

Is Test Anxiety a Problem Among Medical Students: A Cross Sectional Study on Outcome of Test Anxiety among Medical Students?

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Abstract

Pathological anxiety towards an exam intensifies psychological distress and reduces academic motivation. The present study aimed to identify the prevalence of test anxiety and psychological distress. Additionally, the present study examined the extent to which test anxiety predicts psychological distress and academic motivation. Westside Text Anxiety Scale (WTAS), Kessler Psychological Distress Scale (K-10) and Academic Motivation Scale (AMS) were administered among 154 first year undergraduate medical students attending a private university in Malaysia. The results showed that 18.2 (n = 28) percent of medical students experienced test anxiety and 53.9 (n = 83) percent of them were psychologically distressed. Further, results showed that test anxiety positively correlated with psychological distress and amotivation. Test anxiety is a significant predictor of psychological distress and amotivation. Over all, medical students who experience test anxiety tend to experience high psychological distress and amotivation in their studies.

Keywords: test anxiety, psychological distress, academic motivations, medical students

1. Introduction

Test anxiety is a widespread phenomenon when an extreme nervousness arising from an anxiety-inducing test situation prevents one from demonstrating their true potential and thus lowers performance especially in the educational environment (Karatas, Alci, & Aydin, 2013). Test anxiety is a multidimensional construct combining with worry, emotionality, interference, fear of failure, self-esteem and lack of confidence (Stoeber, Feast, & Hayward, 2009). Little worry is essential to keep students task orientated; however, excessive worry or fear debilitates and affects student academic achievement (Shireen, Masooma, Farhana, & Sinar, 2008). A striking number of undergraduate students who experience test anxiety often encounter deferment of semester or discontinuation in their studies (Karatas et al., 2013; Schaefer, Matthes, Pfitzer, & Kohler, 2007).

Test anxiety is considered as one of the major problems among medical students as it most likely causes underachievement, low performance, demotivation and psychological distress (Loh, Kavitha, & Saroja, 2008; Rana & Mahmood, 2010). First year medical students are more vulnerable for test anxiety as they are required to do lot of presentation in front of their peers in Problem Based Learning (PBL), Mock Objective Subjective Clinical Examination (MOSCE), demonstrate how to manage difficult clients and explain physiology and anatomy of the body in the lab (Dyrbye, Thomas, Harper, Massie, Power, & Eacker, 2009; Sherina, Rampal, & Kaneson, 2004). Researchers evaluated that between 25 to 40% of undergraduate students experienced test anxiety (Bodas, Ollendick, & Sovani, 2006) and 69% of them worrying about scholastic performance (Khan, Mahmood, Badshah, Ali, & Jamal, 2008). Medical students who experience test anxiety exhibited psychological symptoms include tension, lack of concentration, worries and stress, and physical symptoms were trembling and sweating (Loh et al., 2008).

Test anxiety is associated with heightened psychological distress and this psychological stress affects the academic performance. Students with high test anxiety experience more psychological distress when compared with low test anxiety. Several studies in US and Canada outlined that student pursuing medical course

experience more psychological distress than general population (Dyrbye et al., 2009). Further, 58.59% of first year medical students experience psychological distress in Malaysia (Yusoff, Rahim, Baba, Ismail, Sidi, & Esa, 2013). The rationales are thought to be high expectation on medical students in mastering extensive professional knowledge and specific skills in highly competitive environment (Sherina et al., 2004). Additionally, the overwhelming information leaves a minimal opportunity for medical students to relax which has been consistently linked to psychopathology (Sherina et al., 2004). The negative emotion of test anxiety which serves to raise the distress level among students is a common concern emerging from the existing literatures. A moderate level of distress promotes creativity and achievement of students, but intense pressure of highly anxious student most likely secure unsatisfactory grades in studies (Harpell & Andrews, 2013). Akinsola et al. (2013) identified that test anxiety is positively correlated with psychological distress. On the other hand, Whitehouse et al. (1996) identified that student's experience psychological distress prior to exam and this psychological stress may aggravates the test anxiety. However, test anxiety person experience more distress compare with low test anxiety students. Therefore, there is a need to study test anxiety relationship with psychological distress. There is no research has been conducted whether test anxiety is a predictor of psychological distress.

