

ORIGINAL ARTICLE

Relationship Between Psychological Flexibility and Psychological Distress Among Medical Students at a Malaysian Public University: A Cross-sectional Study

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ABSTRACT

Introduction: In the demanding environment of medical education, medical students are increasingly vulnerable to psychological distress, including stress, anxiety, and depression. Despite its significant impact on students' well-being and academic performance, and evidence suggesting that psychological flexibility may protect against mental health disorders, the relationship between psychological flexibility and psychological distress remains relatively underexplored among medical students. Exploring this association is crucial for developing interventions to support medical students' mental health and academic success. **Materials and methods:** This cross-sectional study involved 266 medical students enrolled in a public university in Selangor, Malaysia. Participants were selected through stratified random sampling. Personalized Psychological Flexibility Index (PPFI) was used to assess psychological flexibility and the Depression Anxiety Stress Scales-21 (DASS-21) was used to measure psychological distress. **Results:** The students exhibit moderate psychological flexibility. Anxiety is the most prevalent psychological distress, followed by depression and stress. Higher avoidance is associated with reduced depression and stress. Later academic years, greater satisfaction with academic performance and social life consistently correlate with reduced psychological distress. **Conclusion:** This study found no association between overall psychological flexibility score and psychological distress among medical students, however subgroup analysis indicated that higher avoidance was linked to reduced depression and stress. Future research should investigate the mechanisms by which avoidance may contribute to lower psychological distress, as well as to explore mechanisms to promote healthier coping strategies to improve psychological flexibility.

Malaysian Journal of Medicine and Health Sciences (2025) 21(6): 1-16. doi:10.47836/mjmhs.v21.i6.1352

Keywords: Psychological flexibility, Psychological distress, Medical students, Mental health, Academic performance

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INTRODUCTION

Psychological distress among medical students is a global concern that poses a risk to their health, academic performance, and ability to care for patients as clinicians (1). Research indicates that psychological distress in this population is associated with a myriad of adverse outcomes, including poor academic performance, decreased empathy, medical errors, depression, anxiety, and suicidality (2). Addressing this issue is crucial for the student's health and academic success and their future role as competent and compassionate clinicians. One emerging construct that has garnered attention in the context of mental health

is psychological flexibility. Psychological flexibility refers to the ability to acknowledge and accept one's thoughts and emotions while simultaneously acting in accordance with one's values and long-term goals, rather than being driven solely by short-term impulses (3). Previous research has demonstrated that individuals with higher levels of psychological flexibility tend to experience lower levels of psychological distress (4). It is further shown that individuals with low psychological flexibility score significantly higher on negative emotions such as depression, anxiety, and stress compared to those with high psychological flexibility (5). One potential mechanism explaining the connection between psychological inflexibility and psychological functioning revolves around coping styles. Research has shown that psychological inflexibility contributes to heightened ill-being and diminished well-being during highly stressful situations, both directly and indirectly, via increased reliance on avoidance coping

strategies and decreased utilization of non-avoidant coping mechanisms (6). Moreover, it is crucial to note that significant levels of psychological distress can detrimentally impact the cognitive abilities and learning outcomes of medical school students (7). Furthermore, lower scores in academic satisfaction have been closely linked to psychological distress (8). Shockingly, a study revealed that one-third of psychologically distressed medical students failed to graduate from college (9). Nonetheless, there is a notable absence of culturally tailored therapies promoting psychological flexibility to address stress management and associated mental health challenges among young adults (10). Despite its potential significance, psychological flexibility and its relationship with psychological distress have not been extensively studied among medical students, particularly in the Malaysian context.

Acceptance and Commitment Therapy (ACT), a therapeutic approach rooted in the principles of psychological flexibility, has demonstrated effectiveness in addressing a range of mental health concerns (11). Consequently, integrating ACT into interventions for medical students at Universiti Teknologi MARA (UiTM) experiencing psychological distress holds promise. However, culturally tailored interventions focusing on psychological flexibility for stress management and mental health promotion among young adults, including medical students, remain limited. There is a need to explore the link between psychological flexibility and distress to develop culturally relevant interventions. This study aims to explore this relationship within the context of a Malaysian public university. It aims to determine whether higher psychological flexibility levels correlate with reduced psychological distress. The study hypothesizes that higher avoidance is linked to increased psychological distress, while higher acceptance and harnessing of psychological flexibility is linked to reduced psychological distress.

MATERIALS AND METHODS

This is a cross-sectional study of medical students in UiTM Selangor, Malaysia. Data were collected between 01/08/2023 to 30/11/2023. The sample size was calculated using openepi.com with the level of accuracy taken as 0.05, the non-response rate of 20%, and a confidence level of 95%; at least 253 samples were required for this study. The inclusion criteria included medical students registered in the UiTM database at the time of the study and consented to participate in the research. Exclusion criteria included medical students with a previous history and diagnosed with psychiatric illness. The researchers employed a stratified random sampling method to select participants. An email list of medical students was obtained from the Student Academic Office, which had already stratified by year (first through fifth year). Medical students with a previous history and diagnosed psychiatric illness were excluded

from the study. Within each year, students were randomly selected using a random number generator to ensure equal representation from each year group. Data collection was conducted via an online Google Form. The link to the form was emailed to the selected medical students. Before providing written informed consent, participants received an information sheet outlining the study's details, risks, and benefits. This ensured that participants were fully informed about the nature of the study before agreeing to participate.

The instruments

The demographic data questionnaire contains the subject's demographic variables, including age, gender, ethnicity, year of study, relationship status, residence status, academic performance, social life, parental status, total family income per month, and presence of chronic disease or comorbidity. A self-report instrument developed by Kashdan et al. was used to assess psychological flexibility (12). The mean Cronbach alpha of 0.84, and mean test-retest reliabilities are 0.52 (13). Initial studies provided evidence for the psychometric adequacy and validity of the PPFI through exploratory and confirmatory factor analysis. PPFI was shown to be a reliable and valid instrument for college students, general adult populations in the community, and working professionals (13). PPFI comprises three subscales that each has five items: avoidance, acceptance, and harnessing. Each item is scored on a 7-point Likert scale ranging from "strongly disagree" to "strongly agree". Three subscale scores can be calculated by separately averaging the items in the avoidance, acceptance, and harnessing subscales. Total score for subscales ranging from 5-35. High scores reflect high levels of acceptance and harnessing. The avoidance subscale of the PPFI items was reverse scored, such that higher scores indicated less avoidance. Depression, Anxiety, and Stress Scale 21 (DASS-21) was used to measure psychological distress. DASS-21 is a validated self-report scale designed to measure psychological distress among participants by investigating the symptoms of depression, anxiety, and stress. These items are also arranged into subscales: depression, anxiety and stress, with 7 items for each subscale. Together, the subscales provide a broad-spectrum measure of psychological distress, indicating the severity and frequency of symptoms (14). The higher the scores, the more severe the symptoms are. The cut-off scores based on severity for the Depression Scale are from normal (0-9) to extremely severe (>28). For the Anxiety Scale, the cut-off scores are from normal (0-7) to extremely severe (>20). While the Stress Scale ranges from normal (0-14) to extremely severe (>34). The internal consistency reliability of the factor construct was satisfactory, with Cronbach's alpha values in the range of 0.85 to 0.91 (15). The American Psychological Association defines psychological distress as a collection of distressing mental and physical symptoms that commonly accompany normal mood fluctuations. However, in certain cases, psychological distress may

signal the onset of major depressive disorder, anxiety disorder, schizophrenia, somatization disorder, or other clinical conditions. It is what many self-report measures of depression and anxiety aim to assess (16). The participants were given options if they wanted to be informed about their result scores. Participants with moderate to high psychological distress in any domain on the DASS-21 questionnaire were contacted for further support, as outlined in the consent form. The data collected will be securely encrypted and kept for about three years before it is destroyed.

