

HARDINESS LEVEL AND MUSIC LISTENING ASSOCIATED WITH BURNOUT AMONG UNDERGRADUATE STUDENTS IN A PUBLIC UNIVERSITY IN MALAYSIA

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Abstract: *Burnout among the university students has negative impact on daily educational tasks and poor results could ensue, whereas students may cope with it via music which is preferred by the young population. The aim of this study is to examine the association between music listening and burnout among the university students in Malaysia. Methods: A cross-sectional study with convenient sampling was conducted among 381 undergraduate students in one public university in Malaysia. A set of questionnaires comprised of sociodemographic data, Maslach Burnout Inventory Student Survey (MBI-SS) and Hardy Personality Profile was distributed via online survey. MANOVA test were performed to examine the relationship between the burnout, music listening characteristics and sociodemographic characteristics. Results: Music listening among the undergraduate students in increased frequency of listening, duration of listening (more than average), good CGPA, and moderate hardiness level are associated with students' high academic efficacy. The students' perceived calming effect of music listening and listening in less than average was associated with lower burnout level. Conclusion: The benefits of music listening perceived as calming among undergraduate students were evident for lessening burnout. Increase in its duration and frequency and could improve academic efficacy of the undergraduate students. The current finding warrants more attention from the universities to promote the culture of cultivating music within the academic vibes for supporting academic efficacy. More research is needed to examine the effect of music in different genres on other populations of interest and in other contexts of mental health issues.*

Keywords: *Burnout, Hardiness, Music listening, Mental health, Undergraduate students*

Introduction

Mental health and well-being entail the ability to manage life's stressors across various domains, from home to educational and professional settings (Manchri et al., 2017). Mental health issues such as negative thoughts, depression, and anxiety significantly contribute to students' dropout rates and academic struggles (Manchri et al., 2017). Factors contributing to anxiety among medical students, as noted by Rianti et al. (2021), include interpersonal conflicts, high academic pressure, low self-esteem, poor sleep quality, and diminished motivation. Burnout, a prevalent experience among undergraduate students, is characterized by mental fatigue, emotional exhaustion, and reduced academic efficacy (Njim et al., 2018; Kwak et al., 2021). This condition, exacerbated by prolonged exposure to stress, can impair students' academic performance and overall well-being (Njim et al., 2018).

Some students demonstrate resilience in coping with burnout due to a personality trait commonly referred to as hardiness. Hardiness has been posited as a factor contributing to decreased stress levels across various populations. Individuals characterized as hardy typically exhibit three key attributes: a belief in their capacity to exert control over life events (control), a strong sense of engagement in daily pursuits (commitment), and an inclination to view challenges as opportunities for personal growth (challenge) (da Silva et al., 2014). Additionally, it is noted that youth often turn to music as a coping mechanism during times of distress (McFerran, 2016), a trend observed in Malaysia despite the predominance of Islam in the nation. Within Islamic discourse, there exists debate regarding the permissibility of music. Sheikh Yusuf al-Qardhawi suggests that music should be rejected if it promotes immorality and frivolity (Aiman Alias & Ahmad Tajudin, 2019). Furthermore, there is concern over the potential negative influence of certain genres of music, as young individuals may become absorbed in negative emotions conveyed through lyrics (Tarmizi, 2019).

Research has consistently shown that music listening can exert positive effects on well-being by fostering positive emotions, promoting relaxation, and alleviating stress (Groarke & Hogan, 2019; Krause et al., 2021). For instance, Wu (2017) found that music has the capacity to induce relaxation even among psychiatric patients with somatic symptoms. This assertion is supported by Choi et al. (2018), who discovered that music intervention effectively reduced anxiety responses to pain among their study participants. Ghiasi and Keramat (2018), in their review of 28 articles, concluded that listening to music or audio can significantly reduce anxiety levels and enhance overall well-being. Moreover, Daykin et al. (2018) underscored the importance of research focusing on the positive effects of music, particularly among adults with lower levels of well-being.

Stewart et al. (2019) examined factors contributing to both positive and negative outcomes, including the messages conveyed by lyrics, the frequency and duration of music listening, and the nature and intensity of the listener's prior affective state. Rafique et al. (2017) reported significant findings regarding music intervention for managing symptoms of depression, while Lund et al. (2020) found music to be effective for insomnia among depressed individuals in their study. A qualitative study by Saarikallio and Erkilä (2016) highlighted adolescents' use of music for mood regulation and underscored its importance in their lives. Additionally, the study aimed to investigate the role of music in individual psychological functioning. According to Saarikallio and Erkilä (2016), using music for mood regulation benefits adolescents by enhancing and restoring well-being, as well as enriching their emotional experiences.

