ORIGINAL RESEARCH

The association of psychosocial distress with amotivation, self-efficacy and academic performance in nursing students: A path analysis

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ABSTRACT

Background: Nursing students often experience psychosocial disturbance which affect their academic performance. This study examines the underlying mechanisms by how psychosocial disturbances predict academic amotivation and self-efficacy and influence academic performance.

Methods: This is a cross-sectional study involved 164 undergraduate nursing students, using convenience sampling at the university in Hong Kong, SAR. To evaluate psychosocial disturbances, academic amotivation, self-efficacy and academic performance, Patient Health Questionnaire-9 (PHQ), General Anxiety Disorder-7 (GAD), Perceived Stress Scale-10 (PSS), Work and Social Adjustment Scale (WSAS), Academic Motivation Scale (AMS), and Student Self-Efficacy Scale (SSE) were administered, respectively. A self-developed rating scale was used to rate the satisfaction of the students towards the nursing curriculum. Cumulative Grade Point Average (cGPA) was adopted to evaluate academic performance. Structural equation modelling was conducted to quantify the pathways of the scores of PHQ, GAD, PSS, WASA, amotivation, program satisfaction, self-efficacy, academic amotivation and academic performance.

Results: Significant indirect effects were observed from PHQ score (B = -0.004, p = .043) and GAD score (B = 0.004, p = .039) to academic performance via amotivation. Additionally, significant indirect effects from PSS to academic performance (B = -0.008, p = .009), WSAS to academic performance (B = 0.002, p = .027), and satisfaction with the program to academic performance (B = 0.01, p = .022) were observed via SSE. This indicates that amotivation and self-efficacy significantly mediate the path from the psychosocial disturbance, particularly depression, anxiety, stress, social adjustment and program satisfaction, to academic performance.

Conclusions: The study findings indicate that nursing educators may identify students with psychological disturbances by observing their amotivation, low self-efficacy, and declining academic performance. They should develop and implement appropriate measures to detect these disturbances and support academic performance, with particular emphasis on amotivation and students perceived self-efficacy.

Key Words: Academic amotivation, Academic self-efficacy, Nursing education, Program satisfaction, Psychosocial distress

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1. BACKGROUND

Nursing education is recognised as one of the most demanding academic disciplines, requiring students to effectively manage rigorous academic coursework, intensive clinical trainings and stringent performance expectations.[1] The educational journey presents multifaceted challenges including heavy workload, academic difficulties, clinical uncertainty, interpersonal stressors, and challenges related to the transitional phase from late adolescence to early adulthood.[2,3] These challenges have been consistently linked with significant mental health concerns among nursing students globally. Common related psychosocial problems reported included depression, anxiety and stress, which may further adverse students' social and academic adjustment and psychosocial well-being.[4,5]

Recent meta-analytic evidence indicates that nursing students experience concerning rates of psychological disturbance. A review of 25 meta-analyses encompassing 171,828 nursing students revealed a prevalence of mental health concerns at 27%, where the most prevalent issues include sleep deprivation (50%), burnout (32%), fear (41%) and depression (29%). Anxiety affects 29% of nursing students, while stress impacts 27%.[6] In Hong Kong, similar prevalence of psychological problems among nursing students were observed, with stress, anxiety and depression, and at rates of 41.1%, 37.3% and 35.8%, respectively.[7] These elevated rates of psychological disturbance significantly exceed those observed in students studying generic programmes, underscoring the vulnerability of this student demographic. Persistent student's psychosocial disturbance adversely affects students, impacting their concentration,[8] satisfaction with study, self-efficacy, motivation, academic performance, and school dropout.[9]

Academic amotivation refers to the absence of motivation and lacking intention to engage in academic studies.[10] Students experiencing amotivation typically perceive themselves as incompetent in their studies and view academic pursuits as meaningless.[11] In nursing and college students, amotivation was consistently reported to have significant associations with higher level of stress, decreased academic performance and academic burnout.[12–18] Students with low motivation demonstrate reduced effort investment, diminished interest in academic tasks, and increased susceptibility to learned helplessness.[19,20] This state of amotivation may create significant risk for poor learning outcomes and academic dropout.[11,20–22]

Academic self-efficacy refers to an individual's desire and competency in mastering the academic works to achieve learning outcomes, which serves as a central driver of academic motivation.[23,24] Research consistently demonstrates that self-efficacy is a protective predictor and negatively associated with depressive symptoms, level of anxiety and student's academic performance.[25–31] Higher self-efficacy in nursing students also correlates with increased motivation and enhanced stress management.[32,33] Students with low self-efficacy, on the other hand, may exhibit negative attitudes and fail to adopt effective strategies to overcome academic difficulties.[33,34] Reduced self-efficacy in nursing students has been linked to burnout,[35] elevated perceived stress,[36] and poorer academic performance.[37]

A substantial body of research has explored the relationships among psychosocial factors, academic amotivation, self-efficacy, and academic success. However, significant gaps remain in understanding the underlying mechanisms through which psychosocial disturbances influence academic outcomes. The complex interplay among depression, anxiety, stress, social adjustment, program satisfaction, academic amotivation, self-efficacy, and actual academic performance requires systematic investigation through mediation analysis. This study addresses these gaps by examining the associations among psychosocial disturbances (including depression, anxiety, stress, and social adjustment), program satisfaction, academic amotivation, self-efficacy, and academic performance measured through actual examination outcomes. Specifically, we test the hypothesis that psychosocial disturbances predict levels of academic amotivation and self-efficacy, which in turn influence academic performance through mediating pathways. The research hypotheses were as follows:

- H1: Psychosocial disturbance (depression, anxiety, stress, and social adjustment) has direct effects on self-efficacy and academic amotivation.
- H2: Perceived satisfaction with the program has a direct effect on self-efficacy and academic amotivation.
- H3: Perceived self-efficacy and amotivation have direct effects on academic performance.
- H4: Psychosocial disturbance and satisfaction with the program have indirect effects on academic performance, mediated by self-efficacy and amotivation.

2. METHODS

2.1 Study design, sampling and research setting

This study is a cross-sectional study to examine the relationships among psychosocial disturbances, program satisfaction, academic amotivation, self-efficacy, and academic performance among nursing students. Participants were recruited through convenience sampling from a five-year Bachelor of Nursing program (full-time) at a university in Hong Kong. Convenience sampling, while a non-probability sampling method, is widely used and appropriate in clinical and educa-

tional research settings where participants are recruited based on their accessibility and availability. This sampling approach is particularly suitable for nursing education research as it allows researchers to efficiently access pre-existing student groups within academic institutions.

