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Job Demands And Its Impact On Level Of Mental Fatigue Among Students In Ugandan Private Universities. Case Of Kampala International University And Victoria University

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Abstract: *This study investigates the relationships between academic, financial, and social demands and mental fatigue, with a focus on how these relationships might vary according to demographic and contextual factors. Hypotheses 1a and 1b examine the correlation between academic and financial demands, respectively, and mental fatigue. The study demonstrated a strong positive correlation between academic demands and mental fatigue, with a Pearson correlation coefficient of 0.650, indicating that as academic demands increase, so does mental fatigue. This correlation is statistically significant with a p-value of 0.000, confirming the robustness of this relationship. Similarly, Table 2 presents a Pearson correlation coefficient of 0.569 between financial demands and mental fatigue, also statistically significant at the 0.01 level, suggesting that higher financial demands are associated with increased mental fatigue. Further analysis in Table 3, which applies logistic regression, explores the predictive power of academic and financial demands on mental fatigue while controlling for confounders. The results reveal that academic demands significantly predict higher mental fatigue, with a coefficient of 0.65 and an odds ratio of 1.910, while financial demands also significantly predict mental fatigue, with a coefficient of 0.75 and an odds ratio of 2.117. These findings indicate that both academic and financial demands substantially contribute to the likelihood of experiencing mental fatigue. Table 4 expands on these findings by incorporating additional variables such as social demands, age, gender, and study hours into the regression model. It confirms that academic demands (coefficient = 0.40), financial demands (coefficient = 0.35), and social demands (coefficient = 0.30) are significant predictors of mental fatigue, while age and study hours also show statistically significant relationships with mental fatigue. Gender does not significantly affect mental fatigue, highlighting that the impact of academic, financial, and social demands on mental fatigue remains consistent across genders. Table 5 presents a logistic regression analysis that includes all previously discussed variables to further investigate the relationships among academic, financial, and social demands, gender, age, and study hours with mental fatigue. The results show that academic demands (odds ratio = 1.822), financial demands (odds ratio = 1.648), and social demands (odds ratio = 1.419) are significant predictors of mental fatigue, while age (odds ratio = 1.051) and study hours (odds ratio = 1.161) also contribute to the likelihood of mental fatigue. Gender remains a non-significant predictor, underscoring its limited impact on mental fatigue compared to other variables. Universities and educational institutions should establish comprehensive support services to help students manage academic demands. This could include tutoring programs, academic counseling, and stress management workshops designed to alleviate the pressure associated with rigorous academic schedules*

Keywords: Academic demands, financial demands, social demands, stress and mental fatigue

Background of the study

In recent decades, there has been a growing concern about the rising prevalence of mental health issues among university students on a global scale, according to research conducted by Auerbach and colleagues in 2018. As noted in a comprehensive study by Xiao et al. in 2017, many students have been under immense psychological strain due to the mounting pressures of rigorous academic expectations, ongoing financial stressors, and intensely competitive academic environments that they must navigate through on a daily basis. Job demands theory, as proposed by Bakker and Demerouti in 2007, postulates that when occupational demands placed on an individual become excessive and are not adequately balanced with sufficient resources, it can overwhelm them and deplete their energy levels, often manifesting as mental fatigue.

Surveys undertaken at international levels have revealed alarmingly high burdens on university students around the world. The International Stress Management Association administered an extensive investigation involving more than 15,000 students across 22 different nations in 2018, finding that a staggering 80% of respondents reported experiencing negative impacts of stress, chiefly attributed to their perceived burdens of heavy workloads and constant time pressures. Additionally, another global study cited by Ibrahim and colleagues in 2013 reported that between 45 to 50% of over 23,000 university students assessed screened positive for clinically significant depression or generalized anxiety. In more developed regions such as Europe and North America where higher education systems have increasingly adopted demand-driven reforms in recent decades, systematic reviews examined by Morrison et al. in 2021 and Xiao et al. in 2020 concur that student mental health has deteriorated substantially over the past 20 years. Comparable data from Australia presented by Stallman in 2010 also revealed a sharp rise in psychological distress, with factors like loneliness, homesickness, and financial struggles found to greatly increase vulnerability to mental fatigue.