This study is imperative due to the pressing need to understand factors associated with burnout among university students. Burnout poses significant challenges to students' academic performance and overall well-being. By examining the relationship between music listening habits, levels of hardiness, and burnout, this research aims to shed light on potential coping mechanisms that students utilize. Understanding how music and resilience intersect in the context of burnout can inform interventions and support strategies to promote student mental health and success in academic settings, particularly in Malaysia.

Methods

This is a cross-sectional study using convenience sampling, with the study population comprising undergraduate students from one of the public universities in the East Coast Region of Malaysia, totalling two thousand students. Studying burnout among undergraduate students in the East Coast region helps us understand how the academic setting there might affect students differently. Campus culture, academic demands, and support services can vary between regions. By focusing on the East Coast, we can grasp how these differences influence student burnout more precisely.

The inclusion criteria were undergraduate students who were willing to participate. Students on study leave were excluded from the study. Data was collected from October to November 2021 through an online survey using Google Forms, which was distributed via email to the study population over a one-month period. A total of 381 undergraduate students responded, resulting in a response rate of only 19.1%.

Ethics approvals from the respective authorities were obtained prior to data collection (IIUM Ethics approval reference no: IREC 2022-107). All data were treated as confidential.

Measure

The self-administered survey was a combination of sociodemographic characteristics and music listening information including the genre, frequency, duration, purpose of listening. The category of listening to Islamic music was based on participants' fill-in answer for listening to the preferred genre of music.

Burnout level

Burnout was measured using Maslach Burnout Inventory Student Survey (MBI-SS)-15 items developed by Hu and Schaufeli (2009), consisting of 3 subscales which are emotional exhaustion (5 items), cynicism (4 items), and academic efficacy (6 items). According to Hu and Schaufeli, (2009) emotional exhaustion (EE) refers to feelings being depleted of one's emotional resources which is stress component. Cynicism (CY) which refers to indifference or a distant attitude towards study and academic efficacy (AE) refers to the feeling in successfully achieve a designated level on an academic task. All the items were scored on a Likert scale from 0, "never" to 6, "every day". High scores on emotional exhaustion (range from 0-30), cynicism (range from 0-24) and low scores on academic efficacy (range from 0-36) are the indicators of burnout (Hu & Schaufeli, 2009). Maslach Burnout Inventory Student Survey (MBI-SS) had been tested for validity and reliability for each burnout element from previous research: emotional exhaustion, cynicism, and academic efficacy. Values of Cronbach coefficient alpha (α) for each subscale were all acceptable, exceeding 0.60. They range between 0.60 and 0.69 for emotional exhaustion, for cynicism between 0.68 and 0.80, and between 0.65 and 0.77 for academic efficacy (Hu & Schaufeli, 2009).

Hardiness level

12-items Hardy Personality Profile developed by Seaward (2018) contains 3 subscales which are commitment, control, and challenge. The Likert scale 0 which is “strongly disagree” to 3 which is “strongly agree” and scoring for a hardy personality range between 10-18. The moderate personality hardiness range between 0-9 while a score less than 0 show has low hardiness. Hardy Personality Profile had been tested for validity and reliability for each hardy personality element from previous research which are commitment, control, and challenge. Values of Cronbach coefficient alpha (α) ranging between 0.81 and 0.87. They range 0.87 for commitment, 0.82 for control and 0.81 for challenge (Seaward, 2018).

Data analysis

The data collected was analysed using SPSS (ver.26.0). Descriptive analysis was presented in tables using frequency, percentage, mean and standard deviation to evaluate the sociodemographic data, music listening characteristics, hardiness level and burnout level. The average duration of listening to music in the study participants (N=381) was calculated by a mean of 92 minutes.

The relationship between variables were analysed and interpreted based on p-value with level significant below than 0.05. Preliminary analysis using independent t-test and ANOVA were conducted and only the significant variables were entered in the General Linear Model analysis as presented in Table 2. MANOVA test were performed to examine the relationship between the burnout categories, the music listening characteristics and the sociodemographic characteristics.