Statistical analysis

The data analysis for this study was performed using the Statistical Package for the Social Sciences (SPSS) version 29 (IBM Corp., Armonk, NY). Descriptive analysis is provided, with means and standard deviations for continuous variables and frequencies and percentages for categorical variables. The descriptive analysis aims to determine the socio-demographic profile and the prevalence of psychological flexibility and psychological distress among the medical students at UiTM. Logistic regression analyses were performed to examine the relationship of sociodemographic characteristics and psychological flexibility with psychological distress among study participants. First, simple logistic regression was conducted to estimate the crude odds ratio (COR) and its 95% confidence interval (CI). Variables significant at p value of 0.25 or less were entered into the multiple logistic regression model to estimate adjusted odds ratio (AOR) and its 95% CI. A p value of less than 0.05 was considered significant. Model fitness was assessed using Hosmer-Lemeshow goodness-of-fit test, with a p value of more than 0.05 considered as good fit. Subsequently, subgroup analyses were performed to examine the relationship of psychological flexibility with depression, anxiety, and stress among study participants. Again, logistic regression analyses were performed to estimate COR, AOR, and the 95% CI.

RESULTS

The study involved 266 participants, predominantly female (74.1%) with a mean age of 22.3 years (SD = 1.8). Most were Malay (96.6%), single (99.2%), and lived in hostels (94.7%). Academic performance satisfaction was 70.7%, with 66.5% satisfied with social life. Most had married parents (88.3%) and reported no chronic disease (90.2%). Family income distribution was 37.6% below RM4,849, 34.2% between RM4,850 and RM10,959, and 28.2% above RM10,960. The socio-demographic characteristics of study participants are summarized in Table I.

Table I: Socio-demographic characteristics of study participants (N=266)

Socio demographic factors	Mean $\pm$ SD	n (%)
Gender		
Male		69 (25.9)
Female		197 (74.1)
Age	22.3 $\pm$ 1.8	
Race		
Malay		257 (96.6)
Others		9 (3.4)
Year of Study		
Year 1		52 (19.5)
Year 2		53 (19.9)
Year 3		51 (19.2)
Year 4		53 (19.9)
Year 5		57 (21.4)
Relationship Status		
Single		264 (99.2)
Married		2 (0.8)
Residence Status		
Living in hostel		252 (94.7)
Not living in hostel		14 (5.3)
Academic Performance		
Least satisfied		61 (22.9)
Satisfied		188 (70.7)
Very satisfied		17 (6.4)
Social Life		
Least satisfied		60 (22.6)
Satisfied		177 (66.5)
Very satisfied		29 (10.9)
Parental Status		
Married		235 (88.3)
Single parent		27 (10.2)
No parents/Orphan		4 (1.5)
Total Family Income per Month		
< RM4 849		100 (37.6)
RM 4 850 - RM 10 959		91 (34.2)
> RM 10 960		75 (28.2)
Presence of Chronic Disease/Comorbidity		
No		240 (90.2)
Yes		26 (9.8)

Note: SD= standard deviation; RM: Malaysian Ringgit

Table II displays the psychological flexibility levels of medical students at UiTM using the PPFI. The results

assessed the level of psychological flexibility among 266 participants, focusing on three main components: avoidance, acceptance, and harnessing. The mean score for avoidance was 22.2 (SD = 6.9), with a median of 23.0. Participants were divided into low (≤ 23) and high (> 23) avoidance categories. Those in the low avoidance group had a mean score of 17.2 (SD = 4.9) and a median of 18.0, comprising 54.1% (144 participants). The high avoidance group had a mean score of 28.2 (SD = 3.1) and a median of 28.0, making up 45.9% (122 participants). For acceptance, the mean score was 24.8 (SD = 5.5), with a median of 25.0. The low acceptance group (≤ 23) had a mean score of 20.8 (SD = 4.1) and a median of 22.0, including 53.0% (141 participants). The high acceptance group (> 23) had a mean score of 29.3 (SD = 2.6) and a median of 29.0, comprising 47.0% (125 participants). Regarding harnessing, the mean score was 21.9 (SD = 6.1), with a median of 23.0. The low harnessing group (≤ 23) had a mean score of 17.7 (SD = 4.8) and a median of 19.0, consisting of 55.3% (147 participants). The high harnessing group (> 23) had a mean score of 27.0 (SD = 2.6) and a median of 26.0, making up 44.7% (119 participants). The overall mean psychological flexibility score was 68.9 (SD = 10.6), with a median of 69.0, encompassing all 266 participants.

Table II: Level of psychological flexibility among study participants (N=266)

Psychological flexibility	Mean $\pm$ SD	Median	n (%)
Avoidance	22.2 $\pm$ 6.9	23.0	
Low (≤ 23)	17.2 $\pm$ 4.9	18.0	144 (54.1)
High (> 23)	28.2 $\pm$ 3.1	28.0	122 (45.9)
Acceptance	24.8 $\pm$ 5.5	25.0	
Low (≤ 23)	20.8 $\pm$ 4.1	22.0	141 (53.0)
High (> 23)	29.3 $\pm$ 2.6	29.0	125 (47.0)
Harnessing	21.9 $\pm$ 6.1	23.0	
Low (≤ 23)	17.7 $\pm$ 4.8	19.0	147 (55.3)
High (> 23)	27.0 $\pm$ 2.6	26.0	119 (44.7)
Total score	68.9 $\pm$ 10.6	69.0	266 (100.0)

Note: SD= standard deviation

Table III represents the levels of psychological distress among 266 participants, categorized into depression, anxiety, and stress. In terms of depression, 58.3% (155 participants) reported no symptoms, while 41.7% (111 participants) experienced some form of depression: 12.4% (33 participants) mild, 15.8% (42 participants) moderate, 5.3% (14 participants) severe, and 8.3% (22 participants) extremely severe. Regarding anxiety, 47.0% (125 participants) had no symptoms, while 53.0% (141 participants) experienced anxiety: 7.9% (21 participants) mild, 20.3% (54 participants) moderate, 13.9% (37 participants) severe, and 10.9% (29 participants) extremely severe. For stress, 70.3% (187 participants) reported no symptoms, whereas 29.7% (79 participants) experienced stress: 13.2% (35 participants) mild, 9.8% (26 participants) moderate, 5.3% (14 participants) severe, and 1.5% (4 participants) extremely severe.