2.2 Data collection

The data collected at the beginning of the first semester of the academic year 2022 to 2023 (i.e. September 2022), timing that allowed for assessment of students after they had sufficient exposure to their nursing program while avoiding major examination periods that might affect participation rates. The study information was disseminated to potential participants via bulk emails and WhatsApp messages. These messages included details about the study's purpose, and provided a link to Qualtrics enrollment form for those interested in participating. Students who completed the form were subsequently sent an individual Qualtrics link containing a formal invitation and comprehensive information about study. The information sheet emphasised that that participation was entirely voluntary, data would be anonymized and treated confidentially, and that participants could withdraw anytime without impacts on their academic standing. Those who agree to participate were invited to sign an online informed consent form before completing the questionnaires on Qualtrics. After completing the questionnaires, participants received a HK$50 cash coupon as a token of appreciation.

2.3 Study instruments

2.3.1 *Patient Health Questionnaire-9 (PHQ)*

PHQ is a nine-item questionnaire to examine symptoms of depression.[38] The participants have to rate their depressive symptoms in the past two weeks using a 4-point Likert scale, ranging from '0' (not at all) to '3' (nearly every day). The total score ranges from zero to 27, a score of 10 or higher suggests possible depression.[39] Its Cronbach's alpha coefficient was 0.92, showing excellent internal consistency.[40] The Cronbach's alpha coefficient of the PHQ-9 was 0.89 in this study.

2.3.2 *General Anxiety Disorder-7 (GAD)*

It is a seven-item questionnaire to measure the symptoms of anxiety in the past two weeks. It uses a 4-point Likert scale, ranging from '0' = not at all to '3' (nearly every day), with a total score 0-21.[41] A higher score indicates increased level of anxiety.[41] Its Cronbach's alpha coefficient was 0.95, and high correlations with other validated tools for measuring anxiety, indicating excellent consistency and validity.[42,43] The Cronbach's alpha coefficient of the GAD-7 was 0.91 in this study.

2.3.3 *Perceived Stress Scale-10 (PSS)*

It includes ten questions to examine the intensity of stress associated with life situations in the past month.[44] The respondent answers on a 5-point Likert-type scale, ranging from '0' (never) to '4' (very often). The total score ranges from zero to 40. The higher score indicates higher perceived stress level. Its Cronbach's alpha of 0.87 and 0.80, indicating good estimates of internal consistency.[45] The Cronbach's alpha coefficient of the PSS was 0.84 in this study.

2.3.4 *Work and Social Adjustment Scale (WSAS)*

It is a 5-item questionnaire to evaluate functional ability. The respondent answers on a 9-point severity scale, from 0 (not at all) to 8 (very severely).[46] The higher score indicates higher impairment they experienced in work, household issue, social life, personal or family relationships. The total score ranges from 0 to 40, with higher score indicating higher level of impairment. This scale demonstrated a good internal consistency reliability in students (α = 0.85).[47,48] The Cronbach's alpha coefficient of the WSAS was 0.91 in this study.

2.3.5 *Academic Motivation Scale*

This is a 28-item questionnaire covering seven constructs with constructs of intrinsic motivation, extrinsic and amotivation towards academic study.[49] The respondent answer a 7-point Likert-scale, ranging from 1 = strongly inappropriate to 7 = strongly appropriate, where higher scores indicating higher tendency to the corresponding motivation types.[50] Amotivation, measured by four items, showed satisfactory internal consistency (α = 0.84) and good composite reliability coefficient (0.79) among nursing students.[51] The Cronbach's alpha coefficient of the amotivation scale was 0.85 in this study.

2.3.6 *Student Self-Efficacy Scale (SSE)*

It is a 10-item questionnaires covers four domains including 'academic performance, social interaction with faculty, knowledge and skill development, and coping with academic stress'.[52] SSE scores range from 10-40, where higher scores suggesting better self-efficacy.[53] SSE scale demonstrated a good internal consistency (α = 0.84), and the high correlation between the SSE and another validated tool to measure general self-efficacy (r = 0.70) in nursing students indicated the criterion validity of SSE.[52,54] The Cronbach's alpha coefficient of SSE was 0.89 in this study.

2.3.7 *Satisfaction with the Study Program*

A self-developed rating scale will be used to rate the satisfaction of the students towards the nursing curriculum and pedagogy. Students have to respond on a 11-point scale, ranging from 0 (not satisfy at all) to 10 (totally satisfied) on

the following statement: "Overall, I am satisfied with the education I can get in this school".

2.3.8 *Academic Performance*

Academic performance was operationalized as cumulative Grade Point Average (cGPA) collected after the first semester (i.e. in February 2023), representing actual examination performance across all completed coursework. Use of objective academic metrics such as GPA provides reliable assessment of academic achievement and is standard practice in educational research.

The socio-demographic data, including age, gender, family income, living arrangements, current employment status, and public examination scores were collected.

2.4 Data analysis

Statistical analyses were conducted using SPSS (version 28.0), and Analysis of Moment Structures (AMOS 26.0). Categorical and continuous variables were summarised using descriptive statistics including means, standard deviations and frequencies. Pearson correlation coefficients was conducted to show correlations among variables.

Path analysis was conducted using AMOS to construct a structural equation model testing the hypothesized relationships among psychosocial disturbance, program satisfaction, academic amotivation, self-efficacy, and academic performance. This analytical approach allows for simultaneous examination of multiple pathways and provides assessment of both direct and indirect effects through mediation analysis. Parameter estimation was performed using the maximum likelihood method (non-robust) and covariance matrix derived from the data. Bootstrapping (size 1000) was applied. Alternative models were conducted to assess the hypothesised directions of the identified paths and its model's robustness. Sociodemographic variables were analysed as control variables to account for potential confounding influences. Goodness of fit was evaluated using the standard fit indices including chi square (χ^2), CFI, TLI, SRMR and RMSEA.[55] The chi-square/df-ratio is expected to be less than 5 and insignificant. For a model to exhibit excellent fit, the TLI and CFI should larger than 0.95, the SRMR is suggested to be less than 0.08. The RMSEA estimates a model's lack of fit, which is suggested to be less than 0.05. All significant tests were two-sided at a 5% level of significance.

2.5 Ethical considerations

This study received approval from the Human Subjects Research Ethics Committee of the Institutional Review Boards of the University of Hong Kong/Hospital Authority Hong Kong West Cluster. The research methods and the data were managed according to the recommendations of the Declaration of Helsinki.

3. RESULTS

3.1 Participants' characteristics

A total of 164 nursing students recruited in the study, with an average age of 20 $\pm$ 1.64 years old and 70.7% were female. Most participants were junior-year students (Year 1 and Year 2 students 26.8% vs senior-year students in Years 3, 4, and 5, who accounted for between 13.4% and 17.7%). Nearly half (48.7%) had family income between HKD$10,000 and HKD$29,000, and 18.9% reported an income of HKD$50,000 or above. Most were lived in public (43.9%) and private housing (47%). Most participants were engaged in part-time work (72.6%), and the average public examination score was 23.05 $\pm$ 5.12. More than half of the students perceived mild to moderated symptoms of depression (56.1%), anxiety (60.97%) and moderate level of stress (84.15%). Notably, a significate proportion of students experienced moderately sever to severe level of depression (17.07%), anxiety (9.76%) and high level of stress (7.32%) (see Table 1).