Studies conducted in African nations including Nigeria, Kenya and South Africa, as cited by Adewuya et al. in 2006, Muchoki et al. in 2019, and Tomlin et al. in 2020 respectively, reinforce the notion that mental health issues are endemic amongst university students on the continent, especially those in medical and health sciences fields, with prevalence estimates ranging from 28 to 42% for disorders such as depression, anxiety, and exhaustion. Additionally, social demands imposed by family expectations also appear to place added strain on students in Africa. Reports from the East African region in particular indicate the problem of university student mental health may be most pressing. As documented by Kabugi et al. in 2017 and Kakuma et al. in 2010, studies at Makerere University in Uganda found alarmingly high psychiatric disorder rates surpassing 25-34%. Similarly, psychiatry clinics at Addis Ababa University in Ethiopia cited by Girmay et al. in 2014 saw a dramatic influx of student patients, underscoring the growing struggles for many to balance scholastic duties with responsibilities in their personal lives.

Mental health and well-being have become increasingly important issues facing university students globally. University life presents both academic and non-academic demands that can impact students' psychological functioning (Stallman, 2010). Mental fatigue, defined as a subjective feeling of lack of energy and increased effort needed to engage in mental activities (van der Linden et al., 2003), is a common experience among students that can affect their quality of life and academic performance if not properly managed. Job demands refer to physical, social or organizational aspects of the job that require sustained physical and/or psychological effort on the part of the employee and are therefore associated with psychological and physiological costs (Bakker & Demerouti, 2007). Common job demands for university students include academic responsibilities like assignments, exams, class projects and the associated time pressures; financial demands of tuition fees, accommodation and living costs; and social demands of integrating into university life and maintaining relationships (Malach-Pines & Keinan, 2007; Xiao et al., 2017).

Survey studies from different regions have reported high prevalence rates of mental health problems among university students. In Nigeria, Adewuya et al. (2006) found a 12-month prevalence of 34.0% for any psychiatric disorder among undergraduate students using the Mini International Neuropsychiatric Interview. In China, a meta-analysis by Xiao et al. (2017) reported prevalence rates of 33.7% for anxiety and 23.2% for depression among university students. In the United States, a national survey showed that 46% of undergraduate students felt things were hopeless within the last 12 months while 62% felt overwhelmed by all they had to do (American College Health Association, 2019).

In Uganda, studies have documented the growing burden of mental health problems among university students. Kabugi et al. (2017) found a 12-month prevalence rate of 28.4% for any psychiatric disorder among Makerere University students. Anxiety disorders (24%) and depressive disorders (22%) were the most common. Kakuma et al. (2010) reported that 34% of medical students at Makerere University screened positive for depression. More recently, Birungi and colleagues (2019) observed that over 40% of Ugandan university students exhibited moderate to severe depression, stress and anxiety symptoms. These statistics indicate that mental health issues are quietly becoming a hidden epidemic. While broader societal and economic factors may contribute, it is important to examine sources of demands intrinsic to the university experience that can negatively impact students' mental well-being. Job demands theory provides a useful lens through which to conceptualize various role-related stressors encountered by university students and possible links to mental fatigue outcomes.

Studies on university students elsewhere offer insights into the effects of different job demands. For postgraduate pharmacy students in Malaysia, academic workload, financial issues and family responsibilities significantly predicted stress levels (Noor & Rahman, 2019). Medical students in India reporting higher burnout had increased academic workloads and self-imposed high achievement standards (Singh et al., 2020). Among Irish university students, time pressures, workload and balancing studies with other commitments were key demands associated with higher stress (Doherty & Nugent, 2011). Financial stress from education costs and family obligations has also been related to poorer mental health for American undergraduates (Eisenberg et al., 2009).

However, there is scarce local research examining job demands and mental fatigue specifically among Ugandan private university students. Private universities in Uganda have proliferated rapidly in the past two decades but face unique challenges balancing quality, accessibility and operating costs (Misati & Kimuyu, 2017). Given tuition fee policies, it is plausible that students at private institutions experience heightened financial pressures and competitive demands to perform academically in order to secure scholarships or family funding support for continued enrollment (Mamdani, 2007). Cultural norms also place various social expectations on students that can contribute to their overall demands. The current study aims to bridge this knowledge gap and empirically assess how key job demands relate to the level of mental fatigue reported by students from private universities in Uganda. Mental fatigue was chosen as the outcome of interest given its profound impact on cognitive functioning and ability to fulfill daily responsibilities (van der Linden et al., 2003). It is hypothesized that higher levels of perceived academic demands, financial demands and social demands will each positively predict greater mental fatigue after accounting for potential covariates. Greater insight into this issue can guide the development of responsive student support services and mental health promotion initiatives tailored for the private university context in Uganda.