Table III: Level of psychological distress among study participants (N=266)

Level	Depression, n (%)	Anxiety, n (%)	Stress, n (%)
No			
Normal	155 (58.3)	125 (47.0)	187 (70.3)
Yes	111 (41.7)	141 (53.0)	79 (29.7)
Mild	33 (12.4)	21 (7.9)	35 (13.2)
Moderate	42 (15.8)	54 (20.3)	26 (9.8)
Severe	14 (5.3)	37 (13.9)	14 (5.3)
Extremely severe	22 (8.3)	29 (10.9)	4 (1.5)

Table IV showing the result for an association of sociodemographic characteristics and psychological flexibility with psychological distress among study participants by using binary logistics regression. In the initial simple logistic regression analysis, the study examined the association between various sociodemographic factors and psychological flexibility with psychological distress among the participants, with a significance level of $p < 0.25$. Gender did not reveal a significant association with psychological distress, as suggested by both the crude odds ratio (COR) and p-value. For age, older participants had lower odds of psychological distress. Later academic years of study were associated with decreased odds of psychological distress compared to the first year. Additionally, higher satisfaction with academic performance and social life, and monthly income were correlated with lower odds of psychological distress. The overall mean psychological flexibility score was 68.9 (SD = 10.6). In this context, the subgroups of psychological flexibility—avoidance, acceptance, and harnessing—were categorized based on their mean scores relative to this overall average. Scores above 68.9 indicated a high level of psychological flexibility, while scores below 68.9 reflected a low level of psychological flexibility. Higher avoidance, lower acceptance and harnessing exhibited significant associations with lower psychological distress. Upon transitioning to the multiple logistic regression analysis, the aim was to delve deeper into the relationships while accounting for potential confounding variables. This approach involves adjusting for factors like sex and age, which have been shown in previous research to influence psychological outcomes (17,18). This comprehensive analysis revealed that while age initially showed a significant association with psychological distress in the crude analysis, this association diminished after adjusting for other factors. Later academic years showed lower likelihood of psychological distress compared to the first year. Furthermore, the significance of academic performance, social life, and avoidance persisted in the multiple regression analysis. Higher satisfaction with academic performance and social life were linked to significantly lower likelihood of psychological distress. Higher avoidance levels were significantly linked to lower odds of psychological distress. Regarding monthly

income with harnessing and acceptance, they did not retain significance after adjusting for other variables. The Hosmer-Lemeshow test, assessing the goodness-of-

fit of the multiple logistic regression model, yielded a p-value of 0.299, indicating a good fit.

Table IV: Association of sociodemographic characteristics and PF with psychological distress among study participants

Socio-demographic factors	Psychological distress		Crude OR (95% CI) ^A	p-value	Adjusted OR (95% CI) ^B	p-value
	No 126 (47.4)	Yes 140 (52.6)				
Gender						
Male	33 (26.2)	36 (25.7)				
Female	93 (73.8)	104 (74.3)	1.025 (0.592, 1.775)	0.930	1.266 (0.667, 2.402)	0.471
Age						
Mean $\pm$ SD	22.6 $\pm$ 1.9	22.0 $\pm$ 1.7				
Median (Q1, Q3)	23.0 (21.0, 24.0)	22.0 (21.0, 23.0)	0.822 (0.715, 0.945)	0.006**	1.143 (0.830, 1.574)	0.412
Race						
Malay	123 (97.6)	134 (95.7)				
Others	3 (2.4)	6 (4.3)	1.836 (0.449, 7.500)	0.398		
Year of Study						
Year 1	15 (11.9)	37 (26.4)				
Year 2	24 (19.0)	29 (20.7)	0.490 (0.218, 1.099)	0.083	0.455 (0.185, 1.119)	0.086
Year 3	19 (15.1)	32 (22.9)	0.683 (0.299, 1.559)	0.365	0.372 (0.130, 1.063)	0.065
Year 4	32 (25.4)	21 (15.0)	0.266 (0.118, 0.601)	0.001**	0.137 (0.036, 0.518)	0.003**
Year 5	36 (28.6)	21 (15.0)	0.236 (0.106, 0.529)	< 0.001**	0.085 (0.018, 0.409)	0.002**
Relationship Status						
Single	125 (99.2)	139 (99.3)				
Married	1 (0.8)	1 (0.7)	0.899 (0.056, 14.529)	0.940		
Residence Status						
Living in hostel	118 (93.7)	134 (95.7)				
Not living in hostel	8 (6.3)	6 (4.3)	0.660 (0.223, 1.959)	0.454		
Academic Performance						
Least satisfied	18 (14.3)	43 (30.7)				
Satisfied	99 (78.6)	89 (63.6)	0.376 (0.202, 0.700)	0.002**	0.431 (0.208, 0.895)	0.024*
Very satisfied	9 (7.1)	8 (5.7)	0.372 (0.124, 1.118)	0.078	1.355 (0.350, 5.249)	0.660
Social Life						
Least satisfied	15 (11.9)	45 (32.1)				
Satisfied	88 (69.8)	89 (63.6)	0.337 (0.175, 0.649)	0.001*	0.381 (0.181, 0.802)	0.011*
Very satisfied	23 (18.3)	6 (4.3)	0.087 (0.030, 0.254)	< 0.001**	0.101 (0.030, 0.335)	< 0.001**
Parental Status						
Married	114 (90.5)	121 (86.4)				
Single parent	10 (7.9)	17 (12.1)	1.602 (0.704, 3.644)	0.261		

CONTINUE

Table IV: Association of sociodemographic characteristics and PF with psychological distress among study participants (CONT.)

Socio-demographic factors	Psychological distress		Crude OR (95% CI) ^A	p-value	Adjusted OR (95% CI) ^B	p-value
	No 126 (47.4)	Yes 140 (52.6)				
Parental Status						
No parents/Orphan	2 (1.6)	2 (1.4)	0.942 (0.131, 6.801)	0.953		
Total Family Income per Month						
< RM4 849	41 (32.5)	59 (42.1)				
RM 4 850 - RM 10 959	49 (38.9)	42 (30.0)	0.596 (0.336, 1.057)	0.077	0.456 (0.232, 0.894)	0.022*
> RM 10 960	36 (28.6)	39 (27.9)	0.763 (0.412, 1.376)	0.356	0.640 (0.317, 1.291)	0.213
Presence of Chronic Disease/Comorbidity						
No	112 (88.9)	128 (91.4)				
Yes	14 (11.1)	12 (8.6)	0.750 (0.333, 1.689)	0.487		
Psychological flexibility						
No	53 (42.1)	65 (46.4)				
Yes	73 (57.9)	75 (53.6)	0.838 (0.516, 1.361)	0.474		
Psychological flexibility domains						
Avoidance						
Low	54 (42.9)	90 (64.3)				
High	72 (57.1)	50 (35.7)	0.417 (0.264, 0.683)	< 0.001**	0.481 (0.270, 0.857)	0.013*
Acceptance						
Low	73 (57.9)	68 (48.6)				
High	53 (42.1)	71 (51.4)	1.458 (0.898, 2.368)	0.127	1.233 (0.687, 2.214)	0.483
Harnessing						
Low	79 (62.7)	68 (48.6)				
High	47 (37.3)	72 (51.4)	1.780 (1.090, 2.905)	0.021*	1.250 (0.687, 2.273)	0.465

Note: *Significant at p<0.05, **significant at p<0.01

^A COR estimates from simple logistic regression^B AOR estimates from multiple logistic regression; assumptions of logistic regression have been met and the Hosmer-Lemeshow goodness-of-fit test indicated good fit (p=0.299). Analyses were adjusted for sex, age, year of study, academic performance, social life, family income, avoidance, acceptance and harnessing.