3.2 Correlations between variables

Higher PHQ score was significantly associated with amotivation (r = 0.474, $p < .01$) and negatively associated with academic performance (r = -0.188, $p < .05$). Higher GAD score was significantly associated with amotivation (r = 0.371, $p < .01$), and negatively associated with SSE score (r = -0.171, $p < .05$) and academic performance (r = -0.174, $p < .05$). Higher PSS score was associated with amotivation (r = 0.405, $p < .01$), and negatively associated with SSE score (r = -0.357, $p < .01$) and academic performance (r = -0.215, $p < .01$). Higher WSAS was significantly associated with amotivation (r = 0.380, $p < .01$). Satisfaction with the program was negatively associated with amotivation (r = -0.408, $p < .01$) and positively associated with SSE score (r = 0.264, $p < .01$). Lower academic performance was associated with higher amotivation (r = -0.243, $p < .01$) and lower SSE (r = 0.281, $p < .01$) (see Table 2).

3.3 Path analysis results

Based on the hypothesized model, the path analysis results demonstrated excellent goodness of fit ($\chi^2(2) = 4.323$, $p = 0.633$; CFI = 1; TLI = 1.065; RMSEA = 0, SRMR = 0.0087 (see Table 3, Figure 1).

Table 1. Participants' demographic data (N = 164)

	n (%)	Mean (SD)
Age		20.14 (1.64)
Gender		
Male	48 (29.26)	
Female	116 (70.73)	
Year of Study		
Year 1	44 (26.83)	
Year 2	44 (26.83)	
Year 3	29 (17.68)	
Year 4	25 (15.24)	
Year 5	22 (13.41)	
Family income		
HKD $9,999 or below	18 (10.98)	
HKD $10,000-$19,999	33 (20.12)	
HKD $20,000-$29,999	47 (28.66)	
HKD $30,000-$39,999	25 (15.24)	
HKD $40,000-$49,999	10 (6.10)	
HKD $50,000 or above	31 (18.90)	
Living arrangement		
Public housing	72 (43.9)	
Private housing	77 (46.95)	
University hall	15 (9.15)	
Employment status		
Part time work	119 (72.6)	
Nil	45 (27.4)	
Public examination score		23.05 (5.12)
PHQ-9 (Depression)		
PHQ-9 score 0-4 (none)	44 (26.83)	
PHQ-9 score 5-9 (mild)	51 (31.10)	
PHQ-9 score 10-14 (moderate)	41 (25)	
PHQ-9 score 15-19 (moderately severe)	22 (13.41)	
PHQ-9 score 20–27 (severe)	6 (3.66)	
GAD-7 (Anxiety)		
GAD-7 score 0-4 (Mininal)	48 (29.27)	
GAD-7 score 5-9 (Mild)	66 (40.24)	
GAD-7 score 10-14 (Moderatel)	34 (20.73)	
GAD-7 score 15-21 (Severe)	16 (9.76)	
PSS (Stress)		
PSS score 0-13 (Low)	14 (8.54)	
PSS score 14-26 (Moderate)	138 (84.15)	
PSS score 27-40 (High)	12 (7.32)	

Increased PHQ scores were significantly associated with higher levels of amotivation (B = 0.379, p = .019). In contrast, increased GAD scores were significantly associated with lower levels of amotivation (B = -0.329, p = .031). Greater satisfaction with the program significantly predicted increased SSE (B = 0.576, p = .039) and reduced amotivation (B = -1.055, p = .003). Elevated PSS scores were significantly related to decreased SSE (B = -0.415, p = .001), whereas, unexpectedly, higher WSAS scores were significantly associated with increased SSE (B = 0.125, p = .043). Higher SSE was significantly associated with increased academic performance (B = 0.018, p = .017). In contrast, the direct effects of PSS and WSAS on amotivation were not statistically significant (p > .05). Similarly, the direct effects of GAD and PHQ on SSE were non-significant (p > .05).

Significant indirect effects were observed from PHQ score (B = -0.004, p = .043) and GAD score (B = 0.004, p = .039) to academic performance via amotivation. The finding suggested that increased PHQ scores indirectly reduced academic performance through increased amotivation, and increased GAD scores indirectly enhanced academic performance through decreased amotivation. Additionally, significant indirect effects from PSS to academic performance (B = -0.008, p = .009), WSAS to academic performance (B = 0.002, p = .027), and satisfaction with the program to academic performance (B = 0.01, p = .022) were observed via SSE. This suggests that increased WSAS scores and program satisfaction indirectly increased academic performance through enhanced SSE, while increased PSS scores indirectly decreased academic performance via reduced SSE.

4. Discussion

This study investigated the complex relationships among psychosocial disturbances, academic amotivation, self-efficacy, and academic performance in nursing students through a comprehensive structural equation modelling approach.

The results substantiate the hypothesized model wherein psychosocial disturbances significantly influence academic amotivation and self-efficacy, which subsequently affect academic performance. This supports existing theoretical frameworks suggesting that psychological health serves as a fundamental determinant of academic success through motivational and self-efficacy pathways. The excellent model fit achieved provides strong empirical support for these theoretical relationships and validates the proposed mediation mechanisms.

Particularly noteworthy is the finding that program satisfaction emerged as a robust protective factor, significantly predicting increased self-efficacy and reduced amotivation. This underscores the critical importance of educational quality and student satisfaction in maintaining positive academic attitudes and beliefs, extending beyond individual psychological factors to include institutional and pedagogical influences.

Table 2. Mean, standard deveiation and correlations (N = 164)

		1	2	3	4	5	6	7	8	9	10	11
1	Age	1										
2	Gender	0.039	1									
3	Public examination score		0	1								
4	PHQ	-0.021	-0.083	-0.044	1							
5	GAD	0.073	-0.078	0.014	.843**	1						
6	PSS	0.045	0.114	0.022	.641**	.726**	1					
7	WSAS	-0.045	-0.035	0.114	.730**	.693**	.505**	1				
8	Statisfaction with Program	0.102	0.175*	0.031	-0.142	-.162*	-.230**	-0.099	1			
9	Amotivation	0.041	-0.119	-0.097	.474**	.371**	.405**	.380**	-.408**	1		
10	SSE	-0.018	-0.081	0.136	-0.134	-.171*	-.357**	0.026	.264**	-.267**	1	
11	AP	-0.138	0.078	0.265**	-.188*	-.174*	-.215**	-0.080	0.092	-.243**	.281**	1

Notes. PHQ: Patient Health Questionnaire; GAD: General Anxiety Disorder; PSS: Perceived Stress Scale; WSAS: Work and Social; Adjustment Scale; SSE: Student self-efficacy; AP: Academic performance. *$p < .05$, **$p < .01$.

