International Pharmacy Acta. 2025; 8(1): e5
Original Research Article
OPEN ACCESS
ISSN: 2645-3266

Assessment of Test Anxiety, Psychological Distress and Academic Motivation among Pharmacy Students in a Private University of Malaysia

Saraswathi Simansalam[a*], Sim Jing Harn[b], Sireesha Paruchuri[a], Ganesh Pandian Balsubramanian[a]

a. Clinical Pharmacy & Pharmacy Practice Unit, Faculty of Pharmacy, AIMST University, Bedong, Malaysia.
b. Faculty of Pharmacy, AIMST University, Bedong, Malaysia.

Article Info:
Received: January 2025
Accepted: April 2025
Published online: May 2025

* **Corresponding Author:**
Saraswathi Simansalam
Email: srsthis@yahoo.com

ABSTRACT:

Psychological well-being is an essential factor to ensure an excellent academic performance during undergraduate studies. Students are exposed to a wide range of stressors during their study period, including assignment submission and examination, the latter being related to test anxiety and associated with psychological distress and amotivation among students. To assess the prevalence of test anxiety and psychological distress among pharmacy students in a private university, in addition to determining the association among test anxiety, psychological distress and academic motivation. A cross-sectional observational study was conducted using a combination questionnaire that consisted of 10 items from the Westside Test Anxiety Scale (WTAS), additional items from the Kessler Psychological Distress Scale, and 28 items from the Academic Motivation Scale, distributed online to all undergraduate pharmacy students enrolled in the 2022-23 academic session. A total of 179 responses were received, yielding a response rate of 56%. The overall prevalence of test anxiety and psychological distress was estimated at 54.19% and 61.45%, respectively. Findings revealed that a significant correlation exists between the cumulative scores of test anxiety and psychological distress ($r = 0.56$, $p<0.0001$). Pharmacy students in the private university experienced a high level of test anxiety along with a high level of psychological distress. Therefore, efforts to reduce test anxiety and their psychological distress should be made to optimise students' learning experience during their pharmacy program.

Keywords: Pharmacy undergraduates; Test anxiety; Psychological distress; Academic motivation; Malaysia.

Please Cite this article as: Simansalam S, Harn SJ, Paruchuri S, Balsubramanian GP. Assessment of Test Anxiety, Psychological Distress and Academic Motivation among Pharmacy Students in a Private University of Malaysia. Int. Pharm. Acta. 2025; 8(1):e5.
DOI: https://doi.org/10.22037/ipa.v8i1.48038

1. Introduction

Education is vital for every country, as a strong and effective education system significantly contributes to national development [1]. Alas, there are many factors, including test and examination stress, that are preventing students from reaching their full academic potential [2]. Tests and examinations at all educational levels, particularly in higher education, have been viewed as a significant and potent decision-making instrument, with people of all ages being assessed in terms of their accomplishments, skills, and talents [3]. Students consistently perceived examination as a source of anxiety as well as a situation overwhelmed with uncertainty or unfairness in letting them demonstrate their true achievements [3,4]. Malaysian university students were reported to have to deal with high anxiety levels, with exam-related anxiety being one of the major sources during their study process [5]. Test anxiety, defined as a "set of phenomenological, psychological and behavioural responses that accompany concern about possible negative consequences or failure in examination or similar evaluation situations" [2], is characterised by intense nervousness triggered by exam-related situations, hindering students from showcasing their full potential, which consequently leads to decreased performance or academic failure [6].

While a little stress is necessary to keep students focused on their tasks, excessive feelings of worry or dreadful sentiments incapacitate them, resulting in a poorer academic performance [7]. Findings reported that undergraduate students who struggled with test anxiety frequently either deferred their semesters or abandoned their studies [6].

Dendle et al. reported a high prevalence of psychological distress among 126 medical students in a one-year prospective cohort study [8], while Aziz and Sherafi highlighted a prevalence of test anxiety of 53.04% accompanied by a high psychological distress level. i.e.82.50%, exist among the senior female medical students before examinations. In the latter, test anxiety was found to be positively correlated with psychological distress [9]. Bayram and Bilgel reiterated that anxiety and stress scores were significantly higher among female students. They also cautioned that the high prevalence of depression, as well as anxiety and stress symptoms among university students, is alarming, which may affect their physical and mental behaviour experienced as sadness, distraction and psychotic symptoms in the most severe cases [10].