PF: Psychological Flexibility

OR: Odds Ratio

CI: Confidence Interval

SD: Standard Deviation

Table V presents the results of an association between sociodemographic characteristics and psychological flexibility with depression among study participants using binary logistic regression. Initially, the simple logistic regression analysis explored this association, focusing on variables with a significance level of $p < 0.25$, considering age and sex as significant factors based on previous research (17,18). In the simple analysis, neither age nor gender demonstrated statistically significant associations with depression, although age approached significance ($p = 0.073$), and gender showed no significance ($p = 0.532$). The year of study was statistically significant, with later years linked to

decreased likelihood of depression compared to the first year ($p < 0.05$). Furthermore, academic performance and social life exhibited significant associations with depression, with higher satisfaction linked to lower odds of depression ($p < 0.001$). Additionally, psychological flexibility ($p = 0.053$), avoidance ($p < 0.001$), acceptance ($p = 0.229$) and harnessing ($p = 0.038$) showed significant associations with depression. Students who had higher psychological flexibility and avoidance, lower acceptance and harnessing potentially exhibited significant associations with lower psychological distress. Transitioning to multiple logistic regression analysis aimed to further elucidate relationships while

adjusting for potential confounding variables, including age and sex. After adjustment, several significant associations persisted. Notably, the year of study remained a significant predictor of depression, with later academic years associated with decreased odds of depression compared to the first year. Similarly, higher satisfaction with academic performance and social life continued to be significantly associated with lower odds of depression. For instance, participants reporting higher satisfaction with academic performance had substantially reduced likelihoods of experiencing depression (adjusted odds ratio [AOR] = 0.949 (0.236, 3.820), $p = 0.010$), while those satisfied with their social life also

demonstrated significantly lower odds of depression [AOR = 0.355 (0.174, 0.726), $p = 0.005$]. Avoidance remained significant, with individuals employing higher levels of avoidance exhibiting lower odds of depression [AOR = 0.291 (0.148, 0.574), $p < 0.001$]. However, the associations with psychological flexibility [AOR = 0.760 (0.352, 1.639), $p = 0.053$], acceptance [AOR = 1.221 (0.643, 2.315), $p = 0.5420$] and harnessing [AOR = 1.286 (0.637, 2.595), $p = 0.483$] were not statistically significant after adjustment. The Hosmer-Lemeshow test indicated a good fit for the multiple logistic regression model with a p -value of 0.494.

Table V: Association of sociodemographic characteristics and PF with depression among study participants

Socio-demographic factors	Depression		Crude OR (95% CI) ^A	p-value	Adjusted OR (95% CI) ^B	p-value
	No 155 (58.3)	Yes 111 (41.7)				
Gender						
Male	38 (24.5)	31 (27.9)				
Female	117 (75.5)	80 (72.1)	0.838 (0.482, 1.457)	0.532	0.962 (0.497, 1.862)	0.908
Age						
Mean $\pm$ SD	22.5 $\pm$ 1.8	23.0 (21.0, 24.0)				
Median (Q1, Q3)	22.1 $\pm$ 1.7	22.0 (21.0, 23.0)	0.880 (0.765, 1.012)	0.073	1.206 (0.870, 1.672)	0.260
Race						
Malay	150 (96.8)	107 (96.4)				
Others	5 (3.2)	4 (3.6)	1.121 (0.294, 4.274)	0.867		
Year of Study						
Year 1	24 (15.5)	28 (25.2)				
Year 2	30 (19.4)	23 (20.7)	0.657 (0.304, 1.419)	0.285	0.614 (0.252, 1.493)	0.282
Year 3	24 (15.5)	27 (24.3)	0.964 (0.445, 2.092)	0.927	0.455 (0.158, 1.306)	0.143
Year 4	38 (24.5)	15 (13.5)	0.338 (0.151, 0.760)	0.009**	0.165 (0.042, 0.652)	0.010*
Year 5	39 (25.2)	18 (16.2)	0.396 (0.181, 0.863)	0.020*	0.124 (0.024, 0.632)	0.012*
Relationship Status						
Single	154 (99.4)	110 (99.1)				
Married	1 (0.6)	1 (0.9)	1.40 (0.087, 22.625)	0.813		
Residence Status						
Living in hostel	145 (93.5)	107 (96.4)				
Not living in hostel	10 (6.5)	4 (3.6)	1.845 (0.563, 6.041)	0.312		
Academic Performance						
Least satisfied	21 (13.5)	40 (36.0)				
Satisfied	122 (78.7)	66 (59.5)	0.284 (0.155, 0.521)	< 0.001**	0.355 (0.174, 0.726)	0.005*
Very satisfied	12 (7.7)	5 (4.5)	0.219 (0.068, 0.704)	0.011*	0.949 (0.236, 3.820)	0.941
Social Life						
Least satisfied	19 (12.3)	41 (36.9)				
Satisfied	111 (71.6)	66 (59.5)	0.276 (0.148, 0.514)	< 0.001**	0.340 (0.167, 0.693)	0.003*
Very satisfied	25 (16.1)	4 (3.6)	0.074 (0.023, 0.243)	< 0.001**	0.124 (0.034, 0.452)	0.002*

CONTINUE

Table V: Association of sociodemographic characteristics and PF with depression among study participants (CONT.)

Socio-demographic factors	Depression		Crude OR (95% CI) ^A	p-value	Adjusted OR (95% CI) ^B	p-value
	No 155 (58.3)	Yes 111 (41.7)				
Parental Status						
Married	139 (89.7)	96 (86.5)				
Single parent	14 (9.0)	13 (11.7)	1.344 (0.605, 2.988)	0.467		
No parents/Orphan	2 (1.3)	2 (1.8)	1.448 (0.200, 10.457)	0.714		
Total Family Income per Month						
< RM4 849	58 (37.4)	42 (37.8)				
RM 4 850 - RM 10 959	59 (38.1)	32 (28.8)	0.749 (0.417, 1.345)	0.333		
> RM 10 960	38 (24.5)	37 (33.3)	1.345 (0.736, 2.455)	0.335		
Presence of Chronic Disease/Comorbidity						
No	138 (89.0)	102 (91.9)				
Yes	17 (11.0)	9 (8.1)	0.716 (0.307, 1.672)	0.440		
Psychological flexibility						
No	61 (39.4)	57 (51.4)				
Yes	94 (60.6)	54 (48.6)	0.615 (0.376, 1.006)	0.053*	0.760 (0.352, 1.639)	0.484
Psychological flexibility domains						
Avoidance						
Low	62 (40.0)	82 (73.9)				
High	93 (60.0)	29 (26.1)	0.236 (0.139, 0.401)	< 0.001**	0.291 (0.148, 0.574)	< 0.001**
Acceptance						
Low	87 (56.1)	54 (48.6)				
High	68 (43.9)	57 (51.4)	1.350 (0.828, 2.202)	0.229	1.221 (0.643, 2.315)	0.542
Harnessing						
Low	94 (60.6)	53 (47.7)				
High	61 (39.4)	58 (52.3)	1.686 (1.031, 2.760)	0.038*	1.286 (0.637, 2.595)	0.483

Note: *Significant at p<0.05, **significant at p<0.01

^A COR estimates from simple logistic regression^B AOR estimates from multiple logistic regression; assumptions of logistic regression have been met and the Hosmer-Lemeshow goodness-of-fit test indicated good fit (p=0.494). Analyses were adjusted for sex, age, year of study, academic performance, social life, psychological flexibility, avoidance, acceptance and harnessing.