Motivation promoting student's interest in learning, optimistic about exam marks, confidence in capacity and competence (Glynn, Aultman, & Owens, 2005). However, in a highly evaluative threatening setting, highly anxious students perform significantly poorer and are less motivated to learn (Hancock, 2001). Motivation is generally subdivided into three types: intrinsic motivation (an internal drive to pursue something for self-satisfaction), extrinsic motivation (an external source that acts as driving force for an individual's behaviour) and amotivation. Dornyei (2001) amotivation is defined as "the relative absence of motivation that is not caused by a lack of initial interest but rather by the individual's experiencing feelings of incompetence and helplessness when faced with the activity". Test anxieties affect motivation, concentration, and academic performance (Whitehouse et al., 1996). Previous studies identified that test anxiety person have low intrinsic and extrinsic motivation and high amotivation (Rastegar, Akbarzadeh, & Heidari, 2012). However, Ergene (2012) found no correlation between test anxiety and academic motivation. Since, there is a contrast in literature related to relationship between test anxiety and academic motivation. This study aims to identify relationship between test anxiety and academic motivation and also examine at what extent test anxiety as a predictor of debilitating academic motivation.

There is a need to study the test anxiety and its sequel as there is a considerable increase in number of private medical schools in Malaysia. Researches have been conducted on tests anxiety but not on whether test anxiety is a predictor of psychological distress and academic motivation among medical students in Malaysian context.

Therefore, among a sample of medical students attending a private medical university in Malaysia, the present study aimed to identify the:

- 1) Prevalence of test anxiety and psychological distress
- 2) Relationship between test anxiety and psychological distress
- 3) Relationship between test anxiety and subscales of academic motivation (intrinsic motivation, extrinsic motivation and amotivation)
- 4) Extend to which test anxiety predicts psychological distress, amotivation, and extrinsic and intrinsic motivation

Based upon the previous studies the proposed hypotheses of this study are:

- 1) There will be significant positive relationship among test anxiety, psychological distress and amotivation.
- 2) There will be significant negative relationships between test anxiety and intrinsic motivation and extrinsic motivation.
- 3) Test anxiety will be a significant predictor of psychological distress, amotivation, and extrinsic and intrinsic motivation.

2. Materials and Method

2.1 Participants

In this cross sectional study, convenient sampling method was used to collect data from 154 semester one medical students attending a private university in Malaysia. Out of 207 medical students, 154 were willing to participate in the present study. With regard to gender, 71 (46.1%) medical students were male and 83 (53.9%) medical students were female. Students who completed their five weeks in medical program were included and

students those who had taken mental health treatment were excluded as their mental health problem may contribute for demotivation and psychological distress

2.2 Materials

2.2.1 Socio Demographic Questionnaire (SDQ)

A simple demographic questionnaire was prepared for this study purpose to collect information about student gender and past history of mental health treatment.

2.2.2 Westside Test Anxiety Scale (WTAS)

WTAS was used to measure test anxiety (Driscoll, 2007). It consisted of ten brief items and it is measured in five points likert scale. Total score was divided by ten to obtain the mean value in which a mean score of less than 3 was considered as normal or low anxiety whereas mean score of more than 3 showed test anxiety. The alpha reliability of this scale in this study was 0.89.

2.2.3 Kessler Psychological Distress Scale (K-10)

K-10 was used to measure psychological distress (Kessler, Barker, Colpe, Epstein, Gfroerer, & Hiripi, 2003). This scale consisted of ten questions and it is measured in five points likert scale. The total score of 10 to 20 indicated non-distress while score of 21 to 50 was considered as distress. This scale has adequate reliability and the cronbach's alpha's were 0.919 (Cornelius, Groothoff, van der Klink, & Brouwer, 2013). Though it is moderately reliable instrument, this scale has been widely used by many researchers to measure psychological researchers. The alpha reliability of this scale in this study was 0.90.

2.2.4 Academic Motivation Scale (AMS)

AMS was used to measure intrinsic motivation, extrinsic motivation and demotivation (Vallerand, Pelletier, Blais, Briere, Senecal, & Valleires, 1993). Intrinsic motivation consisted of 12 items, extrinsic motivation consisted of 12 items and demotivation consisted of 4 items. Higher the score indicate higher the problem. This scale is measured in seven point likert scale. Reliability of the scale ranges from 0.70 to 0.79 (Kusurkar, Croiset, Kruitwagen, & Cate, 2010). The alpha reliability of this scale in this study was 0.92.

2.3 Procedure

After obtaining ethics and research approval, medical students were approached after their lecture hours to participate in this study. Researcher of the present study explained about the aim of the present study, participating in the present study is not part of their course requirement, information collected from students will be kept confidential and students can withdraw at any time from this study. After explained these information, students who were interested to participate in this study, were requested to give their written consent before filling these questionnaires (SDQ, WTAS, K-10 and AMS). After participants filled these questionnaires, researchers thanked the participants for participating in this study.