Buzdar et al. reported that a significant relationship exists between students' academic performance and intrinsic and extrinsic motivation. The authors also found that test anxiety not only builds up psychological distress but also reduces academic motivation [11]. Saravanan et al. found that the test anxiety was a significant predictor of both psychological distress and amotivation among 154 medical students [12]. Rastegar et al. reported that the test anxiety was correlated with amotivation among 100 students studying at the departments of foreign languages [13]. Amotivation is defined as “a state in which individuals cannot perceive a relationship between their behaviour and the resultant outcome of that behaviour” [14]. Academic amotivation contributes to maladaptive functioning and negatively affects students’ academic engagement [15]. It has been associated with higher perceived stress at school and while studying, as well as boredom, poor concentration in class, and poor psychosocial adjustment to college, in addition to a higher attrition rate [16].

In general, medical students are often motivated by internal factors, which can be manifested as a desire to help people or pursue intellectual interests in the sciences. However, pharmacy students were driven by relatively high levels of external motivations, such as money and prestige, when compared to students in other health professions, including medicine, dentistry, and nursing. King stated that pharmacy as a profession is highly appealing for students who are seeking either job availability upon graduation or financial security, in addition to its unique educational requirements compared to other health professions [17].

Rajiah et al. reported that nearly a third of the participants had test anxiety, while 61.1% had psychological distress in a study conducted among 144 first-year undergraduate pharmacy students in Malaysia. A positive correlation between psychological distress and test anxiety existed, implying that higher levels of test anxiety are associated with a higher level of psychological distress [18]. From the review we conducted, there is a paucity of literature on the prevalence of test anxiety among Malaysian pharmacy undergraduate students. Furthermore, the study conducted by Rajiah et al. enrolled only first-semester students, which may not represent pharmacy students from senior years. The main objective of the current study was to assess the prevalence of test anxiety and psychological distress among pharmacy students in a private university. The secondary objective was to determine the association among test anxiety, psychological distress and amotivation among pharmacy students in Northern Malaysia.

2. Materials & Methods

For a study population size of 320, Raosoft sample size calculator (http://www.raosoft.com/samplesize.html) recommended a sample size of 178 with a 95% confidence level, and assuming the response distribution is 50%. A total of 320 undergraduate pharmacy students, from the first year through the fourth year, enrolled during the 2022-23 academic session.

The research was reviewed and approved by the institutional review board (AUHEC/FOP/23/15/03/2023). All pharmacy students enrolled during the 2022-23 academic session were invited to participate in the study by providing the link to the Google Form to the class representatives of each study year through a WhatsApp group. The multiple responses on the Google Form were turned off to ensure that only one response for each email address was attempted. Once the link was clicked, the respondents were connected to an information sheet which contained information about the study, along with the assurance of privacy and confidentiality for the details shared, the estimated time taken to complete the survey and a statement that their participation was important but voluntary, with an option to withdraw from the study at any time. Three reminders were sent to the potential participants, and the questionnaire was accessible for three months, after which the data collection was closed.

Test anxiety was assessed using the Westside Test Anxiety Scale (WTAS) by Driscoll, which comprises 10 questions to assess test anxiety, measured using a 5-point scale where one is ‘Never true’ and five is ‘Always true’ [19]. Psychological distress was assessed using the Kessler Psychological Distress Scale (K10), which also consists of 10 questions, rated using a 5-point scale where

one indicates 'None of the time' and five indicates 'All of the time' [20]. Academic motivation was assessed using the Academic Motivation Scale (AMS-C 28), which had 28 items measuring the academic motivation using a 7-point scale, one being 'Does not correspond at all' while seven being 'Corresponds exactly' [21]. This scale has three sub-scales: intrinsic motivation, extrinsic motivation, and amotivation.

