Amit, N., Che Din, N., & Ong, H. C. (2017). Gender differences and psychological factors associated with suicidal ideation among youth in Malaysia. *Psychology Research and Behavior Management*, *Volume 10*, 129–135. https://doi.org/10.2147/prbm.s125176

Indreswari, H., Probowati, D., & Rachmawati, I. (2022). Psychological Well-being and Student Academic Burnout. *Jurnal Kajian Bimbingan Dan Konseling*, *7*(3), 138–149. https://doi.org/10.17977/UM001V7I32022P138-149

Islam, A. M., Low, W. Y., Tong, W. T., Yuen, C., & Abdullah, A. (2016). Factors Associated with Depression among University Students in Malaysia: A Cross-sectional Study. *The 2nd International Meeting of Public Health*. https://doi.org/10.18502/kls.v4i4.2302

Jagodics, B., & Szabó, É. (2022). Student Burnout in Higher Education: A Demand-Resource Model Approach. *Trends in Psychology*, *0123456789*. https://doi.org/10.1007/s43076-021-00137-4

Joo, S. H., Durband, D. B., & Grable, J. (2008). The academic impact of financial stress on college students. *Journal of College Student Retention: Research, Theory and Practice*, *10*(3), 287–305. https://doi.org/10.2190/CS.10.3.c

Kaggwa, M. M., Kajjimu, J., Sserunkuma, J., Najjuka, S. M., Atim, L. M., Olum, R., Tagg, A., & Bongomin, F. (2021). Prevalence of burnout among university students in low- And middle-income countries: A systematic review and meta-analysis. *PLoS ONE*, *16*(8 August), 1–22. https://doi.org/10.1371/journal.pone.0256402

Karimi, Y., Bashirpur, M., Khabbaz, M., & Asghar Hedayati, A. (2014). Comparison between Perfectionism and Social Support Dimensions and Academic Burnout in Students. *Procedia-Social and Behavioral Sciences*, *159*, 57–63. https://doi.org/10.1016/j.sbspro.2014.12.328

Kim, B., Jee, S., Lee, J., An, S., & Lee, S. M. (2018). Relationships between social support and student burnout: A meta-analytic approach. *Stress and Health*, *34*(1), 127–134. https://doi.org/10.1002/smi.2771

Koutsimani, P., Montgomery, A., & Georganta, K. (2019). The Relationship Between Burnout, Depression, and Anxiety: A Systematic Review and Meta-Analysis. *Frontiers in Psychology*, *10*. https://doi.org/10.3389/fpsyg.2019.00284

Lin, S.-H., & Huang, Y.-C. (2014). Life stress and academic burnout. *Active Learning in Higher Education*, *15*(1), 77–90. https://doi.org/10.1177/1469787413514651

Madigan, D. J., & Curran, T. (2021). Does Burnout Affect Academic Achievement? A Meta-Analysis of over 100,000 Students. *Educational Psychology Review*, *33*(2), 387–405. https://doi.org/10.1007/s10648-020-09533-1

Mahfouz, M. S., Ali, S. A., Alqahtani, H. A., Kubaisi, A. A., Ashiri, N. M., Daghriri, E. H., Alzahrani, S. A., Sowaidi, A. A., Maashi, A. M., & Alhazmi, D. A. (2020). Burnout and its associated factors among medical students of Jazan University, Jazan, Saudi Arabia. *Mental Illness*, *12*(2), 35–42. https://doi.org/10.1108/MIJ-

06-2020-0011

March-Amengual, J.-M., Cambra Badii, I., Casas-Baroy, J.-C., Altarriba, C., Comella Company, A., Pujol-Farriols, R., Baños, J.-E., Galbany-Estragués, P., & Comella Cayuela, A. (2022). Psychological Distress, Burnout, and Academic Performance in First Year College Students. *International Journal of Environmental Research and Public Health*, *19*(6), 3356. https://doi.org/10.3390/ijerph19063356

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, *2*(2), 99–113. https://doi.org/10.1002/job.4030020205

Montero-Marin, J., Monticelli, F., Casas, M., Roman, A., Tomas, I., Gili, M., & Garcia-Campayo, J. (2011). Burnout syndrome among dental students: A short version of the "burnout Clinical Subtype Questionnaire" adapted for students (BCSQ-12-SS). *BMC Medical Education*, *11*(1). https://doi.org/10.1186/1472-6920-11-103

Okojie, G., Ismail, I. R., Begum, H., Ferdous Alam, A. S. A., & Sadik-Zada, E. R. (2023). The Mediating Role of Social Support on the Relationship between Employee Resilience and Employee Engagement. *Sustainability (Switzerland)*, *15*(10), 1–15. https://doi.org/10.3390/su15107950

Olwage, D., & Mostert, K. (2014). Predictors of student burnout and engagement among university students. *Journal of Psychology in Africa*, *24*(4), 342–350. https://doi.org/10.1080/14330237.2014.978087

Portoghese, I., Leiter, M. P., Maslach, C., Galletta, M., Porru, F., D'Aloja, E., Finco, G., & Campagna, M. (2018). Measuring burnout among university students: Factorial validity, invariance, and latent profiles of the Italian Version of the Maslach Burnout Inventory Student Survey (MBI-SS). *Frontiers in Psychology*, *9*(NOV), 1–9. https://doi.org/10.3389/fpsyg.2018.02105

Purvanova, R. K., & Muros, J. P. (2010). Gender differences in burnout: A meta-analysis. *Journal of Vocational Behavior*, *77*(2), 168–185. https://doi.org/10.1016/j.jvb.2010.04.006