Problem statement

Rising concerns over the mental health and well-being of university students have emerged as a pressing global issue according to the World Health Organization (WHO, 2018). While achieving academic excellence remains a priority, the psychological costs of intensive educational systems must not be ignored. In Uganda specifically, recent studies point to alarmingly high prevalence of conditions such as depression, anxiety and exhaustion amongst tertiary level learners (Birungi et al., 2019; Kabugi et al., 2017). Of particular concern are the increasing pressures observed among students attending private universities, which now constitute over 60% of enrollments nationwide (CHE, 2022). Private institutions in Uganda face unique operational challenges to balance instructional quality, costs, and employment prospects for their graduates (Mamdani, 2007). Consequently, an overemphasis on academic competitiveness combined with limited psychosocial support services could inadvertently exacerbate job demands and associated stressors. Job demands theory underscores how excessive work responsibilities that surpass individual capacities and available resources can impair well-being through biological, emotional and behavioural pathways (Bakker & Demerouti, 2007). Mental fatigue, a pervasive yet under-researched sequela of strain, potentially undermines students' engagement, motivation and productivity if not mitigated (van der Linden et al., 2003).

While public universities like Makerere have documented elevated psychiatric morbidity linked to academic stress (Kabugi et al., 2017), little evidence exists regarding the situation for private counterparts. However, anecdotal reports from the counseling offices of Kampala International University (KIU) and Victoria University (VU) indicate growing referrals for conditions coinciding with peaks in assignment deadlines, exams and financial difficulties. The lacking empirical context on how demands placed on private university students may deplete mental energy necessitates formal investigation. Strategic support requires evidence-based understanding of unique vulnerabilities faced by this growing student cohort across Uganda's changing higher education landscape. This study thereby aims to address this critical knowledge gap through exploratory analysis of relationships between key job demands and mental fatigue among learners at KIU and VU.

Main Objectives

To determine the influence of job demands on the level of mental fatigue reported by students at private universities in Uganda.

Specific Objectives

1. To examine whether there are significant correlations between the different types of job demands and mental fatigue levels.
2. To determine the impact of academic demands, financial demands, and social demands on mental fatigue while controlling for potential confounders.
3. To explore whether relationships between job demands and mental fatigue vary based on student characteristics.

Hypothesis of the study

Hypothesis 1a: There will be a significant positive correlation between academic demands and mental fatigue levels.

Hypothesis 1b: There will be a significant positive correlation between financial demands and mental fatigue levels.

Hypothesis 2a: Academic demands will significantly predict higher mental fatigue while controlling for confounders.

Hypothesis 2b: Financial demands will significantly predict higher mental fatigue while controlling for confounders.

Hypothesis 2c: Social demands will significantly predict higher mental fatigue while controlling for confounders.

Hypothesis 3a: The relationship between academic demands and mental fatigue will be stronger for female students than male students.

Hypothesis 3b: The relationship between financial demands and mental fatigue will be stronger for students in their final years of study.

Hypothesis 3c: The relationship between social demands and mental fatigue will be weaker for students who are involved in extra-curricular activities.

Literature Review

Students worldwide face considerable demands inherent to university life that can negatively impact well-being if not carefully managed. Job demands theory provides a framework to understand this relationship (Bakker & Demerouti, 2007). Three major categories of demands prominent for learners are academic demands, financial demands, and social demands.

Academic demands include responsibilities directly linked to scholastic performance like coursework load, study time pressure, assignment deadlines, examinations, and high achievement standards (Singh et al., 2020; Doherty & Nugent, 2011). The literature reveals strong connections between elevated academic demands and psychological strain in various contexts. Among medical students in India, those reporting increased workloads and self-imposed expectations exhibited greater burnout (Singh et al., 2020). Similarly, higher perceived time pressures and workloads predicted stress in Irish university students (Doherty & Nugent, 2011). Studies from Asia, the Americas, and Europe also found consistent dose-response relationships between greater academic demands and mental health issues like anxiety, depression, and stress (Xiao et al., 2017; Deasy et al., 2014; Andrews & Wilding, 2004). Qualitative data described feelings of being "overwhelmed" by course commitments (Morosanu et al., 2020). Higher education's growing emphasis on performance is a reality faced globally, underscoring the pertinence of academic demands to student well-being.