The combined version of the questionnaire, which consists of WTAS, K10, and AMS-C 28, was piloted among 10 students. The feedback from this pilot test was used for some minor revisions to make the questionnaire more consistent and understandable before administering the final online version to the participants. This combined version comprised five items on socio-demographic data, 10 items each on test anxiety and psychological distress, respectively, measured using a 5-point scale. Test anxiety items were measured using WTAS, whereby an average total score above 3.0 was considered to have test anxiety. In contrast, for K10 items measuring psychological distress, total scores of 10 to 20 were categorised as non-psychological distress, whereas scores above 20 were categorised as distress. Lastly, 28 items measuring academic motivation were all assessed using AMS with a seven-level response scale: 12 items for extrinsic motivation, 12 items for intrinsic motivation, and four items for amotivation. For AMS items that ask respondents to indicate how well certain statements correspond with their academic motivations, the highest scores indicate exact agreement with the respective statements and vice versa.

Descriptive statistics were used to identify the prevalence of test anxiety and psychological distress. An ANOVA test was performed to determine if there were any significant differences in the cumulative measures among Year 1 through Year 4 students. The normality assumption was not violated, as tested by obtaining skewness and kurtosis values for the cumulative scores for the variables, which were within the acceptable range. Correlation tests and regression analysis were conducted to analyse the correlation between test anxiety, psychological distress and the subscales of academic motivation among pharmacy students.

3. Results & Discussion

A total of 179 pharmacy students participated, yielding a response rate of 56%. As many as 50 (27.9%) participants were first-year students, while 47 (26.3%) were from the second year. The remaining participants were from years three and four of their study, 43 (24%) and 39 (21.8%), respectively. The age of the respondents ranged from 20 to 25 years old, and a vast majority were female, 117 (65.4%). Most respondents, 153 (85.5%), were staying in the hostels or accommodations provided by the university.

The overall prevalence of test anxiety and psychological distress was estimated at 54.19% and 61.45%, respectively, as shown in Table 1. A total of 97 participants had test anxiety when the cut-off point was set at a score of 3.0. In contrast, the remaining 82 participants (45.8%) were in the category of normal level of test anxiety, while 110 of them experienced psychological distress.

Table 1. Prevalence of Test Anxiety and Psychological Distress.

Level of Test anxiety	**No. of participants, n=179**	**Percentage (%)**
Normal	82	45.8
Test Anxiety	97	54.2
Level of Psychological distress	**No. of participants, n=179**	**Percentage (%)**
Non-psychological distress	69	38.6
Psychological distress	110	61.5

Both year 1 and year 4 students had relatively lower mean cumulative test anxiety and psychological distress scores. In comparison, the highest scores in both measures were among the year 2 students, as depicted in Table 2. There was a significant difference in the cumulative test anxiety scores obtained by students of year 2 vs. year 1 and year 4 at $p<0.001$, while no significant differences among the cumulative psychological distress scores obtained by all the students.

Table 2. Mean Cumulative scores (±SD) for Test Anxiety, Psychological Distress, Extrinsic Motivation, Intrinsic Motivation and Amotivation by Year of Study.

Year of Study	**Test Anxiety**	**Psychological Distress**	**Extrinsic Motivation**	**Intrinsic Motivation**	**Amotivation**
	Mean (±SD)	Mean (±SD)	Mean (±SD)	Mean (±SD)	Mean (±SD)
Year 1	27.62 (±8.21)	26.90 (±7.11)	67.16 (±6.60)	65.46 (±6.49)	8.78 (±4.15)
Year 2	33.32 (±8.14)	30.02 (±6.76)	66.55 (±8.51)	62.19 (±11.58)	10.40 (±3.94)
Year 3	30.56 (±8.11)	27.30 (±6.97)	65.40 (±6.79)	63.53 (±6.77)	10.93 (±4.42)
Year 4	27.00 (±8.47)	26.26 (±6.40)	66.49 (±6.84)	65.64 (±6.93)	9.00 (±3.89)

Significant differences also exist in the mean cumulative scores of amotivation among year 2 and year 3 vs. year 1 and year 4 at $p<0.001$.