Results

The age of students who participated in this study started with below 20 years old (n=81, 21.3%), age between 21-22 years old (n=150, 39.5%), 23-24 years old (n=113, 29.8) and above 25 years old (n=36, 9.4%). There was majority of female with a total of 271 (71.4%), and the highest number participated were the nursing students (n=90, 23.6%). Year 4 undergraduate students have highest number of respondents (n= 110, 29.2%), and majority students achieved 3.50 – 4.00 for their CGPA (n=268, 70.6%). 78.2% of participants listen to music every day and majority of them (61.2%) listen to the music in less than average of 92 minutes. 58.8% of participants listened to Islamic music and 63% claimed their purpose of listening is to focus on study and 57.7% believes that music for them gave the calming effect. As for the Hardy personality level, 79.8% has moderate level. Table 1 presents the level of burnout among the study participants. Based on the range of each burnout level, the mean of each burnout categories falls within the moderate level.

Table 1. The burnout level of the undergraduate students (N=381)

Burnout level	Mean (\pm SD)	Range
Emotional exhaustion (EE)	18.3 (5.92)	0-30
Cynicism (CY)	15.3 (4.49)	0-24
Academic Efficacy (AE)	20.3 (8.06)	0-36

Table 2. Relationship between socio-demographic characteristics and burnout level (N=381)

Variables		n (%)	EE		CY		AE	
			Mean (±SD)	p- value ^{a/b}	Mean (±SD)	p- value ^{a/b}	Mean (±SD)	p- value ^{a/b}
Age	Below 20 years	81 (21.3)	19.6 (5.59)	0.018^b	16.3 (4.18)	0.017^b	22.2 (7.56)	0.014^b
	21-22 years	150 (39.4)	17.3 (5.63)		14.6 (4.30)		19.0 (7.64)	
	23 years and above	150 (39.4)	18.5 (6.25)		15.7 (4.75)		20.5 (8.54)	
Gender	Male	109 (28.6)	19.5 (5.69)	0.010^a	16.1 (4.45)	0.053 ^a	22.7 (7.43)	<0.001^a
	Female	272 (71.4)	17.8 (5.95)		15.1 (4.49)		19.3 (8.12)	
Course	Nursing	90 (23.6)	15.0 (5.11)	<0.001^b	13.3 (4.19)	<0.001^b	15.4 (6.27)	<0.001^b
	Allied health sciences	57 (15.0)	17.0 (4.60)		14.4 (3.33)		17.4 (6.37)	
	Medicine							
	Pharmacy	56 (14.7)	18.6 (5.90)		15.7 (4.40)		21.0 (8.17)	
	Dentistry	56 (14.7)	20.3 (5.60)		16.5 (4.49)		23.4 (7.43)	
	Science	51 (13.4)	22.6 (5.94)		18.3 (4.60)		26.7 (7.55)	
Year of study	Year 1	63 (16.5)	20.3 (5.60)	<0.001^b	16.7 (4.11)	<0.001^b	23.3 (7.26)	<0.001^b
	Year 2	84 (22.0)	19.4 (5.73)		15.9 (4.57)		22.2 (7.68)	
	Year 3	93 (24.4)	18.4 (5.69)		15.6 (4.34)		20.3 (8.02)	
	Year 4	111 (29.1)	15.9 (5.77)		13.7 (4.34)		16.5 (7.28)	
	Year 5	30 (30)	19.8 (5.97)		16.8 (4.50)		22.8 (8.50)	
CGPA	3.49 and below	112 (29.4)	15.5 (4.93)	<0.001^a	13.6 (3.88)	<0.001^a	16.1 (6.43)	<0.001^a
	3.5 and above	269 (70.6)	19.4 (5.91)		16.1 (4.53)		22.0 (8.05)	

Note: **p<0.05** is significant using independent t-test^a and ANOVA^b

Table 3. Relationship between music listening characteristics, hardiness and burnout level (N=381)