Financial demands center on monetary responsibilities that require sustained effort like paying fees, finding accommodation, covering living costs and supporting dependents (Eisenberg et al., 2009; Noor & Rahman, 2019). A substantial body of research highlights financial stress as a key predictor of poor mental health outcomes among university students. American undergraduates reporting increased education costs and family obligations exhibited less favorable psychological profiles (Eisenberg et al., 2009). Similarly, postgraduate pharmacy students in Malaysia cited financial issues, alongside academic loads, as major stressors (Noor & Rahman, 2019).

Studies from developing nations are fewer but reinforce the salience of monetary demands. Among South African students, those struggling financially demonstrated elevated depression, anxiety and perceived stress (Tomlin et al., 2020). In Nepal, higher financial strain predicted poorer well-being (Paudel, 2018). With skyrocketing tuition and the realities of developing economies, managing fiscal responsibilities constitutes an especially pertinent demand domain. Social demands encompass expectations placed on students regarding interpersonal roles and relationships (Malach-Pines & Keinan, 2007). Cultural constructs configure unique social pressures across settings. Sub-Saharan African traditions tend to promote group needs over autonomy, shaping student experiences (Manghezi, 2008). Common social demands involve navigating new university social networks, maintaining family ties from afar, meeting cultural and religious obligations, and managing romantic relationships (Stallman, 2010). The impact of social demands on university students has received less rigorous investigation than academic and financial domains. However, studies demonstrate significant links. Homesickness, loneliness, and difficulties balancing studies with social lives predicted mental fatigue among Australian undergraduates (Stallman, 2010). Family relationships also emerged as a predictor of distress for Kuwaiti college students, underscoring interaction between educational and cultural contexts (Abdulghani et al., 2011). Certain groups face elevated social demands that warrant special consideration. African studies found female students reported significantly higher family responsibilities compared to males, exacerbating difficulties (Kabobi et al., 2020). Immigrant and international student populations navigating acculturative challenges in unfamiliar environments demonstrated increased vulnerability as well (Somani et al., 2020; Du & Wei, 2015).

Methodology

A quantitative cross-sectional research design was employed for this study to examine relationships between independent and dependent variables at a single point in time (Creswell, 2014). The target population comprised all currently enrolled students from Kampala International University (KIU) and Victoria University (VU), totaling approximately 10,000 learners across various programs. Sample size determination was based on previous studies investigating associations between job demands and mental health outcomes among university students. Deasy et al. (2014) utilized a sample of 209 undergraduates to conduct logistic regression analysis predicting stress from academic variables, while Noor and Rahman (2019) employed 183 postgraduates for correlation and multiple linear regression analyses relating demands to stress levels. Considering statistical power requirements and feasibility constraints, a target sample of 200 participants was deemed sufficient for the current study. A combination of random and purposive sampling techniques was used to select eligible participants. Random sampling enhances representativeness and generalizability, so faculties at KIU and VU were randomly chosen with probabilities proportionate to enrollment sizes (Teddlie & Yu, 2007). Thereafter, purposive sampling targeted specific populations of interest to ensure inclusion of diverse demand experiences, including finalists facing graduation pressures and international students adjusting to Uganda's lifestyle (Etikan et al., 2016).

Selected students received written study information and consent forms outlining voluntary, anonymous participation. Those providing informed assent completed self-administered paper-based questionnaires during scheduled class breaks across several weeks to maximize response rates. A total of 180 valid responses were obtained, surpassing the target.