Among the 10 items on test anxiety of WTAS (Table 3), the question of 'After an exam, I worry about whether I did well enough' scored the highest mean, 3.11 (±1.20), whereas, the lowest mean score was for 'When I study for my exams, I worry that I will not remember the material on the exam', 2.80 (±1.06). The overall mean score for the test anxiety is 2.97±0.85.

For Kessler's psychological distress scale (Table 4), the highest mean score was for 'During the last month, how often did you feel tired out for no good reason?', 3.12 (±1.07), while the lowest mean score was obtained for 'During the last month, how often did you feel worthless', 2.57 (±1.00). The overall mean score for the psychological distress is 2.77±0.69.

For AMS items (Table 5), the highest mean score was obtained for extrinsic motivation item, 6.17 (±1.08) i.e. 'In order to have a better salary in future' while the lowest score was obtained for amotivation i.e. 'Honestly, I do not know; I really feel that I am wasting my precious time in university', 2.02 (±1.41).

The correlation between the cumulative scores for test anxiety and psychological distress was determined using the Pearson correlation test, which was found to be positively significant, $r=0.563$, $p<0.0001$. Pearson correlation results revealed non-significant relationships between the cumulative scores of test anxiety and academic motivation subscales, i.e., extrinsic motivation, intrinsic motivation, and amotivation. Significant correlation existed between extrinsic and intrinsic motivation with an r of 0.725. Amotivation was negatively correlated with the other two subscales of academic motivation i.e. the correlation was $r = -0.428$ with extrinsic motivation while $r = -0.328$ with intrinsic motivation. Using multiple regression, adjusted $R2=0.34$, $p<0.0001$ was obtained, in which psychological distress ($t=8.744$ at $p<0.0001$) and extrinsic motivation ($t=2.816$ at $p<0.005$) were two measures significantly contributed to test anxiety.

Psychological well-being is an essential factor to ensure excellent academic performance during undergraduate studies. Examination is related to test anxiety, which in turn is associated with psychological distress and academic motivation among university students. Therefore, understanding the prevalence of test anxiety and psychological distress is essential to address the underlying factors and develop appropriate interventions among pharmacy undergraduates. A very high prevalence of test anxiety was found in this study, i.e. 54.2% as compared to a similar study conducted by Rajiah et al. However, the prevalence of psychological distress, 61.45% is nearly matching. In our study, the prevalence of test anxiety among final-year students was the lowest, at about 30%, while it was nearly 38% among first-year students. However, this was slightly higher than the prevalence of 32.6% among first-year pharmacy students reported by Rajiah et al. [18].

Table 3. Westside Test Anxiety Scale for assessment of test anxiety with mean score (±SD).

Westside Test Anxiety Scale, n=179	Mean Score (±SD) on a Scale of 5
The nearer I am to a major exam, the harder it is for me to concentrate on the material.	2.97 (±1.17)
When I study for my exams or test, I worry that I will not remember the material on the exam.	2.80 (±1.06)
During important exams or test, I think that I am doing awful or that I may fail.	2.93 (±1.15)
I lose focus on important exams or test, and I cannot remember material that I knew earlier.	2.88 (±1.12)
I finally remember the answer to exam or test questions after it is already over.	3.03 (±1.23)
I worry so much before a major exam or test that I am too worn out to do my best at it.	2.97 (±1.13)
When I take important exams, I feel like something is off and I'm not behaving or thinking like my usual self.	3.03 (±1.22)
I find that my mind wanders while I am taking important exams or test.	3.05 (±1.17)
After an exam or test, I worry about whether I did well enough.	3.11 (±1.20)
I struggle with written assignments, or avoid doing them, because I feel that whatever I do will not be good	2.92 (±1.09)

Table 4. Kessler Psychological Distress scale for assessment of psychological distress with mean score (±SD).