Rehman, A. U., Bhuttah, T. M., & You, X. (2020). Linking burnout to psychological well-being: The mediating role of social support and learning motivation. *Psychology Research and Behavior Management*, *13*, 545–554. https://doi.org/10.2147/PRBM.S250961

Ryff, C. D. (2015). Psychological Well-being Revisited: Advances in Science and Practice. *Psychother Psychosom*, *83*(1), 10–28. https://doi.org/10.1159/000353263.Psychological

Ryff, C. D., & Keyes, C. L. M. (1995). The Structure of Psychological Well-being Revisited. *Journal of Personality and Social Psychology*, *69*(4), 719–727. https://doi.org/10.1037/0022-3514.69.4.719

Shin, H., & Park, C. (2022). Social support and psychological well-being in younger and older adults: The mediating effects of basic psychological need satisfaction. *Frontiers in Psychology*, *13*(November), 1–14. https://doi.org/10.3389/fpsyg.2022.1051968

Siti Nor Yaacob, Rumaya Juhari, Talib, M. A., & Uba, I. (2009). Loneliness , stress , self esteem and depression among Malaysian adolescents. *Jurnal Kemanusiaan*, *14*(2002), 85–92.

Tang, Y. Y., Tang, R., & Gross, J. J. (2019). Promoting psychological well-being through an evidence-based mindfulness training program. *Frontiers in Human Neuroscience*, *13*(July), 1–5. https://doi.org/10.3389/fnhum.2019.00237

Tee, K. R., Ismail, A. S., Ang, Y. H., Hishamuddin, H. H., Paul, V. J., Aizuddin, A. N., & Zaini, I. Z. (2022). Prevalence of Anxiety and Burnout, and Coping Mechanisms among Clinical Year Medical Undergraduate Students in Universiti Kebangsaan Malaysia Amidst the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health*, *19*(20). https://doi.org/10.3390/ijerph192013010

Tran, T. X., Vo, T. T. T., & Ho, C. (2023). From Academic Resilience to Academic Burnout among International University Students during the Post-COVID-19 New Normal: An Empirical Study in Taiwan. *Behavioral Sciences*, *13*(3), 206. https://doi.org/10.3390/bs13030206

Vinter, K., Aus, K., & Arro, G. (2021). Adolescent girls' and boys' academic burnout and its associations with cognitive emotion regulation strategies. *Educational Psychology*, *41*(8), 1061–1077. https://doi.org/10.1080/01443410.2020.1855631

Walburg, V. (2014). Burnout among high school students: A literature review. *Children and Youth Services Review*, *42*, 28–33. https://doi.org/10.1016/j.childyouth.2014.03.020

Wang, J., Wang, Y., Zhu, N., & Qiu, J. (2024). Special education teachers' emotional intelligence and its relationships with social support, work engagement and job performance: a job demands-resources theory's perspective. *International Journal of Developmental Disabilities*, *70*(5), 814–823. https://doi.org/10.1080/20473869.2022.2149893

Wolters, C. A., & Brady, A. C. (2021). College Students' Time Management: a Self-Regulated Learning Perspective. *Educational Psychology Review*, *33*(4), 1319–1351. https://doi.org/10.1007/s10648-020-09519-z

Wong, S. S., Wong, C. C., Ng, K. W., Bostanudin, M. F., & Tan, S. F. (2023). Depression, anxiety, and stress among university students in Selangor, Malaysia during COVID-19 pandemics and their associated factors. *PLoS ONE*, *18*(1 January), 1–16. https://doi.org/10.1371/journal.pone.0280680

Yang, E., & Gu, M. (2019). Analysis of Factors Influencing Burnout of Nurses in Long-term Care Hospitals Based on Job Demand -Resource Model. *Journal of the Korea Academia-Industrial Cooperation Society*, *20*(4), 137–148.

Yang, H., & Chen, J. (2016). Learning Perfectionism and Learning Burnout in a Primary School Student Sample: A Test of a Learning-Stress Mediation Model. *Journal of Child and Family Studies*, *25*(1), 345–353. https://doi.org/10.1007/s10826-015-0213-8

Ye, Y., Huang, X., & Liu, Y. (2021). Social Support and Academic Burnout Among University Students: A Moderated Mediation Model. *Psychology Research and Behavior Management*, *Volume 14*, 335–344. https://doi.org/10.2147/PRBM.S300797

Yu, Jihye, & Chae, S. (2020). The mediating effect of resilience on the relationship between the academic burnout and psychological well-being of medical students. *Korean Journal of Medical Education*, *32*(1), 13–21. https://doi.org/10.3946/kjme.2020.149

Yu, Jincong, Wang, Y., Tang, X., Wu, Y., Tang, X., & Huang, J. (2021). Impact of Family Cohesion and Adaptability on Academic Burnout of Chinese College Students: Serial Mediation of Peer Support and Positive Psychological Capital. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.767616

Yusoff, M. S. B., Abdul Rahim, A. F., & Yaacob, M. J. (2010). Prevalence and sources of stress among Universiti Sains Malaysia medical students. *Malaysian Journal of Medical Sciences*, *17*(1), 30–37.

Zhang, J. Y., Shu, T., Xiang, M., & Feng, Z. C. (2021). Learning Burnout: Evaluating the Role of Social Support in Medical Students. *Frontiers in Psychology*, *12*(February), 1–7. https://doi.org/10.3389/fpsyg.2021.625506

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment*, *52*(1), 30–41.