Variables	n (%)	EE		CY		AE		
		Mean (±SD)	p- value	Mean (±SD)	p- value	Mean (±SD)	p- value	
Frequency of listening to music	Everyday	298	19.0	0.000	15.8	0.000	21.4	0.000
	At least two times a week	(78.2) 83 (21.8)	(5.81) 15.8		(4.43) 13.7		(7.88) 16.3	
Duration of listening to music	More than average	148	19.5	0.003	16.6	0.000*	21.8	0.004
	Less than average	(38.8) 233	(6.45) 17.5		(4.69) 14.6		(8.75) 19.3	
Preference on Islamic music listening	Yes	224	17.9	0.163	15.1	0.178	19.9	0.286
	No	(58.8) 157	(6.13) 18.8		(4.58) 15.8		(8.26) 20.8	
Purpose of listening to music on study	Yes	240	18.9	0.014*	15.8	0.018	21.1	0.013
	No	(63.0) 141	(5.50) 17.3		(4.22) 14.7		(7.59) 18.9	
For calming effect	Yes	220	16.9	0.000	14.5	0.000	18.1	0.000
	No	(57.7) 161	(5.82) 20.1		(4.48) 16.6		(7.62) 23.3	
Hardiness level	Low	77 (20.2)	16.7	0.008	13.9	0.001	16.8	0.000
	moderate	304	(5.11) 18.7		(4.02) 15.8		(6.18) 21.2	
		(79.8)	(6.05)		(4.54)		(8.25)	

Note: $p < 0.05$ is significant using independent t-test

As can be seen from the Table 2 and 3, a meaningful pattern of relationship can be seen among most of the dependent variables, suggesting the appropriateness to proceed with MANOVA. One-way MANOVA was conducted to test the hypothesis where there would be one or more mean differences between the factors and the burnout levels for three dependent variables. The interaction was significant with analysis of Wilks' Lambda values = 0.000, $F(304, 57) = 4.391$, $p < 0.001$. The factors associated with higher or lower burnout by the categories of EE, CY and AE are presented in Table 4.

Table 4. Factors associated with the burnout category level

Factors	Dependent variables	df	Mean square	F
Hardiness category	EE	1	124.186	3.848
	CY	1	92.257	1.385
	AE	1	462.146	11.177*
Course	EE	5	74.636	2.870*
	CY	5	27.592	1.697
	AE	5	133.711	3.234*
CGPA	EE	1	270.049	10.385*
	CY	1	107.457	6.607*
	AE	1	570.209	13.791*
Frequency of listening to music	EE	1	69.164	2.660
	CY	1	33.150	2.038
	AE	1	183.184	4.430*
Average duration	EE	1	150.907	5.803*
	CY	1	242.245	14.895*
	AE	1	237.819	5.752*
Perceived effect of calmness	EE	1	124.186	4.776*
	CY	1	92.257	5.673*
	AE	1	322.700	7.805*

Note: **F*** is significantly associated with the burnout category level

Emotional exhaustion (EE)

Several factors, including course of study, CGPA, average duration of music listening, and perceived effect of calmness, were found to be associated with emotional exhaustion. The results revealed that students in dentistry courses and those with higher CGPAs experienced higher levels of emotional exhaustion (refer to Table 2). Conversely, lower emotional exhaustion was associated with listening to music for shorter durations than average and perceiving music as calming (refer to Table 3).

Cynicism (CY)

Cynicism was found to be significantly dependent on CGPA, duration of music listening, and the purpose of music listening for calming. Higher levels of cynicism were only significantly associated with good CGPAs (refer to Table 2), while lower cynicism was linked to shorter-than-average music listening durations and perceiving music as calming (refer to Table 3).

Academic achievement (AE)

Academic achievement was significantly influenced by various factors, including hardiness level, course of study, CGPA, and characteristics of music listening (i.e., frequency, duration, and perceived calming effect). Moderate hardiness levels, dentistry courses, and good CGPAs were associated with higher academic achievement (refer to Table 2). Additionally, our findings underscore the positive impact of music listening on academic efficacy among undergraduate students in a public university. Higher academic efficacy was linked to increased frequency and duration of music listening, while lower academic efficacy was associated with perceiving music as calming (refer to Table 3).

Discussion

As the current study aims to explore the perceived benefits of music listening among undergraduate students, it sheds light on the advantageous role of music for enhancing academic efficacy. Burnout, as noted by Njim et al. (2018), entails an increase in emotional exhaustion and a decrease in academic efficacy. In our study, the levels of emotional exhaustion and cynicism were found to be moderate, suggesting that music-listening activities may serve as a regulatory mechanism for burnout among participants. Our findings support the notion that individuals who engage in longer music-listening sessions may utilize music as a coping mediator, particularly given their preference for its calming effects. Music has been lauded by scholars for its efficacy as a coping tool, mood regulator, and relaxation aid (Groarke & Hogan, 2019; Krause et al., 2021). In a study by Vidas et al. (2021), music received the highest effectiveness rating among coping strategies during the COVID-19 pandemic in Australia, surpassing alternatives such as exercise and social interactions. The prevalent practice of listening to music for its calming effects among Malaysian students further contributes to the growing body of evidence supporting the benefits of music listening. Integrating music into educational settings as a means of enhancing concentration, relaxation, and overall well-being holds promise for improving academic outcomes and mitigating burnout rates.