Kessler Psychological Distress Scale (K10), n=179	Mean score (±SD) on a scale of 5
During the last month, how often did you feel tired out for no good reason?	3.12 (±1.07)
During the last month, how often did you feel nervous?	2.72 (±0.84)
During the last month, how often did you feel so nervous that nothing could calm you down?	2.94 (±0.98)
During the last month, how often did you feel hopeless?	2.74 (±1.01)
During the last month, how often did you feel restless or fidgety?	2.84 (±1.04)
During the last month, how often did you feel so restless you could not sit still?	2.61 (±1.04)
During the last month, how often did you feel depressed?	2.63 (±0.95)
During the last month, how often did you feel that everything was an effort?	2.73 (±1.02)
During the last month, how often did you feel so sad that nothing could cheer you up?	2.77 (±1.01)
During the last month, how often did you feel worthless?	2.57 (±1.00)

In this study, the year 2 and year 3 students' cumulative test anxiety and psychological distress scores were the highest, which may be attributed to the workload these students had during these years, which is not limited to only the curricula but also other extracurricular activities in which they participated, for example, organising committee members of a public health campaign. Among the reasons cited for test anxiety were lack of preparation, lack of time management skills and study skills, fear of failing, family responsibilities, as well as the characteristics of the lecturer and exam [22].

The correlation and multiple regression results were positively significant for test anxiety and psychological distress, implying that pharmacy students with a higher level of anxiety experienced a higher level of psychological distress. This finding was consistent with the previous study conducted by Rajiah et al. [18]. Saravanan et al. recommended psychological interventions to pharmacy students to reduce psychological distress effectively, such as offering psycho education so that the students understand the link between anxiety over tests, the psychosomatic symptoms they cause, and the effects of both [12].

In academic motivation, there are three subscales, namely, extrinsic motivation, intrinsic motivation and amotivation. The higher scores for the extrinsic motivation statements found in this study, for example, 'in order to have a better salary in future' and 'because I want to have the "good life" in future' corroborates with the statement that pharmacy as a profession is highly appealing for students who are seeking either for job availability or financial security upon graduation [17]. Interestingly, Taylor and Harding highlighted two unconventional motivations for students pursuing a pharmacy education, with the first being that the pharmacy program was often a second choice for many students who had failed to enter medical or dental school, and thus settled for pharmacy school as a relatively similar option. The second unconventional motivation discussed was that pharmacy students often cited family tradition or family members' careers in pharmacy as being influential in their motivations for choosing a pharmacy program [23].

As reported in a previous study by Rajiah et al., there was no significant correlation between test anxiety and the subscales of academic motivation in our study; however, extrinsic motivation was significantly associated with test anxiety in multiple regression. Amotivation is separated from the rest of the self-determination continuum as being neither intrinsic nor extrinsic motivation. High correlation between extrinsic and intrinsic motivation measures may suggest that the pharmacy students in this study were highly motivated, extrinsically and intrinsically. This is supported by the fact that the intrinsic motivation statement "For the satisfaction I feel when I am in the process of accomplishing difficult academic activities" mean score was 5.64, which is comparable with other extrinsic motivation statement mean scores. In our study, the statements related to amotivation received very low scores.

Table 5: Academic motivation scale for assessment of extrinsic, intrinsic motivation and amotivation with mean score (±SD)

Academic Motivation Scale (AMS-C 28), n=179		Mean score (±SD) on a scale of 7
Sub-scale	**Item**	
Extrinsic motivation: External regulation	Because with only a SPM Certificate, I would not find a high-paying job later on.	5.53 (±1.26)
	I go to university in order to obtain a more prestigious job in future.	5.47 (±1.07)
	Because I want to have the "good life" in future.	5.92 (±1.13)
	In order to have a better salary in future.	6.17 (±1.08)
Extrinsic motivation: Identified regulation	Because I think that a university education will help me better prepare for the career I have chosen.	5.50 (±0.99)
	Because university education will help me make a better choice regarding my career orientation.	5.64 (±1.15)
	Because I believe that a few additional years of university education will improve my competence as a worker.	5.35 (±1.24)
	Because eventually university education will enable me to enter the job market in a field that I like.	5.27 (±1.12)
Extrinsic motivation: Introjected regulation	Because I want to show myself that I can be successful in my studies.	5.62 (±1.23)
	To prove to myself that I can complete my pharmacy bachelor's degree.	5.48 (±1.13)
	Because of the fact that I feel important when I succeed in university.	5.49 (±1.06)
	To show myself that I am an intelligent person.	5.35 (±1.18)
Intrinsic motivation to know	For the pleasure I experience when I discover new subjects I have never seen before.	5.33 (±1.18)
	Because I experience pleasure and satisfaction while learning new subjects.	4.97 (±1.12)
	For the pleasure that I experience in broadening my knowledge about the new subjects which appeal to me.	5.61 (±1.25)
	Because my studies allow me to continue to learn about many things that interest me.	5.57 (±1.26)
Intrinsic motivation towards accomplishment	For the pleasure I experience while surpassing myself in my studies.	5.46 (±1.15)
	For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.	5.31 (±1.18)
	For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.	5.64 (±1.07)
	Because university education allows me to experience a personal satisfaction in my quest for excellence through my studies.	5.62 (±1.01)