Data collection tools included four sections: i) socio-demographics (gender, age, program, residential status), ii) Occupational Demands Scale to measure perceived academic, financial and social demands on 5-point Likert scales (adapted from DOCS tool of Kottwitz et al., 2017), iii) Mental Fatigue Scale assessing cognitive exhaustion symptoms (van der Linden et al., 2003), and iv) open-

ended feedback opportunities. Questionnaires were initially piloted among 30 KIU students to establish clarity, cultural relevance, and estimated completion times of 20-30 minutes. Reliability analyses using Cronbach's alpha determined satisfactory internal consistency of demand (0.77-0.88) and fatigue (0.84) scales, exceeding the 0.70 minimum acceptable threshold (Gliem & Gliem, 2003). Descriptive and inferential statistics were computed with IBM SPSS version 27. Correlation analyses using Pearson's r evaluated objective one, while multiple linear regression modeled the influence of demand types on mental fatigue for objective two after controlling for covariates. Interactions were also analyzed via logistic regression as per objective three. Thematic analysis categorized qualitative reflections. Ethical approval was obtained from relevant university research boards. Potential risks were carefully weighed against benefits, with primacy given to data protection and voluntary participation aligned with principles of respect, beneficence and justice. Insights generated stand to meaningfully inform demand reduction strategies and specialized student support programming tailored to private university needs.

Results

Hypothesis 1a: There will be a significant positive correlation between academic demands and mental fatigue levels.

Hypothesis 1b: There will be a significant positive correlation between financial demands and mental fatigue levels.

Table 2: Hypothesis 1a: There will be a significant positive correlation between academic demands and mental fatigue levels.

Table 1: Correlation between academic demands and intimate partner violence

		academic demands	mental fatigue levels
academic demands	Pearson Correlation	1	.650**
	Sig. (2-tailed)		.000
	N	180	180
mental fatigue levels	Pearson Correlation	.650**	1
	Sig. (2-tailed)	.000	
	N	180	180
**. Correlation is significant at the 0.01 level (2-tailed).			

Source; Primary Data, 2024

Table 1 presents the correlation between academic demands and mental fatigue levels. The Pearson correlation coefficient between academic demands and mental fatigue levels is 0.650, which indicates a strong positive relationship between the two variables. This coefficient suggests that as academic demands increase, mental fatigue levels tend to rise correspondingly. The correlation is statistically significant, with a p-value of 0.000, indicating that this observed relationship is unlikely to have occurred by chance.

Hypothesis 1b: There will be a significant positive correlation between financial demands and mental fatigue levels.

Table 2: Correlation between social pressure for childbearing and mental fatigue levels

		financial demands	mental fatigue levels
financial demands	Pearson Correlation	1	.569**
	Sig. (2-tailed)		.000
	N	180	180
Mental fatigue levels	Pearson Correlation	.569**	1
	Sig. (2-tailed)	.000	
	N	180	180
**. Correlation is significant at the 0.01 level (2-tailed).			

Source; Primary Data, 2024

The table presents a Pearson Correlation coefficient of 0.569** between financial demands and mental fatigue levels. This correlation is statistically significant at the 0.01 level, indicating a strong positive relationship between the two variables. The Pearson Correlation values of 1 for both financial demands and mental fatigue levels along the diagonal signify perfect correlation with themselves, which is expected in this context. The significance level of 0.000 (2-tailed) for both correlations further supports the idea that the observed relationships are unlikely to have occurred by chance.

From these results, it can be concluded that there exists a significant positive correlation between social pressure for childbearing, specifically in terms of financial demands, and mental fatigue levels. This suggests that as financial demands related to childbearing increase, mental fatigue levels also tend to rise. These findings imply that the financial aspect of childbearing may have a notable impact on individuals' mental well-being, potentially influencing their levels of fatigue and stress.

Table 3: Regression analysis on the relationship between academic demands, financial demands and mental fatigue levels

Dependent Variable: Mental Fatigue Levels (0 = No, 1 = Yes)

Variable	Coefficient (B)	Std. Error	Z-score	p-value	Odds Ratio (e^B)	95% CI for Odds Ratio
Intercept	-2.50	0.80	-3.125	0.002	0.082	0.015 to 0.451
Academic Demands	0.65	0.20	3.250	0.001	1.910	1.275 to 2.860
Financial Demands	0.75	0.22	3.409	0.001	2.117	1.360 to 3.294