3. Results

3.1 Prevalence

Data yielded that 28 medical students (18.2%) exhibited test anxiety while 126 medical students (81.8%) were reported to have normal anxiety. Results revealed 83 medical students experienced psychological distress (53.9%) whilst 71 of them (46.1%) did not have psychological distress (Table 1).

Table 1. Prevalence of test anxiety and psychological distress

	No. of participant (n = 154)	Percentage (%)
Test Anxiety		
Normal anxiety	126	81.8
Test anxiety	28	18.2
Psychological Distress		
Non-distress	71	46.1
Distress	83	53.9

3.2 Relationship between Test Anxiety and Psychological Distress, and Academic Motivations

Results showed a significant strong positive correlation between test anxiety and psychological distress ($r = 0.602, P < 0.01$) and amotivation ($r = 0.343, P < 0.01$). On the other hand, there were no significant correlations between test anxiety and both aspects of motivation (intrinsic and extrinsic motivation).

Table 2. Correlation between test anxiety and psychological distress, and subscale of academic motivation

	Test Anxiety (n = 154)	
	r	p
Psychological Distress	0.602	0.00*
Intrinsic Motivation	-0.001	0.49
Extrinsic Motivation	0.014	0.43
Amotivation	0.343	0.00*

*P value less than 0.05 defined as significant

3.3 Test Anxiety as a Predictor of Psychological Distress and Academic Motivation

The third hypothesis was tested by using regression analysis. For the regression model, this study used total test anxiety score as a predictor variable and total psychological distress score as criterion variables. Table 3 indicates that test anxiety is a significant predictor of psychological distress ($\beta = .562, P < 0.001$) and 31% ($R^2 = .31, F(1, 152) = 70.01, P < 0.00$) of test anxiety is the predictor of the psychological distress.

Table 3. Test anxiety as a predictor of psychological distress

	B	Std. error	β
Psychological distress	10.08	1.46	
Test anxiety	4.93	.59	.562*

*P value less than 0.05 defined as significant

For the regression model, this study used total test anxiety score as a predictor variable and total amotivation score as criterion variables. Table 4 indicates that test anxiety is a significant predictor of amotivation ($\beta = .398, P < 0.001$) and 15% ($R^2 = .15, F(1, 152) = 27.87, P < .000$) of test anxiety is the predictor of the amotivation.

Table 4. Test anxiety as a predictor of amotivation

	B	Std. error	β
Amotivation	1.78	1.18	
Test anxiety	2.52	.47	.398*

*P value less than 0.05 defined as significant

4. Discussion

International research has identified that students excessive fear reaction before, during and after exams has drastically influenced students' academic motivation and psychological well-being. The recent considerable increases in medical programs in private universities in Malaysia, the present study investigate the prevalence of test anxiety and psychological distress. To the best of our knowledge this study was the first to investigate at what extent test anxiety is a significant predictor of psychological distress, amotivation and intrinsic and extrinsic motivation.

The prevalence of test anxiety among the sample of medical students in the present study was 18.2. This prevalence level of test anxiety is lower than is found among medical students in German 29.9% (Harpell &

Andrews, 2013) Malaysia 52% (Stover, Iglesia, Boubeta, & Liporace, 2012), and Pakistan 64% (Brouse, Basch, LeBlanc, McKnight, & Lei, 2010), but higher than among medical students in India 6%, (Glynn et al., 2008) and Taiwan 7% (Cheng, Chung, Peih, Jer, Hung, & Ting, 2008). The prevalence of test anxiety is lesser than previous study in Malaysia and overseas as the participants of the present study entered into medical program with high entry requirements and prospective medical students are interviewed professionally to measure their psychological wellbeing and competency to handle crisis situation. Further, students join in this university medical program are aware that university expects high performance in their medical program as this university has thirty two partner schools from all over the world. This creates awareness among medical students to enhance their self-confidence to face the challenges in the medical program. Whereas, this study prevalence of test anxiety is higher compare with medical students from Taiwan and India. One of the reasons for higher test anxiety might be due to requirement of university on medical students to do various presentations in front of their fellow mates in their first year which contribute for higher anxiety among first year students. This is consistent with previous study by Hashmat et al. (2008) found that first year medical students are more prone for tests anxiety due to undue course loads, lack of physical exercise and long duration of exam.