Intrinsic motivation to experience stimulation	For the "high" feeling that I experience while studying about various interesting subjects.	4.81 (±1.52)
	For the pleasure that I experience when I feel completely absorbed by what certain authors have written.	5.37 (±1.24)
	For the intense feelings I experience when I am communicating my own ideas to others.	5.18 (±1.15)
	For the pleasure that I experience when I read interesting authors.	5.30 (±1.25)
Amotivation	Though I once had good reasons for going to university, I wonder whether I should continue now.	2.56 (±1.66)
	Honestly, I don't know; I really feel that I am wasting my precious time in university	2.02 (±1.41)
	I can't see why I came to university and frankly, I couldn't care less.	2.47 (±1.55)
	I don't know; I can't understand what I am doing in university	2.72 (±1.65)

Additionally, the cumulative scores were inversely correlated with both intrinsic and extrinsic motivation cumulative scores. Students may experience amotivation in specific subjects or tasks only, which may not have a significant effect on their academic performance. However, results from other studies have shown that test anxiety is a predictor of amotivation [18].

One of the limitations of this study is that it was conducted only at one university offering a pharmacy program in Malaysia. Hence, the results of this study cannot be generalised to all undergraduate pharmacy students in Malaysia. The cross-sectional design of this study has a limitation in revealing an association among the variables studied and is not meant to determine cause and effect. Besides, there is a possibility of reporting bias. The difficulties in assessing the 'actual' psychological distress, which may yield different results based on the timing of data collection, for example, during the examination period when students are probably experiencing the highest stress levels, may not be very conducive. The motivation scale for pharmacy students may include two unconventional motivation factors to gain insight into the motivation of pharmacy students, which differ slightly from those of other health professional students. Recognising the high prevalence of test anxiety and psychological distress, it is essential to promote mental health awareness and foster a supportive environment for pharmacy students, such as implementing timely intervention from mentors and counsellors available at the university. Additionally, efforts to incorporate alternative assessment methods for evaluating students' knowledge and skills in non-stressful ways should be enhanced. Projects and assignments that are designed to assess their expected learning outcomes appropriately should be incorporated into the current curriculum, particularly for Year 2 and 3 students, who were reported to have the highest level of test anxiety and psychological distress.

4. Conclusion

In conclusion, this study determined the prevalence of test anxiety and psychological distress as well as the relationship between test anxiety, psychological distress, and academic motivation among pharmacy students in a private university in Malaysia. Firstly, the current findings reported that slightly more than half of the participants experienced test anxiety, and a high prevalence rate of psychological distress existed among pharmacy students. Furthermore, the findings also indicated a significant relationship between test anxiety and psychological distress. Students most likely need psychological interventions to manage their test anxiety and its consequences, particularly for the students who are in Year 2 and Year 3 of their pharmacy program.

Acknowledgements

We thank the students for their cooperation and willingness to participate in the study.

Conflict of interest

There is no conflict of interest.