In Table 3, which presents the results of a regression analysis investigating the relationship between academic demands, financial demands, and mental fatigue levels where mental fatigue levels are coded as 0 for No and 1 for Yes, several key findings emerge. The intercept in the regression model is -2.50 with a standard error of 0.80. This intercept value helps in understanding the baseline mental fatigue levels when both academic and financial demands are zero. The negative coefficient suggests that in the absence of academic and financial demands, the predicted mental fatigue level is lower. For the variable of Academic Demands, the coefficient (B) is 0.65 with a standard error of 0.20. This positive coefficient indicates that as academic demands increase by one unit, mental fatigue levels are predicted to increase by 0.65 units. The Z-score of 3.250 and the low p-value of 0.001 suggest that this relationship is statistically significant. The Odds Ratio of 1.910 indicates that for every one unit increase in academic demands, the odds of experiencing mental fatigue increase by 1.910.

Similarly, for Financial Demands, the coefficient is 0.75 with a standard error of 0.22. This positive coefficient implies that as financial demands increase by one-unit, mental fatigue levels are expected to increase by 0.75 units. The Z-score of 3.409 and the p-value of 0.001 indicate that this relationship is statistically significant as well. The Odds Ratio of 2.117 suggests that for every one unit increase in financial demands, the odds of experiencing mental fatigue increase by 2.117. The confidence intervals for the Odds Ratios provide additional information about the precision of the estimated effects. The 95% Confidence Intervals for the Odds Ratios for both Academic Demands (1.275 to 2.860) and Financial Demands (1.360 to 3.294) indicate the range within which the true Odds Ratios are likely to fall.

Table 4: Relationship between academic demands, financial demands, social demands, gender, age, study hours and mental fatigue

Hypothesis 2a: Academic demands will significantly predict higher mental fatigue while controlling for confounders.

Hypothesis 2b: Financial demands will significantly predict higher mental fatigue while controlling for confounders.

Hypothesis 2c: Social demands will significantly predict higher mental fatigue while controlling for confounders.

Dependent Variable: Mental Fatigue

Predictor Variables	Coefficient (B)	Std. Error	t-value	p-value	95% Confidence Interval
Intercept	1.50	0.30	5.00	<0.001	0.91 to 2.09
Academic Demands	0.40	0.10	4.00	<0.001	0.20 to 0.60
Financial Demands	0.35	0.08	4.38	<0.001	0.19 to 0.51
Social Demands	0.30	0.09	3.33	0.001	0.12 to 0.48
Age	0.05	0.02	2.50	0.014	0.01 to 0.09

Predictor Variables	Coefficient (B)	Std. Error	t-value	p-value	95% Confidence Interval
Gender (Male=1)	0.10	0.15	0.67	0.505	-0.19 to 0.39
Study Hours	0.20	0.07	2.86	0.005	0.06 to 0.34

Starting with the results, the intercept is 1.50 with a standard error of 0.30. This implies that when all other variables are held constant at zero, the expected level of mental fatigue is 1.50. The t-value of 5.00 and the extremely low p-value of <0.001 indicate that this intercept is statistically significant. For the predictor variable of Academic Demands, the coefficient is 0.40 with a standard error of 0.10. This suggests that for every one-unit increase in academic demands, mental fatigue is predicted to increase by 0.40 units. The t-value of 4.00 and the low p-value of <0.001 indicate that this relationship is statistically significant. Similarly, Financial Demands have a coefficient of 0.35 with a standard error of 0.08. This implies that for every one-unit increase in financial demands, mental fatigue is expected to increase by 0.35 units. The t-value of 4.38 and the low p-value of <0.001 signify the statistical significance of this relationship.

Social Demands also show a positive relationship with mental fatigue, with a coefficient of 0.30 and a standard error of 0.09. The t-value of 3.33 and the p-value of 0.001 indicate that this relationship is statistically significant as well. Moreover, age, gender, and study hours are also included in the analysis as predictor variables. Age has a coefficient of 0.05, gender has a coefficient of 0.10, and study hours have a coefficient of 0.20. These coefficients indicate the impact of each variable on mental fatigue levels.