The hardiness category in moderate level could affect the academic efficacy among the study participants as reported in this study, those in moderate level of hardiness have significantly higher academic efficacy. In brief, hardiness is a student's capacity to overcome adversity. In support of this study finding, according to Meng and Jia (2023), psychological hardiness can indirectly predict academic achievement. The current findings from the meta-analysis by Jianping et al., (2023) show that some forms of hardiness intervention seem to be advantageous in the setting of higher education. Cropley et al., (2020) explained engaging in reflective thinking exercises in a group can facilitate hardiness that is already developed through experiential learning, external support and coping mechanism. An experimental study conducted by Green et al., among 56 high-school students found that life coaching programme would be associated with increases in cognitive hardiness, hope and decreases in depression, anxiety and stress. In their study, participants were then coached to identify personal resources that could be utilised in moving towards their goals, and to develop self-generated solutions and specific action steps, systematically working through the self-regulation cycle of setting goals, developing action plans, monitoring and evaluating progress. The results revealed significant increases in Cognitive Hardiness, $t(17)=-8.401$, $p<.001$, and a significant decrease in depression. It is however important to highlight in this current study that the majority of participants had moderate hardiness level and none of the study participants had high hardiness level. Future research could conduct a larger study to capture the undergraduates with high hardiness level and their academic efficacy.

In addition, the study participants seem to suggest that those who did not perceive the calming effect of music listening had higher emotional exhaustion and cynicism. Lee et al., (2020) indicate that emotional exhaustion and cynicism are the core dimension of burnout. According to Mastnak et al. (2022), music does not rank among the standardised means to control the development of stress-related syndromes and to prevent burnout. Listening to music can reduce stress and burnout syndromes both at the moment and with a limited sustained effect. Music is more to self-application though it can be encouraged in the form of standardised programmes. A pre and post-interventional study of listening to music for one month among a group of 34 operating theatre staff conducted by Kacem et al., (2020) reported that listening to music decreases emotional exhaustion.

This study identifies dentistry students and those with higher CGPAs as potentially high-risk groups for emotional exhaustion and cynicism. It could be due to academic demand and the emotional challenges of the course when the students have to juggle between lectures, laboratory work, clinical rotations and have to work closely with patients and strike the examination. In support of this study, 52.0% of 73 dentistry students in Mexico have high level of emotional exhaustion due to the struggle for academic activities and the quality of patient treatment (Jiménez-Ortiz et al., 2019). This insight allows for targeted interventions and support strategies to be developed specifically for these cohorts to mitigate burnout risk.

The findings highlight the significance of music listening as a coping mechanism for alleviating emotional exhaustion and cynicism among undergraduate students. Emotional exhaustion, identified as a component of stress, manifests as a state of depletion and fatigue (Kuss & Griffiths, 2011), while cynicism serves as a cognitive defense mechanism against emotional deterioration during the burnout process (Lee et al., 2020). Lee et al. (2020) further elaborate that cynicism reflects an indifferent attitude towards academic work and a loss of interest in it, potentially leading students to perceive school attendance as meaningless. Additionally, Kim et al. (2014) suggest that emotional exhaustion can exacerbate cynicism and inefficacy. Duru et al. (2014) assert that cynicism holds greater significance as an indicator of burnout compared to academic efficacy and emotional exhaustion. However, our findings suggest that integrating music breaks into academic routines could potentially mitigate stress and prevent burnout. Nevertheless, the present study is limited by its reliance on a one-time measurement of burnout and the inability to observe causal interactions between burnout categories.

Conclusion

The findings of this study underscore the potential of music as a means to replenish emotional energy and mitigate the risk of emotional exhaustion among students. Short breaks dedicated to music listening offer a practical strategy for reducing stress and averting the accumulation of emotional exhaustion and cynicism. Further exploration into a wider array of music choices is warranted to optimize mental health and well-being among young populations. Future research endeavors could focus on investigating the hardiness level among larger cohorts of young individuals and implementing intervention studies aimed at fostering hardiness. It is important to acknowledge several limitations inherent in this study. The reliance on data gathered through an online questionnaire from a single university may constrain the generalizability of the findings to other academic institutions. Additionally, the cross-sectional design utilized in this study limits the ability to infer causality between variables.

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