PF: Psychological Flexibility

OR: Odds Ratio

CI: Confidence Interval

SD: Standard Deviation

Table VI presents the results of an association between sociodemographic characteristics and psychological flexibility with anxiety among study participants, utilizing binary logistic regression. Initially, in the simple logistic regression analysis, variables with a significance level of $p < 0.25$ were considered, while age and sex were regarded as significant. In this analysis, age exhibited a statistically significant association with anxiety, with older participants having lower odds of anxiety ($p = 0.004$). However, gender did not show a significant association with anxiety ($p = 0.659$). Also, psychological flexibility also did not show a significant association with anxiety ($p = 0.911$). Among other variables, the year of study emerged as statistically significant, with later academic years associated with decreased

odds of anxiety compared to the first year ($p < 0.05$). Additionally, satisfaction with academic performance and social life showed significant associations with anxiety, with higher satisfaction linked to lower odds of anxiety ($p < 0.05$). Similarly, the analysis revealed that parental status and the category "RM 4,850 - RM 10,959" for monthly income both met this criterion. For avoidance and harnessing, they also displayed a trend towards significance ($p = 0.059$) and ($p = 0.051$) respectively. Multiple logistic regression analysis was conducted to further elucidate relationships while adjusting for age and sex. After adjustment, several significant associations persisted. In multiple logistic regression, year of study and satisfaction with social life remained significant, with higher satisfaction linked to

lower odds of anxiety, especially when comparing first-year to fifth-year students. Participants in the fifth year exhibited significantly lower odds of anxiety compared to those in the first year [AOR = 0.162 (0.036, 0.739), p-value = 0.019]. However, the significance of academic performance diminished after adjustment. Variables such as the marital status of parents, participants'

monthly income, and the presence of chronic diseases or comorbidities did not significantly influence anxiety levels in the adjusted model. Avoidance and harnessing showed trends towards significance but were not statistically significant after adjustment. The Hosmer-Lemeshow test indicated a good fit for the multiple logistic regression model with a p-value of 0.895.

Table VI: Association of sociodemographic characteristics and PF with anxiety among study participants

Socio-demographic factors	Anxiety		Crude OR (95% CI) ^A	p-value	Adjusted OR (95% CI) ^B	p-value
	No 125 (47.0)	No 125 (47.0)				
Gender						
Male	34 (27.2)	35 (24.8)				
Female	91 (72.8)	106 (75.2)	1.132 (0.654, 1.959)	0.659	1.395 (0.748, 2.599)	0.295
Age						
Mean $\pm$ SD	22.6 $\pm$ 1.9	22.0 $\pm$ 1.6				
Median (Q1, Q3)	23.0 (21.0, 24.0)	22.0 (21.0, 23.0)	0.812 (0.706, 0.935)	0.004**	1.044 (0.758, 1.436)	0.794
Race						
Malay	122 (97.6)	135 (95.7)				
Others	3 (2.4)	6 (4.3)	1.807 (0.442, 7.384)	0.410		
Year of Study						
Year 1	17 (13.6)	35 (24.8)				
Year 2	26 (20.8)	27 (19.1)	0.504 (0.229, 1.113)	0.090	0.528 (0.227, 1.231)	0.139
Year 3	14 (11.2)	37 (26.2)	1.284 (0.551, 2.988)	0.562	1.113 (0.394, 3.141)	0.840
Year 4	29 (23.2)	24 (17.0)	0.402 (0.182, 0.888)	0.024*	0.388 (0.108, 1.391)	0.146
Year 5	39 (31.2)	18 (12.8)	0.224 (0.100, 0.501)	< 0.001**	0.162 (0.036, 0.739)	0.019*
Relationship Status						
Single	124 (99.2)	140 (99.3)				
Married	1 (0.8)	1 (0.7)	0.886 (0.055, 14.310)	0.932		
Residence Status						
Living in hostel	119 (95.2)	133 (94.3)				
Not living in hostel	6 (4.8)	8 (5.7)	0.838 (0.283, 2.486)	0.750		
Academic Performance						
Least satisfied	21 (16.8)	40 (28.4)				
Satisfied	95 (76.0)	93 (66.0)	0.514 (0.282, 0.937)	0.030*	0.570 (0.284, 1.147)	0.115
Very satisfied	9 (7.2)	8 (5.7)	0.467 (0.157, 1.387)	0.170	1.230 (0.328, 4.614)	0.759
Social Life						
Least satisfied	17 (13.6)	43 (30.5)				
Satisfied	87 (69.6)	90 (63.8)	0.409 (0.217, 0.771)	0.009*	0.369 (0.174, 0.783)	0.007*
Very satisfied	21 (16.8)	8 (5.7)	0.151 (0.056, 0.405)	0.001**	0.151 (0.047, 0.478)	<0.001**
Parental Status						
Married	113 (90.4)	122 (86.5)				
Single parent	9 (7.2)	18 (12.8)	1.852 (0.800, 4.291)	0.150	1.357 (0.504, 3.649)	0.546
No parents/Orphan	3 (2.4)	1 (0.7)	0.309 (0.032, 3.011)	0.312	0.523 (0.049, 5.523)	0.590

CONTINUE

Table VI: Association of sociodemographic characteristics and PF with anxiety among study participants (CONT.)

Socio-demographic factors	Anxiety		Crude OR (95% CI) ^A	p-value	Adjusted OR (95% CI) ^B	p-value
	No 125 (47.0)	No 125 (47.0)				
Total Family Income per Month						
< RM4 849	42 (33.6)	58 (41.1)				
RM 4 850 - RM 10 959	48 (38.4)	43 (30.5)	0.649 (0.366, 1.149)	0.138	0.555 (0.285, 1.078)	0.082
> RM 10 960	35 (28.0)	40 (28.4)	0.828 (0.453, 1.512)	0.538	0.794 (0.397, 1.588)	0.514
Presence of Chronic Disease/Comorbidity						
No	109 (87.2)	131 (92.9)				
Yes	16 (12.8)	10 (7.1)	0.520 (0.227, 1.193)	0.123	0.453 (0.166, 1.241)	0.124
Psychological flexibility						
No	55 (44.0)	63 (44.7)				
Yes	70 (56.0)	78 (55.3)	0.973 (0.599, 1.580)	0.911		
Psychological flexibility domains						
Avoidance						
Low	60 (48.0)	84 (59.6)				
High	65 (52.0)	57 (40.4)	0.626 (0.385, 1.018)	0.059	0.844 (0.479, 1.486)	0.557
Acceptance						
Low	67 (53.6)	74 (52.5)				
High	58 (46.4)	67 (47.5)	1.046 (0.646, 1.694)	0.855		
Harnessing						
Low	77 (61.6)	70 (49.6)				
High	48 (38.4)	71 (50.4)	1.627 (0.998, 2.653)	0.051*	1.382 (0.788, 2.423)	0.259

Note: *Significant at $p < 0.05$, **significant at $p < 0.01$

^A COR estimates from simple logistic regression

^B AOR estimates from multiple logistic regression; assumptions of logistic regression have been met and the Hosmer-Lemeshow goodness-of-fit test indicated good fit ($p = 0.895$). Analyses were adjusted for sex, age, year of study, academic performance, social life, parent status, family income, chronic disease, avoidance and harnessing.

PF: Psychological Flexibility

OR: Odds Ratio

CI: Confidence Interval

SD: Standard Deviation

RM: Malaysian Ringgit

Table VII presents the results of an association between sociodemographic characteristics and psychological flexibility with stress among study participants, utilizing binary logistic regression. In the simple logistic regression analysis, variables with a significance level of $p < 0.25$ were considered, while gender and age were deemed significant based on previous research (17,18). In this analysis, age demonstrated a statistically significant association with stress, with older participants having lower odds of experiencing stress ($p = 0.004$). However, gender did not show a significant association with stress ($p = 0.659$). Also, psychological flexibility also did not show a significant association with anxiety ($p = 0.286$). Among other variables, the year of study emerged as statistically significant, with participants in later academic years exhibiting decreased odds of stress compared to those in the first year ($p < 0.05$). Similarly, satisfaction with academic performance and social life showed significant associations with stress, with higher satisfaction linked to lower odds

of stress ($p < 0.05$). Avoidance and harnessing also displayed significant associations with stress in the single analysis. Transitioning to multiple logistic regression analysis, several significant associations persisted after adjusting for potential confounding variables, including age and sex. Notably, satisfaction with academic performance and social life retained significance, with higher satisfaction associated with lower odds of stress. Similarly, satisfaction with social life also remained significant in the adjusted analysis. However, age, gender and year of study did not remain statistically significant in the multiple logistic regression analysis. Variables such as the marital status of parents, participants' monthly income, and the presence of chronic diseases or comorbidities did not significantly influence stress levels in the adjusted model. Avoidance showed statistical significance ($p = 0.053$), indicating its potential influence on stress levels among study participants. However, harnessing, with a p-value of 0.300, did not reach statistical significance after

adjustment. The Hosmer-Lemeshow goodness-of-fit test indicated a good fit for the multiple logistic regression model ($p = 0.188$), suggesting that the model effectively

explains the relationship between sociodemographic factors and psychological flexibility with stress among study participants.