Table 3. Path coefficients of direct and indirect effects among variables (N = 164)

								95% CI (B)		*p* value
					B	S.E.	β	Lower	Upper	
Amotivation	←	PHQ			0.379	0.112	0.429	0.093	0.758	.019*
Amotivation	←	GAD			-0.329	0.13	-0.332	-0.628	-0.035	.031*
Amotivation	←	PSS			0.204	0.082	0.226	-0.017	0.444	.065
Amotivation	←	WSAS			0.071	0.05	0.128	-0.066	0.328	.171
Amotivation	←	Satisfaction with program			-1.055	0.183	-0.363	-0.515	-0.2	.003**
SSE	←	PHQ			0.016	0.125	0.018	-0.261	0.359	.793
SSE	←	GAD			0.014	0.145	0.014	-0.292	0.297	.96
SSE	←	PSS			-0.415	0.092	-0.437	-0.645	-0.228	.001**
SSE	←	WSAS			0.125	0.056	0.215	0.003	0.414	.043*
SSE	←	Satisfaction with program			0.576	0.205	0.188	0.009	0.362	.039*
AP	←	Amotivation			-0.011	0.006	-0.144	-0.305	0.017	.07
AP	←	SSE			0.018	0.006	0.241	0.052	0.415	.017*
AP	←	Amotivation	←	PHQ	-0.004	0.206	-0.062	-0.014	-0.0001	.043*
AP	←	Amotivation	←	GAD	0.004	0.207	0.048	0.0001	0.013	.039*
AP	←	Amotivation	←	PSS	-0.002	0.129	-0.033	-0.009	0.0001	.064
AP	←	Amotivation	←	WSAS	-0.001	0.059	-0.018	-0.003	0.0002	.093
AP	←	Amotivation	←	Satisfaction with program	0.012	0.439	0.052	-0.0003	0.028	.053
AP	←	SSE	←	PHQ	0	0.046	0.004	-0.004	0.007	.76
AP	←	SSE	←	GAD	0	0.046	0.003	-0.006	0.007	.903
AP	←	SSE	←	PSS	-0.008	0.196	-0.105	-0.016	-0.002	.009*
AP	←	SSE	←	WSAS	0.002	0.084	0.052	0.0002	0.007	.027*
AP	←	SSE	←	Satisfaction with program	0.01	0.344	0.045	0.001	0.026	.022*
Total Effect					0.014	0.119	-0.013	0.002	0.033	.022*

Notes. PHQ: Patient Health Questionnaire; GAD: General Anxiety Disorder; PSS: Perceived Stress Scale; WSAS: Work and Social Adjustment Scale; SSE: Student self-efficacy; AP: Academic performance; B = unstandardized coefficient; β = standardized coefficient; SE = standard error; CI = Confidence Interval for β; Controlled covariates: Age, Gender, Year of study, Family income, Living arrangement, Eimployment status, Public examination score. *$p \leq .05$; **$p \leq .01$.

The significant positive relationship between depression and academic amotivation aligns with established literature documenting the detrimental effects of depressive symptoms on academic motivation.[9,56,57] Depression's indirect effect on academic performance through increased amotivation reveals a crucial mediation pathway that has important implications for intervention design. This finding suggests that interventions targeting academic motivation may help mitigate the negative impact of depression on academic outcomes, providing an alternative or complementary approach to traditional mental health treatments.

The unexpected negative direct effect of anxiety on amotivation represents an intriguing finding in this study. Although heightened anxiety can negatively impact the ability to pre-

pare for examinations, leading to decreased motivation and poorer academic performance,[9,58,59] other studies indicated that a moderate level of anxiety might have a positive effect on academic performance and motivation.[60,61] The Yerkes-Dodson Law explained the inverted U-shaped relationship between stress or anxiety and performance, whereby the optimal levels of arousal may enhance performance, while excessive arousal can impair coping capacity and overall functioning.[62] Moderate levels of arousal, particularly when associated with concern about performance outcomes, may enhance motivation and academic engagement by increasing alertness and goal-directed behaviour.[61] Besides, Chinese students was found to endure greater academic stress because of heavier homework burden and higher academic expectations from parents and teachers since childhood.[63] Our study discovered that increased level of anxiety was associated with better academic motivation and performance, such anxiety level may therefore represent an "optimal" level of arousal among Chinese nursing students. Further studies are warranted to identify the optimal and detrimental levels of anxiety in nursing education contexts.

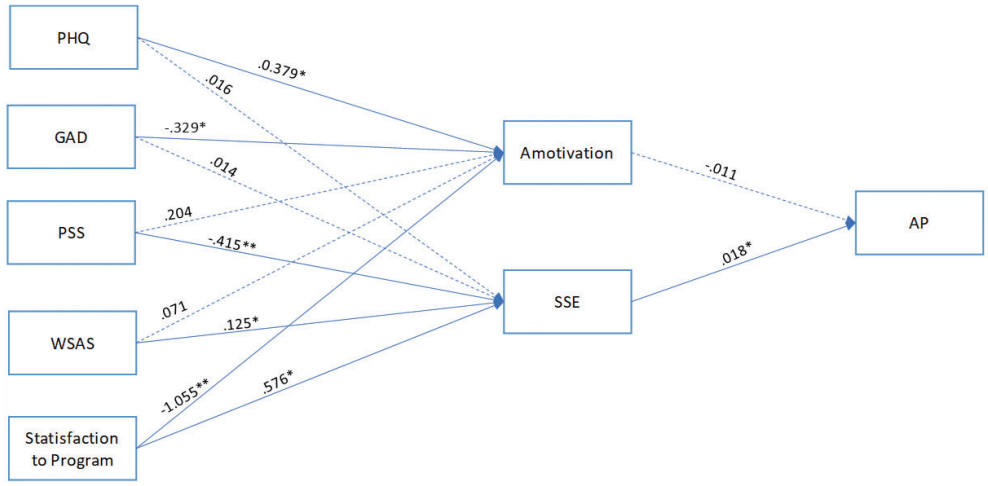

Figure 1. Unstandardized parameter estimates for the proposed model

*PHQ: Patient Health Questionnaire; GAD: General Anxiety Disorder; PSS: Perceived Stress Scale; WSAS: Work and Social Adjustment Scale; SSE: Student self-efficacy; AP: Academic performance; Non-significant coefficients are shown with dotted lines. Controlled covariates: Age, Gender, Year of study, Family income, Living arrangement, Eimployment status, Public examination score *p ≤ .05; **p ≤ .01*

Interestingly, increased social difficulties was found to be positively associated with higher levels of self-efficacy. From a stress-appraisal perspective, social difficulties may be perceived not only as stressors but also as challenges to be overcome and opportunities for learning.[64] Students who experience greater social difficulties may develop coping capacities through repeated exposure to interpersonal challenges. In the context of nursing education, repeated engagement with socially demanding situations may motivate students to develop problem-solving strategies and strengthen their confidence in managing future challenges. Further studies are warranted to explore the impact of social difficulties on academic motivation and performance among nursing students.