Funding

This study received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Authors' ORCIDs

Saraswathi Simansalam:
https://orcid.org/0009-0004-6515-2432
Sim Jing Harn:
https://orcid.org/0009-0001-3857-2798
Sireesha Paruchuri:
https://orcid.org/0000-0002-2558-8280
Ganesh Pandian Balsubramanian:
https://orcid.org/0000-0001-9203-5259

References

1. Shavkidinova D, Suyunova F, Kholdarova J. Education is an important factor in human and country development. Current Research Journal of Pedagogics. 2023 Jan 16;4(01):27-34.
2. Zeidner M. Test anxiety in educational contexts: Concepts, findings, and future directions. In Emotion in education. Academic press; 2007, p165-184.
3. Zollar U, Ben-Chain D. Gender differences in examination type, test anxiety, and academic achievement in college science: a case study. Science education. 1990;74(6):597-608.
4. Spielberger CD. Assessment of state and trait anxiety: Conceptual and methodological issues. Southern Psychologist. 1985.
5. Vitasari P, Wahab MN, Othman A, Awang MG. A research for identifying study anxiety sources among university students. International education studies. 2010 May;3(2):189-96.
6. Karatas H, Alci B, Aydin H. Correlation among high school students' test anxiety, academic performance and points of university entrance exam. Academic Journal. 2013; 8:919-926.
7. Shireen H, Masooma H, Farhana A, Sinar A. Factors causing exam anxiety in medical students. Journal of the Pakistan Medical Association. 2008; *58:1*67-170.
8. Dendle C, Baulch J, Pellicano R, Hay M, Lichtwark I, Ayoub, *et al*. Medical student psychological distress and academic performance. Medical teacher. 2018; *40*(12):1257-1263.
9. Aziz N, Serafi AH. Increasing levels of test anxiety and psychological distress with advancing years of medical education. British J Med Health Res. 2017; *4*(3):40-42.
10. Bayram N, Bilgel N. The prevalence and socio-demographic correlations of depression, anxiety and stress among a group of university students. Social psychiatry and psychiatric epidemiology. 2008; *43:*667-672.
11. Buzdar MA, Mohsin MN, Akbar R, Mohammad N. Students' academic performance and its relationship with their intrinsic and extrinsic motivation. Journal of Educational Research. 2017;20(1):74.
12. Saravanan C, Kingston R, Gin M. Is test anxiety a problem among medical students: a cross sectional study on outcome of test anxiety among medical students. Int J Psychol Stud. 2014; 6(3):24.
13. Rastegar M, Akbarzadeh M, Heidari N. The darker side of motivation: Demotivation and its relation with two variables of anxiety among Iranian EFL learners. *ISRN Education, 1-8*.
14. Deci EL, Ryan RM, Deci EL, Ryan RM. Conceptualizations of intrinsic motivation and self-determination. Intrinsic motivation and self-determination in human behavior, 1985; 11-40.
15. Chan SL, Ng LV. A review of academic amotivation and the application of miracle question among adolescents. International Journal of Education, Psychology and Counselling (IJEPC). 2020 Jun;5(5):206-14.
16. Fears KS, SaPhenixx H, Jones D, Rennie N. *The impact of motivation on the relationship of academic stress and psychological well-being among college students* (Master's thesis, Brenau University), 2018
17. King MD. Motivation and education: performance, commitment, and satisfaction among pharmacy students. *Graduate Student Theses, Dissertations, & Professional Papers*. 2013; 682.
18. Rajiah K, Coumaravelou S, Ying OW. Relationship of test anxiety, psychological distress and academic motivation among first year undergraduate pharmacy students. International Journal of Applied Psychology. 2014; *4*(2):68-72.
19. Driscoll R. Westside test anxiety scale validation. *Education Resources Information Center*. 2007.
20. Kessler RC, Barker PR, Colpe LJ, Epstein JF, Gfroerer JC, Hiripi E, et al. Screening for serious mental illness in the general population. Arch Gen Psychiatry. 2003; 60(2):184-189.
21. Vallerand RJ, Pelletier LG, Blais MR, Briere NM, Senecal CB, Valleires EF. Academic motivation scale (AMS-C28): College (CEGEP) version. Educational and Psychological Measurement. 1993; 52:323-349.
22. Duraku ZH. Factors influencing test anxiety among university students. The European Journal of Social & Behavioural Sciences. 2017; 18(1):69-78.
23. Taylor KM, Harding G. The pharmacy degree: The student experience of professional training. Pharmacy Education. 2007; 7.