Table VII: Association of sociodemographic characteristics and PF with stress among study participants

Socio-demographic factors	Stress		Crude OR (95% CI) ^A	p-value	Adjusted OR (95% CI) ^B	p-value
	No 187 (70.3)	Yes 79 (29.7)				
Gender						
Male	48 (25.7)	21 (26.6)				
Female	139 (74.3)	58 (73.4)	1.132 (0.654, 1.959)	0.659	0.985 (0.497, 1.952)	0.966
Age						
Mean $\pm$ SD	22.5 $\pm$ 1.8	21.8 $\pm$ 1.6				
Median (Q1, Q3)	23.0 (21.0, 24.0)	22.0 (20.0, 23.0)	0.812 (0.706, 0.935)	0.004*	0.822 (0.560, 1.206)	0.316
Race						
Malay	181 (96.8)	76 (96.2)				
Others	6 (3.2)	3 (3.8)	1.807 (0.442, 7.384)	0.410		
Year of Study						
Year 1	34 (18.2)	18 (22.8)				
Year 2	34 (18.2)	19 (24.1)	0.504 (0.229, 1.113)	0.090	1.204 (0.492, 2.949)	0.685
Year 3	28 (15.0)	23 (29.1)	1.284 (0.551, 2.988)	0.562	1.976 (0.662, 5.893)	0.222
Year 4	44 (23.5)	9 (11.4)	0.402 (0.182, 0.888)	0.024*	0.650 (0.141, 2.998)	0.580
Year 5	47 (25.1)	10 (12.7)	0.224 (0.100, 0.501)	< 0.001**	0.676 (0.111, 4.098)	0.670
Relationship Status						
Single	185 (98.9)	79 (100.0)	**not fit to model**			
Married	2 (1.1)					
Residence Status						
Living in hostel	177 (94.7)	75 (94.9)				
Not living in hostel	10 (5.3)	4 (5.1)	1.193 (0.402, 3.538)	0.750		
Academic Performance						
Least satisfied	34 (18.2)	27 (34.2)				
Satisfied	141 (75.4)	47 (59.5)	0.514 (0.282, 0.937)	0.030*	0.464 (0.226, 0.952)	0.036*
Very satisfied	12 (6.4)	5 (6.3)	0.467 (0.157, 1.387)	0.170	2.691 (0.546, 13.265)	2.691
Social Life						
Least satisfied	31 (16.6)	29 (36.7)				
Satisfied	127 (67.9)	50 (63.3)	0.421 (0.230, 0.769)	0.005**	0.477 (0.235, 0.967)	0.040*
Very satisfied	29 (15.5)		*Not fit to model*			
Parental Status						
Married	168 (89.8)	67 (84.8)				
Single parent	16 (8.6)	11 (13.9)	1.724 (0.761, 3.907)	0.192	1.013 (0.365, 2.810)	0.980
No parents/Orphan	3 (1.6)	1 (1.3)	0.836 (0.085, 8.178)	0.878	3.616 (0.193, 67.884)	0.390
Total Family Income per Month						
< RM4 84	66 (35.3)	34 (43.0)				
RM 4 850 - RM 10 959	68 (36.4)	23 (29.1)	0.649 (0.366, 1.149)	0.138	0.547 (0.259, 1.158)	0.115

CONTINUE

Table VII: Association of sociodemographic characteristics and PF with stress among study participants (CONT.)

Socio-demographic factors	Stress		Crude OR (95% CI) ^A	p-value	Adjusted OR (95% CI) ^B	p-value
	No 187 (70.3)	Yes 79 (29.7)				
Total Family Income per Month						
> RM 10 960	53 (28.3)	22 (27.8)	0.828 (0.453, 1.512)	0.538	0.812 (0.378, 1.744)	0.594
Presence of Chronic Disease/Comorbidity						
No	167 (89.3)	73 (92.4)				
Yes	20 (10.7)	6 (7.6)	0.520 (0.227, 1.193)	0.123	0.697 (0.218, 2.234)	0.544
Psychological flexibility						
No	79 (42.2)	39 (49.4)				
Yes	108 (57.8)	40 (50.6)	0.750 (0.442, 1.272)	0.286		
Psychological flexibility domains						
Avoidance						
Low	89 (47.6)	55 (69.6)				
High	98 (52.4)	24 (30.4)	0.626 (0.385, 1.018)	0.059*	0.527 (0.276, 1.008)	0.053*
Acceptance						
Low	105 (56.1)	36 (45.6)				
High	82 (43.9)	43 (54.4)	1.046 (0.646, 1.694)	0.855		
Harnessing						
Low	111 (59.4)	36 (45.6)				
High	76 (40.6)	43 (54.4)	1.627 (0.998, 2.653)	0.051*	1.390 (0.746, 2.592)	0.300

Note: *Significant at $p < 0.05$, **significant at $p < 0.01$

^A COR estimates from simple logistic regression

^B AOR estimates from multiple logistic regression; assumptions of logistic regression have been met and the Hosmer-Lemeshow goodness-of-fit test indicated good fit ($p = 0.188$). Analyses were adjusted for sex, age, year of study, academic performance, social life, parent status, family income, chronic disease, avoidance and harnessing.

PF: Psychological Flexibility

OR: Odds Ratio

CI: Confidence Interval

SD: Standard Deviation

RM: Malaysian Ringgit

DISCUSSION

The primary objective of this study was to assess the levels of psychological flexibility and psychological distress among UiTM medical students, and to examine the association between psychological flexibility and psychological distress in this population. The primary findings revealed that students exhibit a moderate level of psychological flexibility. Anxiety was identified as the most prevalent form of psychological distress, followed by depression and stress. Psychological flexibility was not associated with reduced overall psychological distress. However, avoidance was associated with lower psychological distress in particular depression and stress levels. Furthermore, advanced academic years and greater satisfaction with academic performance and social life are consistently associated with decreased psychological distress. Previous studies have demonstrated that individuals with low psychological flexibility tend to have significantly higher levels of negative emotions, including depression, anxiety, and

stress, compared to those with high psychological flexibility (5). However, in this study, psychological flexibility was not significantly associated with lower psychological distress. Instead, upon closer examination of psychological flexibility subdomains, higher levels of avoidance among students were linked to reduced reports of stress and depression. This information may suggest that these students rely on avoidance as a short-term coping strategy when faced with challenges. This correlation aligns with findings from a meta-analysis, indicating an initial positive adaptation linked to avoidance (19). However, while avoidance may yield favourable immediate outcomes, longitudinal data suggest that non-avoidant strategies lead to more positive long-term results (19). Furthermore, the DASS-21 scale, employed to assess psychological flexibility, measures negative emotional states such as depression, anxiety, and stress experienced over the past week. These measurements correlate with short-term emotional outcomes concerning avoidant coping strategies. Avoidance is a significant factor in