Previous studies have reported mixed findings regarding the association between social adjustment and self-efficacy. Studies involving college and nursing students has suggested that better social adjustment and adaptation to college life are positively correlated with higher self-efficacy, indicating a beneficial relationship between social adjustment and perceived self-efficacy.[65] Conversely, another study examining nursing students reported a weak negative correlation between self-efficacy and degree of adjustment to college life.[66] A study focusing on psychiatric nursing students identified a positive correlation between self-efficacy and adaptive adjustment in clinical practice.[67] Nursing students with better self-efficacy may tend to effectively access social resources and information, develop a more adaptation to new clinical environments.[68,69] However, the majority of these studies have concentrated primarily on social or academic adjustment, without thoroughly investigating the impacts of work and social functioning on academic performance. Besides, the present finding should not be interpreted as suggesting that social difficulties are beneficial. Rather, it highlights the complex adaptive strategies that students may employ when facing challenges. This gap highlights the need for further research to elucidate the interplay between work and

social functioning and their impact on academic outcomes among nursing students. Interventions should continue to address social adjustment difficulties while simultaneously capitalizing on academic self-efficacy in constructive ways.

The results demonstrated that increased psychosocial disturbances, particularly depression and perceived stress, negatively affected academic performance through the mediation of increased amotivation and reduced self-efficacy. The findings are consistent with previous studies that identify psychological distress as a significant predictor of academic self-efficacy[30] and academic performance in university and nursing students.[70,71] The findings are also consistent with previous studies demonstrating the mediating effects of psychological distress on academic performance through various academic-related factors in student populations. A previous study involving medical students have shown that negative affects indirectly decreased GPA by affecting academic engagement.[9] Additionally, a study conducted in college students showed that negative mood influences academic performance through its effects on self-efficacy and motivation pathways.[72] While the underlying mechanisms by which psychosocial factors impact academic performance have been explored in other student groups, the underlying mechanisms of psychosocial factors in influencing academic performance remain underexplored in nursing students. Consequently, nursing educators may lack critical insights into these mechanisms, results in the lack of awareness of academic decline and amotivation as signs of psychosocial distress. The present findings underscore the significant role of psychological distress in affecting academic performance through increased amotivation and decreased self-efficacy among nursing students. The school should consider the importance of strengthening psychosocial needs, self-efficacy and motivation, and develop related curriculum and pedagogy to support their academic success.

4.1 Implication

As nursing students are more vulnerable to psychosocial distress[73] which creates a significant impact on their study and further career, these results highlight the necessity to further explore the underlying mechanism of how psychosocial disturbance impact academic performance. Future studies should explore the dynamic interplay among mood states, motivational constructs, self-efficacy, and comprehensive performance metrics using longitudinal and experimental designs. For nursing educators and program administrators, the results advocate for the integration of targeted psychosocial support and self-efficacy enhancement strategies within nursing curricula. Emerging psychosocial support interventions have been increasingly incorporated into nursing programmes, including resilience training, stress-management workshops, peer mentoring programmes, academic advising, and mindfulness-based activities. These interventions aim to alleviate psychosocial distress, reduce stress, and promote resilience among nursing students.[74–78] In addition, embedding mental health literacy and help-seeking education within the nursing curriculum may help reduce stigma and encourage timely access to appropriate support services, particularly in Chinese cultural contexts where mental health-related stigma may be prominent and students may be reluctant to seek professional help.[79,80] By proactively addressing the psychosocial needs of nursing students, nursing institutions can foster resilience, motivation, self-efficacy, and academic success.

By addressing the psychosocial needs of nursing students proactively, educational institutions can foster resilient, motivated, and academically successful nursing graduates prepared to meet the demands of contemporary healthcare.

4.2 Limitations

The study adopted a small sample size and convenience sampling, which might increase the risk of sampling bias and reduce the representativeness. Voluntary participation in the convenience sampling may introduce social desirability and systematically difference from those who did not, which may limit the generalizability of the findings to the wider population of nursing students. The study adopted self-reported questionnaires which might introduce potential recall or response bias, particularly among nursing students who might provide socially desirable responses or educational expectations. The cross-sectional study design only captured the data at a single point of time, which might limit the ability to determine causal relationships between variables. While this study used the path analysis to explore the casual relationships between psychosocial distress with amotivation, self-efficacy and academic performance, the observed associations should be interpreted with cautious. Academic performance was operationalized solely by cumulative GPA, which may not fully consider the breadth of nursing competence—particularly clinical skills and professional behaviours that are critical to nursing practice. Finally, the data were collected exclusively from nursing students at one university in Hong Kong, which may limit the generalizability to other nursing student's populations. To address these limitations, large-scale longitudinal studies involving multiple international institutions are recommended to investigate the underlying mechanisms of psychosocial impacts on academic performance in nursing students across diverse cultural contexts.

5. Conclusion

This study elucidates the pathways through which psychosocial distress—specifically depression, anxiety, perceived stress, and social adjustment difficulties—exerts its influence on academic performance among nursing students via the mediating roles of academic amotivation and self-efficacy. The findings underscore that elevated psychosocial disturbance undermines academic motivation and diminishes self-efficacy, leading to poorer academic outcomes, whereas program satisfaction mitigates these effects by bolstering self-efficacy and reducing amotivation. These findings address the importance of monitoring declines in academic performance and rising amotivation as early indicators of psychosocial distress.

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Authors contributions

Dr Lam and Prof Li were responsible for study design and revising. Dr Lam and Ms Cheuk was responsible for data collection. Dr Lam conducted the data analysis and drafted the manuscript. Prof Wang, Pro Li, and Prof Choi revised it. All authors read and approved the final manuscript.

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Conflicts of Interest Disclosure

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Declaration of generative AI and AI-assisted technologies in the writing process

The author(s) used ChatGPT 3.5 for English editing when preparing this manuscript. The author(s) critically reviewed and further modify the ChatGPT 3.5-genrated contents to ensure its originality and accuracy. The author(s) take(s) full responsibility for the content of the publication.

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Obtained.