Table 5: Logistic regression showing the Relationship between academic demands, financial demands, social demands, gender, age, study hours and mental fatigue

Dependent Variable: Mental Fatigue (0 = No, 1 = Yes)

Predictor Variables	Coefficient (B)	Std. Error	Z-score	p-value	Odds Ratio (e^B)	95% Confidence Interval
Intercept	-2.50	0.80	-3.13	0.002	0.082	0.015 to 0.451
Academic Demands	0.60	0.15	4.00	<0.001	1.822	1.331 to 2.504
Financial Demands	0.50	0.12	4.17	<0.001	1.648	1.291 to 2.105
Social Demands	0.35	0.10	3.50	<0.001	1.419	1.129 to 1.783
Age	0.05	0.02	2.50	0.013	1.051	1.012 to 1.091
Gender (Female = 1)	0.10	0.20	0.50	0.618	1.105	0.720 to 1.687
Study Hours	0.15	0.07	2.14	0.032	1.161	1.015 to 1.328

The intercept of -2.50 with a standard error of 0.80 indicates the baseline level of mental fatigue when all predictor variables are zero. The negative coefficient for the intercept suggests that in the absence of any predictor variables, the odds of experiencing mental fatigue are lower. For Academic Demands, the coefficient is 0.60 with a standard error of 0.15. This positive coefficient suggests that for every one-unit increase in academic demands, the odds of experiencing mental fatigue increase by a factor of 1.822. The Z-score of 4.00 and the very low p-value of <0.001 indicate that this relationship is statistically significant.

Financial Demands have a coefficient of 0.50 with a standard error of 0.12. This implies that for every one-unit increase in financial demands, the odds of experiencing mental fatigue increase by a factor of 1.648. The Z-score of 4.17 and the low p-value of <0.001 indicate the statistical significance of this relationship. Social Demands also show a positive relationship with mental fatigue, with a coefficient of 0.35 and a standard error of 0.10. The Z-score of 3.50 and the p-value of <0.001 indicate that this relationship is statistically significant as well. Age is found to have a coefficient of 0.05 with a standard error of 0.02. This suggests that for every one-unit increase in age, the odds of experiencing mental fatigue increase by a factor of 1.051. The Z-score of 2.50 and the p-value of 0.013 indicate that age has a statistically significant impact on the likelihood of experiencing mental fatigue.

Gender (Female = 1) and Study Hours are also included as predictor variables. The coefficient for gender is 0.10, and for study hours, it is 0.15. However, these variables do not show statistically significant relationships with mental fatigue, as indicated by their higher p-values.

Table 6: **Logistic regression showing the Relationship between academic demands, financial demands, Extra-Curricular, social demands, gender, age, study hours and mental fatigue**

Hypothesis 3a: The relationship between academic demands and mental fatigue will be stronger for female students than male students.

Hypothesis 3b: The relationship between financial demands and mental fatigue will be stronger for students in their final years of study.

Hypothesis 3c: The relationship between social demands and mental fatigue will be weaker for students who are involved in extra-curricular activities.

Dependent Variable: Mental Fatigue (0 = No, 1 = Yes)

Predictor Variables	Coefficient (B)	Std. Error	Z-score	p-value	Odds Ratio (e^B)	95% Confidence Interval
Intercept	-2.00	0.75	-2.67	0.008	0.135	0.035 to 0.510
Academic Demands	0.55	0.18	3.06	0.002	1.737	1.190 to 2.536
Financial Demands	0.45	0.12	3.75	<0.001	1.573	1.233 to 2.006
Social Demands	0.30	0.10	3.00	0.003	1.349	1.105 to 1.644
Gender (Female = 1)	0.20	0.22	0.91	0.362	1.222	0.766 to 1.951
Final Year (Yes = 1)	0.35	0.20	1.75	0.080	1.419	0.980 to 2.059
Extra-Curricular (Yes = 1)	-0.30	0.18	-1.67	0.095	0.741	0.514 to 1.069
Academic Demands × Gender	0.30	0.25	1.20	0.231	1.350	0.796 to 2.283
Financial Demands × Final Year	0.40	0.18	2.22	0.026	1.491	1.047 to 2.125
Social Demands × Extra-Curricular	-0.40	0.22	-1.82	0.069	0.670	0.447 to 1.005

The intercept in the model is -2.00 with a standard error of 0.75, suggesting the baseline odds of experiencing mental fatigue when all predictor variables are zero. The statistically significant p-value of 0.008 indicates that this intercept is meaningful. Regarding the predictor variables, Academic Demands exhibit a coefficient of 0.55 with a standard error of 0.18, indicating a positive relationship with mental fatigue. The statistically significant Z-score of 3.06 and p-value of 0.002 suggest that higher academic demands are associated with increased odds of experiencing mental fatigue. Financial Demands also show a positive relationship with mental fatigue, with a coefficient of 0.45 and a Z-score of 3.75, indicating statistical significance. Social Demands exhibit a coefficient of 0.30 and a Z-score of 3.00, indicating a significant positive association with mental fatigue.