understanding psychological distress. A study highlights this by demonstrating that individuals experiencing high levels of psychological distress frequently employ avoidance coping strategies, as indicated by one of the scales in the PPFI (20). Additionally, coping strategies vary across cultures, as demonstrated in a study (21). This research showed that levels of distress and coping strategies differ among individuals from different cultural backgrounds, whereby some individuals tend to rely more on avoidance coping strategies, while others prefer problem-solving and emotion-focused approaches (21). It is important to note that the assessment tools used may influence how coping strategies are understood, especially when applied across diverse cultural contexts. While avoidance was significantly associated with decreased stress levels and depression levels, acceptance and harnessing did not show a strong influence. This might be because stress in medical students is often multifaceted and may require a combination of strategies to manage effectively. Psychological flexibility may help in some aspects but might not be sufficient to address all stressors. In this study, students who reported higher satisfaction with academic performance tended to exhibit lower levels of psychological distress. Given that higher levels of psychological flexibility are known to be associated with lower psychological distress (5), there appears to be an association between greater psychological flexibility and higher satisfaction with academic performance. This could be because psychologically flexible individuals are more adept at managing academic pressures and setbacks, allowing them to maintain a positive outlook on their academic performance. Psychological flexibility enables students to adapt to challenges and persist in facing difficulties, which likely contributes to higher satisfaction with their academic achievements. Indeed, research (22) found that psychological flexibility was positively related to success expectations and positive emotions, and negatively related to task avoidance and negative emotions. Furthermore, a study (23) supported this, showing that cognitive flexibility significantly decreased the risk of experiencing academic stress. These findings underscore the vital role of psychological flexibility in enhancing students' ability to navigate academic challenges while safeguarding their mental well-being, as noted by Kashdan (24).

Furthermore, this study found that students with higher satisfaction with their social life had lower levels of psychological distress. This finding is supported by a previous study that indicates a link between social life satisfaction and depression (25). Therefore, students should prioritize both academic performance and social life, as this balance is linked to lower psychological distress and improved overall well-being. This approach aligns with ACT, which emphasizes setting and pursuing meaningful goals across diverse life domains to foster purpose and fulfilment (26).

Asian medical students face unique challenges stemming from high parental expectations, intense academic pressures, and the demanding nature of medical education. These pressures are worsened by societal norms that overlook mental health issues, viewing them as part of the learning experience. Many students feel a strong obligation to meet their parents' dreams, often pursuing careers in medicine, which creates significant stress as they strive to excel academically. This pressure can lead to anxiety and feelings of inadequacy, especially given the high demands of medical school (27). Medical school is challenging, with rigorous coursework and high-stakes assessments. This environment amplifies stress levels, making it difficult for students to balance studies and personal well-being. The fear of not performing well can be overwhelming, leading some students to neglect mental health in favor of academic success (28). In many Asian cultures, stigma surrounds mental health issues. Students may worry that seeking help for anxiety or depression will be seen as a weakness, preventing them from reaching out for support. Consequently, mental health concerns are often dismissed as part of the rigorous learning process (29). Asian medical students may also face microaggressions and discrimination, further impacting mental health. These experiences can lead to feelings of marginalization and isolation, affecting overall well-being and academic performance. The lack of representation among faculty and mentors can exacerbate these feelings, as students may struggle to find role models who understand their experiences (30,31). In relation to the study on psychological flexibility and psychological distress, fostering psychological flexibility could be a vital resource for these students. Enhancing the ability to adapt to stressors and navigate the pressures of medical education may reduce psychological distress. Integrating culturally relevant strategies that promote acceptance, mindfulness, and commitment to personal values can help mitigate the negative effects of societal and academic pressures. This approach addresses mental health stigma and empowers students to prioritize well-being, leading to improved academic performance and overall life satisfaction.

These findings suggest that psychological flexibility should be a key focus in mental health interventions for medical students. It shifts the perspective from merely treating distress symptoms to enhancing psychological flexibility as a preventative measure. Based on these results, incorporating ACT and other psychological flexibility training into the curriculum could help improve students' mental health. This indicates a potential shift in educational practices to include mental health resilience training.

Further research should explore the mechanisms through which psychological flexibility impacts mental health and academic performance among medical students. Longitudinal studies could help determine causality

and the long-term benefits of interventions to increase psychological flexibility. Additionally, exploring cultural factors unique to Malaysian students could provide deeper insights into tailored interventions. Furthermore, the unexpected correlation between avoidance coping and reduced depression and stress calls for further investigation into coping strategies. By comprehensively addressing the association between psychological flexibility and psychological distress among medical students, this study highlights the importance of psychological flexibility in promoting mental health and academic success. The findings suggest actionable steps for educational institutions to effectively support their students' well-being.

Limitation

The study recognizes several limitations that could impact the interpretation of its findings. Firstly, the reliance on self-reported measures for socio-demographic factors and psychological flexibility may introduce recall bias and social desirability biases, potentially affecting result accuracy. Future studies could incorporate objective measures or utilize multiple data sources to enhance validity. Additionally, the exclusive focus on medical students at UiTM may limit the result's generalizability to other populations or institutions. Future research could include a more diverse sample from various institutions to improve external validity. Moreover, the study's narrow focus on specific socio-demographic factors overlooks other potentially relevant variables such as personality traits, coping strategies, life events, and family dynamics, which could influence psychological flexibility among medical students. Exploring a broader range of socio-demographic variables would provide a more comprehensive understanding. Furthermore, the study's assessment of psychological flexibility using only three dimensions may not fully capture its multidimensional nature. Incorporating additional dimensions or utilizing comprehensive scales could provide a deeper understanding. Addressing these limitations and incorporating suggested improvements could enhance the validity and generalizability of future research on psychological flexibility among medical students. Regarding the study design, the cross-sectional approach inherently poses limitations. While providing a snapshot of the association between variables at a single time point, it does not establish causality or account for temporal relationships. Longitudinal studies would offer more robust evidence by tracking changes over time and allowing for the examination of causal relationships between psychological flexibility and distress. Thus, while cross-sectional studies offer valuable insights, they provide a limited perspective on the dynamic nature of psychological processes and mental health outcomes. Addressing these limitations and incorporating suggested improvements could enhance the validity and generalizability of future research on psychological flexibility among medical students.

CONCLUSION

This study underscores the importance of psychological flexibility in promoting mental well-being and academic success among medical students. The significant association found between psychological flexibility and psychological distress, particularly depression, emphasize the relevance of adaptive coping strategies in mitigating adverse mental health outcomes. High levels of avoidance were associated with a reduced likelihood of depression and stress, highlighting the potential benefits of addressing maladaptive coping mechanisms. Additionally, the positive correlation observed between satisfaction with academic performance, life satisfaction, and psychological flexibility suggests the pivotal role of balanced goal pursuit and adaptive strategies in promoting overall well-being. These findings have implications for educational institutions, suggesting the integration of psychological flexibility training into the curriculum and the enhancement of mental health support services tailored to the needs of medical students. Future research should focus on longitudinal studies to explore the long-term effects of psychological flexibility interventions and consider cultural factors that may influence mental health outcomes among diverse student populations.

ACKNOWLEDGEMENT

The authors extend their gratitude to the Department of Psychiatry at UiTM for their support, as well as to the medical students who willingly participated in this study.