Ethics approval

The Publication Ethics Committee of the Association for Health Sciences and Education. The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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References

[1] Miyazaki E, Miyazaki G, Miyazaki MC. Physicians' Mental Health: Is It Possible to Tackle the Problem Throughout Academic Education? Advances in Medical Education and Training. 2024; p. 13. https://doi.org/10.5772/intechopen.115050

[2] Jafarian-Amiri SR, Zabihi A, Qalehsari MQ. The challenges of supporting nursing students in clinical education. Journal of Education and Health Promotion. 2020; 9: 216. PMid:33062749 https://doi.org/10.4103/jehp.jehp_13_20

[3] Aryuwat P, Holmgren J, Asp M, et al. Experiences of Nursing Students Regarding Challenges and Support for Resilience during Clinical Education: A Qualitative Study. Nursing Reports. 2024; 14(3): 1604–1620. PMid:39051356 https://doi.org/10.3390/nursrep14030120

[4] Tung YJ, Lo KKH, Ho RCM, et al. Prevalence of depression among nursing students: A systematic review and meta-analysis. Nurse Education Today. 2018; 63: 119–129. PMid:29432998 https://doi.org/10.1016/j.nedt.2018.01.009

[5] Saeedi G, Hosseini M, Nasiri M, et al. The effect of social skills-based blended education on social adjustment, self-esteem and social skills among new nursing students: An experimental study. Nurse Education Today. 2024; 143: 106362. PMid:39180899 https://doi.org/10.1016/j.nedt.2024.106362

[6] Efstathiou M, Kakaidi V, Tsitsas G, et al. The prevalence of mental health issues among nursing students: An umbrella review synthesis of meta-analytic evidence. International Journal of Nursing Studies. 2025; 163: 104993. PMid:39809132 https://doi.org/10.1016/j.ijnurstu.2025.104993

[7] Cheung T, Wong SY, Wong KY, et al. Depression, Anxiety and Symptoms of Stress among Baccalaureate Nursing Students in Hong Kong: A Cross-Sectional Study. Health International Journal of Environmental Research and Public Health. 2016; 13(8): 779. PMid:27527192 https://doi.org/10.3390/ijerph13080779

[8] Dyrbye LN, Thomas MR, Shanafelt TD. Systematic review of depression, anxiety, and other indicators of psychological distress among U.S. and Canadian medical students. Academic Medicine. 2006; 81(4): 354–73. PMid:16565188 https://doi.org/10.1097/00001888-200604000-00009

[9] Sinval J, Oliveira P, Novais F, et al. Exploring the impact of depression, anxiety, stress, academic engagement, and dropout intention on medical students' academic performance: A prospective study. Journal of Affective Disorders. 2025; 368: 665–673. PMid:39303881 https://doi.org/10.1016/j.jad.2024.09.116

[10] Ryan RM. Self-determination theory: Basic psychological needs in motivation, development, and wellness. Guilford Publications; 2017.

[11] Legault L, Green-Demers I, Pelletier L. Why do high school students lack motivation in the classroom? Toward an understanding of academic amotivation and the role of social support. Journal of Educational Psychology. 2006; 98(3): 567–582. https://doi.org/10.1037/0022-0663.98.3.567

[12] Brouwer J, Jansen E, Flache A, et al. The impact of social capital on self-efficacy and study success among first-year university students. Learning and Individual Differences. 2016; 52: 109–118. https://doi.org/10.1016/j.lindif.2016.09.016

[13] Nelson A. Exploring the transformation of actorship among students at a small Swedish university: background, actorship and achievement. Higher Education, 2015. 71(2): p. 289–305. https://doi.org/10.1007/s10734-015-9902-x

[14] Newton BC, Ghee KL, Langmeyer D. Correlates of African-American Undergraduate Student Achievement: Implications for the Prize Initiative. Journal of College Student Retention: Research, Theory & Practice. 2014; 15(4): 605–631. https://doi.org/10.2190/CS.15.4.g

[15] Ribeiro L, Rosário P, Núñez JC, et al. First-Year Students Background and Academic Achievement: The Mediating Role of Student Engagement. Frontiers in Psychology. 2019; 10: 2669. PMid:31920775 https://doi.org/10.3389/fpsyg.2019.02669

[16] Stavrulaki E, Li M, Gupta J. Perceived parenting styles, academic achievement, and life satisfaction of college students: the mediating role of motivation orientation. European Journal of Psychology of Education. 2020; 36(3): 693–717. https://doi.org/10.1007/s10212-020-00493-2

[17] Karabulut N, Gurcayir D, Yildiz BZ. Effect of Stress on Academic Motivation and Achievement of Students in Nursing Education International Journal of Caring Sciences. 2021; 14(1): 370–383.

[18] Sharififard F, Asayesh H, Hosseini MHM, et al. Motivation, self-efficacy, stress, and academic performance correlation with academic burnout among nursing students. Journal of Nursing and Midwifery Sciences. 2020; 7(2): 88-93. https://doi.org/10.4103/JNMS.JNMS_30_19

[19] Cheon SH, Reeve J. A classroom-based intervention to help teachers decrease students' amotivation. Contemporary Educational Psychology. 2015; 40: 99–111. https://doi.org/10.1016/j.cedpsych.2014.06.004

[20] Shen B, Cui G, Bo J. The growth trajectory of college students' academic amotivation and its association with cardiorespiratory fitness and meaning in life. Learning and Individual Differences. 2023; 106: 102329. https://doi.org/10.1016/j.lindif.2023.102329

[21] Corpus JH, Robinson KA, Wormington SV. Trajectories of motivation and their academic correlates over the first year of college. Contemporary Educational Psychology. 2020; 63: 101907. https://doi.org/10.1016/j.cedpsych.2020.101907

[22] Leroy N, Bressoux P. Does amotivation matter more than motivation in predicting mathematics learning gains? A longitudinal study of sixth-grade students in France. Contemporary Educational Psychology. 2016; 44-45: 41–53. https://doi.org/10.1016/j.cedpsych.2016.02.001

[23] Bandura A. Self-efficacy, in Encyclopedia of human behavior, V.S. Ramachaudran, Editor. Academic Press: New York; 1994.

[24] Bandura A. Self-efficacy: The exercise of control. New York: W.H. Freeman and Company; 1997.

[25] Bailey TH, Phillips LJ. The influence of motivation and adaptation on students' subjective well-being, meaning in life and academic performance. Higher Education Research & Development. 2015; 35(2): 201–216. https://doi.org/10.1080/07294360.2015.1087474

[26] Bahmani DS, Faraji P, Faraji R, et al. Is emotional functioning related to academic achievement among university students? Results from a cross-sectional Iranian sample. Brazilian Journal of Psychiatry. 2018; 40(3): 290–295. PMid:29538489 https://doi.org/10.1590/1516-4446-2017-2434

[27] Duffy A, Keown-Stoneman C, Goodday S, et al. Predictors of mental health and academic outcomes in first-year university students: Identifying prevention and early-intervention targets. British Journal of Psychiatry Open. 2020; 6(3): e46. PMid:32381150 https://doi.org/10.1192/bjo.2020.24

[28] Jamieson JP, Black AE, Pelaia LE, et al. The impact of mathematics anxiety on stress appraisals, neuroendocrine responses, and academic performance in a community college sample. Journal of Educational Psychology. 2021; 113(6): 1164–1176. https://doi.org/10.1037/edu0000636

[29] Tucker P, Jeon-Slaughter H, Sener U, et al. Do medical student stress, health, or quality of life foretell step 1 scores? A comparison of students in traditional and revised preclinical curricula. Teaching and Learning in Medicine. 2015; 27(1): 63–70. PMid:25584473 https://doi.org/10.1080/10401334.2014.979178