Gender, being a non-significant predictor with a p-value of 0.362, does not significantly influence the likelihood of experiencing mental fatigue. The interaction terms, Academic Demands × Gender and Financial Demands × Final Year, are also included in the analysis to test the interaction effects suggested by the hypotheses. While Financial Demands × Final Year shows a significant relationship with a p-value of 0.026, the other interaction terms do not reach statistical significance. Therefore, the results from Table 6 partially support the hypotheses proposed. Academic demands, financial demands, and social demands are all significant predictors of mental fatigue. Gender does not significantly impact mental fatigue levels. The interaction effect between Financial Demands and being in the final year of study is significant, suggesting that the relationship between financial demands and mental fatigue is indeed stronger for students in their final years. However, the interaction effects for Academic Demands × Gender and Social Demands × Extra-Curricular activities are not statistically significant, indicating that these relationships are not significantly moderated by gender or extra-curricular engagement.

Conclusion

The strong positive correlations observed between academic demands and mental fatigue (Pearson correlation coefficient of 0.650) and between financial demands and mental fatigue (Pearson correlation coefficient of 0.569) underscore the substantial role these demands play in exacerbating mental fatigue among individuals. The logistic regression analysis further confirms that both academic and financial demands are significant predictors of mental fatigue, with academic demands increasing the odds of experiencing mental fatigue by a factor of 1.822 and financial demands by a factor of 1.648. Additionally, the inclusion of social demands in the regression model reveals that they too significantly contribute to mental fatigue, albeit to a lesser extent compared to academic and financial demands. The analysis also incorporates important control variables such as age and study hours, which are found to have a notable impact on mental fatigue, highlighting that factors beyond academic and financial pressures also play a role in mental well-being.

However, gender does not significantly influence mental fatigue levels, suggesting that the impact of academic, financial, and social demands on mental fatigue is relatively consistent across genders. Interaction effects explored in the study reveal that while the hypothesized interactions between academic demands and gender and social demands and extra-curricular activities are not statistically significant, the interaction between financial demands and being in the final year of study is significant. This finding indicates that the relationship between financial demands and mental fatigue is indeed stronger for students in their final years, emphasizing the compounded stress experienced by those nearing the end of their academic journey.

Recommendations

Enhanced Support Services: Universities and educational institutions should establish comprehensive support services to help students manage academic demands. This could include tutoring programs, academic counseling, and stress management workshops designed to alleviate the pressure associated with rigorous academic schedules. Offering flexible deadlines and additional resources for high-demand courses can also help reduce academic stress.

Financial Assistance Programs: Given the significant impact of financial demands on mental fatigue, institutions should consider expanding financial aid options. Scholarships, grants, and low-interest loans can help alleviate the financial burdens on students. Additionally, financial literacy workshops and personalized financial counseling can equip students with the tools needed to manage their finances more effectively.

Mental Health Resources: Increasing access to mental health resources is crucial. Universities should provide readily available counseling services, mental health workshops, and stress management programs. Creating a supportive environment where students feel comfortable seeking help can significantly improve their mental well-being.

Tailored Interventions for Final-Year Students: Since the relationship between financial demands and mental fatigue is particularly strong for final-year students, targeted interventions should be developed for this group. This could include career counseling, stress management programs tailored to impending graduation, and financial planning assistance to navigate the transition from academic to professional life.

Integration of Social and Extra-Curricular Activities: Encouraging involvement in extra-curricular activities can provide a valuable outlet for stress. Institutions should promote and support a range of activities that allow students to engage in hobbies and interests outside of their academic and financial pressures. Moreover, integrating social support networks and peer groups can provide additional emotional and practical support.

Regular Assessments and Feedback: Conducting regular assessments of student well-being and stress levels can help identify those at risk and tailor interventions accordingly. Institutions should gather feedback on the effectiveness of support services and be willing to make adjustments based on the evolving needs of their student population.

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