REFERENCES

1. Casey D, Thomas S, Hocking DR, Kemp-Casey A. Graduate entry medical students: older and wiser but not less distressed. *Australas Psychiatry*. 2016;24(1):88-92. doi:10.1177/1039856215612991.
2. Almarzooqi S, Chilcot J, McCracken LM. The role of psychological flexibility in migraine headache impact and depression. *J Contextual Behav Sci*. 2017;6(3):163-168. doi:10.1016/j.jcbs.2017.04.004.
3. Hulsheger UR, Alberts HJ, Feinholdt A, Lang JW. Benefits of mindfulness at work: The role of mindfulness in emotion regulation, emotional exhaustion, and job satisfaction. *J Appl Psychol*. 2013;98(2):310-325. doi:10.1037/a0031313.
4. Levin ME, MacLane C, Daflos S, Seeley J, Hayes SC, Biglan A, Pistorello J. Examining psychological inflexibility as a transdiagnostic process across psychological disorders. *J Contextual Behav Sci*. 2014;3(3):155-163. doi:10.1016/j.jcbs.2014.06.003.
5. Wang J, Fang S, Yang C, Tang X, Zhu L, Nie Y.

- The relationship between psychological flexibility and depression, anxiety and stress: A latent profile analysis. *Psychol Res Behav Manag*. 2023;16:997-1007. doi:10.2147/PRBM.S400757.
6. Avsec A, Eisenbeck N, Carreno DF, Kocjan GZ, Kavčič T. Coping styles mediate the association between psychological inflexibility and psychological functioning during the COVID-19 pandemic: A crucial role of meaning-centered coping. *J Contextual Behav Sci*. 2022;26:201-209. doi:10.1016/j.jcbs.2022.10.001.
7. Dahlin M, Joneborg N, Runeson B. Stress and depression among medical students: A cross-sectional study. *Med Educ*. 2005;39(6):594-604.
8. Franzen J, Jermann F, Ghisletta P, Rudaz S, Bondolfi G, Tran NT. Psychological distress and well-being among students of health disciplines: The importance of academic satisfaction. *Int J Environ Res Public Health*. 2021;18(4):2151. doi:10.3390/ijerph18042151.
9. Salmans PH. Psychiatric illness in medical students. *Br J Psychiatry*. 1983;143:505-508. doi:10.1192/bjp.143.5.505.
10. McAteer G, Gillanders D. Investigating the role of psychological flexibility, masculine self-esteem, and stoicism as predictors of psychological distress and quality of life in men living with prostate cancer. *Eur J Cancer Care (Engl)*. 2019;28(4):e13097. doi:10.1111/ecc.13097.
11. Hayes SC, Law S, Malady M, Zhu Z, Bai X. The centrality of sense of self in psychological flexibility processes: what the neurobiological and psychological correlates of psychedelics suggest. *J Contextual Behav Sci*. 2019;15:30-38. doi:10.1016/j.jcbs.2019.11.005.
12. Cherry KM, Hoeven EV, Patterson TS, Lumley MN. Defining and measuring "psychological flexibility": A narrative scoping review of diverse flexibility and rigidity constructs and perspectives. *Clin Psychol Rev*. 2021;84:101973. doi:10.1016/j.cpr.2021.101973.
13. Kashdan TB, Disabato DJ, Goodman FR, Doorley JD, McKnight PE. Understanding psychological flexibility: A multimethod exploration of pursuing valued goals despite the presence of distress. *Psychol Assess*. 2020;32(9):829-850. doi:10.1037/pas0000834.
14. Ahmad N, Roslan S, Othman S, Shukor SFA, Bakar AYA. The validity and reliability of psychometric profile for depression, anxiety and stress scale (DASS21) instrument among Malaysian undergraduate students. *Int J Acad Res Bus Soc Sci*. 2018;8(6):812-827.
15. McDowell I. Introduction. In: McDowell I, ed. *Measuring Health: A Guide to Rating Scales and Questionnaires*. 3rd ed. New York: Oxford University Press; 2006. doi:10.1093/acprof:oso/9780195165678.003.0001.
16. American Psychological Association. APA dictionary of psychology [Internet]. 2018 Apr 19 [cited 2024 Oct 28]. Available from: <https://dictionary.apa.org/psychological-distress>
17. Gan GG, Yuen Ling H. Anxiety, depression and quality of life of medical students in Malaysia. *Med J Malaysia*. 2019;74(1):57-61.
18. Sahu PK, Nayak BS, Rodrigues V, Umakanthan S. Prevalence of psychological distress among undergraduate medical students: A cross-sectional study. *Int J Appl Basic Med Res*. 2020;10(4):270-275. doi:10.4103/ijabmr.IJABMR_100_19.
19. Suls J, Fletcher B. The relative efficacy of avoidant and nonavoidant coping strategies: a meta-analysis. *Health Psychol*. 1985;4(3):249-288. doi:10.1037//0278-6133.4.3.249.
20. Younas A, Zeb H, Arif I, Khan A, Ali A, Aziz F. Sociocultural determinants of psychological distress and coping among South Asian individuals with chronic illness. *Discov Psychol*. 2024;4:46. doi:10.1007/s44202-024-00148-z.
21. Chudzicka-Czupala A, Hapon N, Man RHC, Li DJ, Żywiotek-Szeja M, Karamushka L, Grabowski D, Paliga M, McIntyre RS, Chiang SK, Pudetek B, Chen YL, Yen CF. Associations between coping strategies and psychological distress among people living in Ukraine, Poland, and Taiwan during the initial stage of the 2022 War in Ukraine. *Eur J Psychotraumatol*. 2023;14(1):2163129. doi:10.1080/2008066.2022.2163129.
22. Hailikari T, Telle NT, Nieminen J, Asikainen H. The ability of psychological flexibility to predict study success and its relations to cognitive attributional strategies and academic emotions. *Educ Psychol*. 2022;42:1-18. doi:10.1080/01443410.2022.2059652.
23. Alsaif B, Hassan SN, Alzain MA, Almishaal AA, Zahra A. Cognitive flexibility's role in reducing academic stress during the COVID-19 pandemic. *Psychol Res Behav Manag*. 2024;17:457-466. doi:10.2147/PRBM.S451211.
24. Kashdan, T. B., & Rottenberg, J. (2010). Psychological flexibility as a fundamental aspect of health. *Clinical psychology review*, 30(7), 865-878.
25. Teh C, Ngo CW, Zulkifli R, Vellasamy R, Suresh K. Depression, anxiety and stress among undergraduate students: a cross-sectional study. *Open J Epidemiol*. 2015;5:260-8. doi:10.4236/ojepi.2015.54030.
26. Published Oct 20, 2023, & Lupcho T. Unlocking the potential of acceptance and commitment therapy (ACT). *Thriveworks*. Published October 20, 2023. Accessed July 9, 2024. Available from: <https://thriveworks.com/therapy/acceptance-and-commitment-therapy/>.
27. Henning M, Hawken S, Krageloh C, Zhao Y, Doherty I. Asian medical students: quality of life and motivation to learn. *Asia Pac Educ Rev*. 2011;12(3):437-45. doi:10.1007/s12564-011-

- 9148-y.
28. Moore M, Yang D, Raines A, Bailey R, Beg W. Intersection of anxiety and negative coping among Asian American medical students. *Front Psychol.* 2022;13:929227. doi:10.3389/fpsyg.2022.929227.
29. Kothari V, George N, Hamid O. Provision of mental health support for medical students. *Adv Med Educ Pract.* 2018;9:925-6. doi:10.2147/amep.s184571.