[30] Xu T, Zhu P, Ji Q, et al. Psychological distress and academic self-efficacy of nursing undergraduates under the normalization of COVID-19: multiple mediating roles of social support and mindfulness. BMC Medical Education. 2023; 23(1): 348. PMid:37198585 https://doi.org/10.1186/s12909-023-04288-z

[31] Byars-Winston A, Diestelmann J, Savoy JN, et al. Unique effects and moderators of effects of sources on self-efficacy: A model-based meta-analysis. Journal of Counseling Psychology. 2017; 64(6): 645–658. PMid:29154576 https://doi.org/10.1037/cou0000219

[32] Albaqawi H, Alamri M, Al-Dossary R, et al. Exploring the impact of self-efficacy social support and learning environment on clinical performance anxiety in student nurses. Scientific Reports. 2025; 15(1): 8663. PMid:40082643 https://doi.org/10.1038/s41598-025-93400-y

[33] Luo Q, Chen L, Yu D, et al. The Mediating Role of Learning Engagement Between Self-Efficacy and Academic Achievement Among Chinese College Students. Psychology Research and Behavior Management. 2023; 16: 1533–1543. PMid:37143904 https://doi.org/10.2147/PRBM.S401145

[34] Fan W, Williams CM. The effects of parental involvement on students' academic self-efficacy, engagement and intrinsic motivation. Educational Psychology. 2010; 30(1): 53–74. https://doi.org/10.1080/01443410903353302

[35] Bulfone G, Iovino P, Mazzotta R, et al. Self-efficacy, burnout and academic success in nursing students: A counterfactual mediation analysis. Journal of Advanced Nursing. 2022; 78(10): 3217–3224. PMid:35307859 https://doi.org/10.1111/jan.15231

[36] Ozsaker E, Aykut Z, Doruker NC, et al. The relationship between the academic self-efficacy and perceived stressors among nursing students in clinical settings: a cross-sectional study. BMC Nursing. 2025; 24(1): 216. PMid:40011931 https://doi.org/10.1186/s12912-025-02836-0

[37] Goff AM. Stressors, academic performance, and learned resourcefulness in baccalaureate nursing students. International Journal of Nursing Education Scholarship. 2011.

[38] Yu X, Tam WWS, Wong PTK, et al. The Patient Health Questionnaire-9 for measuring depressive symptoms among the general population in Hong Kong. Comprehensive Psychiatry. 2012; 53(1): 95–102. PMid:21193179 https://doi.org/10.1016/j.comppsych.2010.11.002

[39] Chin WY, Chan KT, Lam CL, et al. Detection and management of depression in adult primary care patients in Hong Kong: a cross-sectional survey conducted by a primary care practice-based research network. BMC Family Practice. 2014; 15(1): 30. PMid:24521526 https://doi.org/10.1186/1471-2296-15-30

[40] Cameron IM, Crawford JR, Lawton K, et al. Psychometric comparison of PHQ-9 and HADS for measuring depression severity in primary care. British Journal of General Practice. 2008; 58(546): 32–6. PMid:18186994 https://doi.org/10.3399/bjgp08X263794

[41] Plummer F, Manea L, Trepel D, et al. Screening for anxiety disorders with the GAD-7 and GAD-2: a systematic review and diagnostic metaanalysis. General Hospital Psychiatry. 2016; 39: 24–31. PMid:26719105 https://doi.org/10.1016/j.genhosppsych.2015.11.005

[42] Choi EPH, Hui BPH, Wan EYF. Depression and Anxiety in Hong Kong during COVID-19. International Journal of Environmental Research and Public Health. 2020; 17(10). PMid:32466251 https://doi.org/10.3390/ijerph17103740

[43] Löwe B, Decker O, Müller S, et al. Validation and standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the general population. Medical Care. 2008; 46(3): 266–74. PMid:18388841 https://doi.org/10.1097/MLR.0b013e318160d093

[44] Cohen S, Kamarck T, Mermelstein R. A Global Measure of Perceived Stress. Journal of Health and Social Behavior. 1983; 24(4). PMid:6668417 https://doi.org/10.2307/2136404

[45] Chen JY, Chin WY, Tiwari A, et al. Validation of the perceived stress scale (PSS-10) in medical and health sciences students in Hong Kong. The Asia Pacific Scholar. 2021; 6(2): 31–37. https://doi.org/10.29060/TAPS.2021-6-2/OA2328

[46] Mundt JC, Marks IM, Shear MK, et al. The Work and Social Adjustment Scale: a simple measure of impairment in functioning. The British Journal of Psychiatry. 2002; 180: 461–4. PMid:11983645 https://doi.org/10.1192/bjp.180.5.461

[47] Seco Ferreira DC, Oliveira WL, Costa Delabrida ZN, et al. Intolerance of uncertainty and mental health in Brazil during the Covid-19 pandemic. Suma Psicológica. 2020;. 27(1): 62–69. https://doi.org/10.14349/sumapsi.2020.v27.n1.8

[48] Godoy LD, Oliveira WL, Costa Delabrida ZN, et al. The Psychological Impact of the COVID-19 Pandemic in Remote Learning in Higher Education. Education Sciences. 2021; 11(9): 473. https://doi.org/10.3390/educsci11090473

[49] Vallerand RJ, Pelletier LG, Blais MR, et al. The Academic Motivation Scale: A Measure of Intrinsic, Extrinsic, and Amotivation in Education. Educational and Psychological Measurement. 1992; 52(4): 1003–1017. https://doi.org/10.1177/0013164492052004025

[50] Mohammadi SD, Moslemi Z, Ghomi M. The Relationship between, Academic Motivation with Academic Burnout and Academic Achievement in Students. Development Strategies in Medical Education. 2021; 8(2): 10–20. https://doi.org/10.52547/dsme.8.2.10

[51] Souza GC, Meireles E, Mira VL, et al. Academic motivation scale - reliability and validity evidence among undergraduate nursing students. Revista Latino-Americana de Enfermagem. 2021; 29: e3420. PMid:33852688 https://doi.org/10.1590/1518-8345.3848.3420

[52] Rowbotham M, Schmitz GS. Development and Validation of a Student Self-efficacy Scale. Journal of Nursing & Care. 2013; 02(01). https://doi.org/10.4172/2167-1168.1000126

[53] Liu X, Li Y, Cao X. Bidirectional reduction effects of perceived stress and general self-efficacy among college students: a cross-lagged study. Humanities and Social Sciences Communications. 2024; 11(1): 271. https://doi.org/10.1057/s41599-024-02785-0

[54] Rowbotham M, Owen RM. The effect of clinical nursing instructors on student self-efficacy. Nurse Education in Practice. 2015; 15(6): 561–566. PMid:26482402 https://doi.org/10.1016/j.nepr.2015.09.008