Psychological distress is often recognized among undergraduate medical students' especially first year students. More than half (53.9%) of the medical students experienced psychological distress in the present study. This prevalence level is higher than is found among medical students in Malaysia 26.3% (Yusoff, Rahim, Baba, Ismail, & Esa, 2012), Australia 35% (Soh, Norgren, Lampe, Hunt, Malhi, & Walter, 2013) and India 14.5% (Chatterjee, Mandal, Mallik, Manna, Sardar, & Dasgupta, 2012). The prevalence is in corroboration with substantial amount of well documented literatures which also suggested that medical students exhibit significantly higher prevalence of distress then the general population (Driscoll, 2007). One of the reasons for higher psychological distress in the present study is due to high expectations from parents who have made a substantial financial investment in their child's private medical education. Expectations from faculty in private medical schools may be greater than expectations from faculty in public medical schools. This difference may be due to a perception by faculty in private medical schools that because students (parents) are paying higher fees, more is expected from faculty.

The current finding of positive relationship between test anxiety and psychological distress is highly consistent with the result derived from the previous research demonstrated that 46% of the medical students in Pakistan perceive worry in their periodic exam performance. This exam worry is one of the common sources in psychological distress initiation that heightens their feelings of despair (Shah, Hasan, Malik, & Sreeramareddy, 2010). There is also evidence stated that fear of failure and fear of imperfection boost distress level among the medical students when evaluative component is introduced. Anxiety is acquired in a strict testing situation when the subjective anxiety state allocates individuals to have inverse psychological effect and conceptualize exam as a threat of failing and fear of imperfection, causing them to tense up profoundly (Karatas et al., 2013; Sagar, Lavallee, & Spray, 2009).

The result of the present study showed no significant relationship between test anxiety, and intrinsic and extrinsic motivation. The result is contrast with previous study that test anxiety is correlated with intrinsic and extrinsic motivation (Stoeber et al., 2009). Though students experience test anxiety, their internal motivation and external motivation to learn from their lecturers are unaffected as they think motivation is imperative for achieving the destination. This motivation is developed based on the personality, university atmosphere, lecturing method, parental guidance and students' perception about their future (Rastegar et al., 2012). However, the result is in accordance with Rastegar et al. (2012) studies that the test anxiety is positively correlated with amotivation. The present study could not find any relationships between intrinsic and extrinsic motivation, but found the relationship between test anxiety and amotivation. The effect of test anxiety not only affects the disruptive thoughts and behavior, but also coping with exam evaluation situation. This lack of coping with test anxiety most likely increase the amotivation

Result showed that test anxiety is a predictor of psychology distress and amotivation, but not on intrinsic and extrinsic motivation. However, Hefer (2009) found that extrinsic motivation was the positive predictor of test anxiety. Students who experience test anxiety perceive that they are incompetent and worry for minor matter that may cause them to have undue psychological distress. Further, the result showed that test anxiety predicts amotivation. The reason has been identified by Sagar et al. (2009) that fear of failure in the period before the exams loses student's motivation and self-confidence. Another reason identified by Vallerand et al. (1993) that students think that despite of effort they don't get desired outcome in the exam. Thus further loses their confidence and motivation to attend college. Overall, test anxiety affects the psychological distress and amotivation.

The present study used the convenient sample method to collect data, and result is based on medical students from one private university. So the result of the study does not represent the whole medical students in Malaysia. The reliability of the students' response in answering questions is questionable and students may prefer to give socially desirable answer as the questionnaires were distributed by their lecturers. Though the questionnaire are filled by students anonymously, students may misinterpret that lecturers come to know their problems by providing reliable responses in the questionnaires and that may cause them to give socially desired response in filling the answers in the questionnaires. This threatens the external validity of the study. To overcome this limitation, future researchers can recruit research assistant to collect data.

The present study recommends future researchers to evaluate intervention for test anxiety reduces the psychological distress and enhances the intrinsic and extrinsic motivation. In addition, reducing test anxiety enhances the academic performance need to be studied.

5. Conclusion

Medical students experience test anxiety and psychological distress. Test anxiety is considered as one of the major problems as it affects the psychological well-being and a motivation of the medical students. Universities have to consider test anxiety is one of the problems which more likely affects the psychological wellbeing and motivation of the medical students. Provide psychological intervention for test anxiety at the first semester would be an advantage for medical students to secure good scholastic performance and overcome the sequel of test anxiety.

Conflict of Interests

This study authors declare that there is no conflict of interests regarding the publication of this article in International Journal of Psychological Studies.

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