[55] Hu LT, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling: A Multidisciplinary Journal. 1999; 6(1): 1–55. https://doi.org/10.1080/10705519909540118

[56] Hernandez A, Busquets P, Jimenez R, et al. Mood states and academic performance in the objective structured clinical examination. The mediating effect of self-efficacy. Nurse Education Today. 2024; 135: 106116. PMid:38364350 https://doi.org/10.1016/j.nedt.2024.106116

[57] de Alencar Ribeiro AA, Fernandes MA, Giacchero Vedana KG, et al. Mental health and university dropout among nursing students: A cross-sectional study. Nurse Education Today. 2025; 147: 106571. PMid:39854879 https://doi.org/10.1016/j.nedt.2025.106571

[58] Bellido-Medina R, Lazo-Manrique MC, Lazo-Manrique AP, et al. Attitude, Motivation, Anxiety, and Academic Performance During the Learning Process in Students at Public Universities in Peru. Journal of Higher Education Theory and Practice. 2023; 23(15). https://doi.org/10.33423/jhetp.v23i15.6430

[59] McEwan L, Goldenberg D. Achievement motivation, anxiety and academic success in first year Master of Nursing students. Nurse Education Today. 1999; 19(5): 419–30. PMid:10693489 https://doi.org/10.1054/nedt.1999.0327

[60] Al Majali S. Positive Anxiety and its Role in Motivation and Achievements among University Students. International Journal of Instruction. 2020; 13(4): 975–986. https://doi.org/10.29333/iji.2020.13459a

[61] Yeh YC, Yen CF, Lai CS, et al. Correlations between academic achievement and anxiety and depression in medical students experiencing integrated curriculum reform. The Kaohsiung Journal of

Medical Sciences. 2007; 23(8): 379–86. PMid:17666304 https://doi.org/10.1016/S0257-5655(07)70001-9

[62] Teigen KH. Yerkes-Dodson: A Law for all Seasons. Theory & Psychology. 1994; 4(4): 525–547. https://doi.org/10.1177/0959354394044004

[63] Liu Y, Lu Z. Chinese high school students' academic stress and depressive symptoms: gender and school climate as moderators. Stress Health. 2012; 28(4): 340–6. PMid:22190389 https://doi.org/10.1002/smi.2418

[64] Folkman S. Stress: Appraisal and Coping, in Encyclopedia of Behavioral Medicine, M.D. Gellman and J.R. Turner, Editors. Springer New York: New York, NY. 2013; 1913–1915. https://doi.org/10.1007/978-1-4419-1005-9_215

[65] Ahmad M, Anwar MN, Khan S. Social adjustments and Self-efficacy of University Students. PUTAJ – Humanities and Social Sciences. 2017; 24(2): 21–32.

[66] Jeong G, Park E. Relationships among the Self-Efficacy, Major Satisfaction and Adjustment to College Life of Nursing Students. Journal of The Korean Society of Integrative Medicine. 2019; 7(4): 253–263.

[67] Li H, Wang Y, Zhang R, et al. Exploring the Influence of Career Decision Self-Efficacy on Adjustment Challenges in Psychiatric Nursing Students: A Cross-Sectional Insight. Actas Españolas de Psiquiatría. 2025; 53(1): 126–135. PMid:39801400 https://doi.org/10.62641/aep.v53i1.1910

[68] Hsiao LC, Wang CJ. Psychometric testing: Self-efficacy for calorie control and exercise. Clinical Nursing Research. 2022; 31(8): 1539–1547. PMid:34961354 https://doi.org/10.1177/10547738211064947

[69] Park HR, Kang HS, Kim SH, et al. Effect of a smart pill bottle reminder intervention on medication adherence, self-efficacy, and depression in breast cancer survivors. Cancer Nursing. 2022; 45(6): E874–E882. PMid:34661562 https://doi.org/10.1097/NCC.0000000000001030

[70] Oliveira Silva G, Aredes NDA, Galdino-Júnior H. Academic performance, adaptation and mental health of nursing students: A cross-sectional study. Nurse Education in Practice. 2021; 55: 103145. PMid:34273732 https://doi.org/10.1016/j.nepr.2021.103145

[71] Awadalla S, Davies EB, Glazebrook C. A longitudinal cohort study to explore the relationship between depression, anxiety and academic performance among Emirati university students. BMC psychiatry. 2020; 20: 1–10. PMid:32917172 https://doi.org/10.1186/s12888-020-02854-z

[72] Thelwell RC, Lane AM, Weston NJV. Mood states, self-set goals, self-efficacy and performance in academic examinations. Personality and Individual Differences. 2007; 42(3): 573–583. https://doi.org/10.1016/j.paid.2006.07.024

[73] Salvarani V, Ardenghi S, Rampoldi G, et al. Predictors of psychological distress amongst nursing students: A multicenter cross-sectional study. Nurse Education in Practice. 2020; 44: 102758. PMid:32234667 https://doi.org/10.1016/j.nepr.2020.102758

[74] Nyoni T, Tlalajoe-Mokhatla N, van der Merwe A. Support strategies for the development of first-year undergraduate nursing students' clinical competencies: A scoping review. International Journal of Africa Nursing Sciences. 2025.

[75] Ejaz H, Sultan B, Pienaar, et al. Effectiveness of a resilience-focused educational program for promoting resilience in nursing students: A systematic review and meta-analysis. Nurse Educ Pract. 2024; 78: 104014. PMid:38879909 https://doi.org/10.1016/j.nepr.2024.104014

[76] Lam AHY, Ho LMK, Lam SKK, et al. Effectiveness and experiences of integrating Mindfulness into Peer-assisted Learning (PAL) in clinical education for nursing students: A mixed method study. Nurse Educ Today. 2024; 132: 106039. PMid:37989037 https://doi.org/10.1016/j.nedt.2023.106039

[77] Chan ZCY, Chan HY, Chow HCJ, et al. Academic advising in undergraduate education: A systematic review. Nurse Educ Today. 2019; 75: 58–74. PMid:30731405 https://doi.org/10.1016/j.nedt.2019.01.009

[78] Ji X, Guo X, Soh KL, et al. Effectiveness of stress management interventions for nursing students: A systematic review and meta-analysis. Nurs Health Sci. 2024; 26(2): e13113. PMid:38566439 https://doi.org/10.1111/nhs.13113

[79] Reis AC, Saheb R, Moyo T, et al. The Impact of Mental Health Literacy Training Programs on the Mental Health Literacy of University Students: A Systematic Review. Prev Sci. 2022; 23(4): 648–662. PMid:34272642 https://doi.org/10.1007/s11121-021-01283-y

[80] Yeoh SY, Rodda J, Bennett, et al. A Systematic Review on the Impact of Mental Health First Aid in Medical, Nursing and Allied Healthcare Professional Students. BJPsych Open. 2025; 11(S1): S111–S111. https://doi.org/10.1192/bjo.2025.10322