Determinants of Test Anxiety Among Undergraduate Students in Ghana

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Abstract

Cognitive test anxiety is common in university students and may have long-term detrimental effects on their well-being. This cross-sectional study, aimed at assessing the prevalence of cognitive test anxiety among university students in Ghana. A sample of 230 university regular students was selected using random classified sampling. Symptoms of cognitive test anxiety were measured by using the Westside Anxiety Test scale. Descriptive and inferential statistics (Independent T-test and Kruskal – Wallis Test statistic) were used to assess cognitive test anxiety and determinants. The study found symptoms of cognitive test anxiety among the students, where students female (*M = 3.4157*) experiencing cognitive test anxiety were higher than their male counterparts (*M = 3.1383*). The study also identified students' residential status as another determinant of test anxiety. We recommend that university authorities should take steps to provide accommodation on campus for all students since students in rented apartments were found to have higher test anxiety. Additionally, early screening and psychological counselling support for students experiencing cognitive test anxiety should be provided to help the overcome such challenges.

Keywords: Cognitive test anxiety, emotional test anxiety, performance anxiety, social phobia, well-being

Introduction

Test and examination are an essential component of education, yet it is a major cause of university students' mental health concerns globally (Bucker et al. 2018; Putwain, et al .2021). From the basic level to the tertiary, it is likely that students on a monthly or yearly basis prepared and take various forms of tests. Rajiah, Coumaravelou and Ying (2014) stated that tests are indispensable tools to educators but their over-dependence on tests in recent times has heightened the negative impact of test anxiety on its victims. For many students, test-taking is a nightmare, it can be frightening, confusing, nerve-wracking, or all of the above (Mavilidi, Hoogerheide, & Paas, 2014). While test results are used for various reasons in education, it imposes various psychological challenges on test takers.

Test anxiety also known as performance anxiety, is referred to as a nervous condition that occurs in an individual prior to, and/or during an examination or evaluation (Bystritsky & Kronemyer 2014). It is a specific form of a wider group of problems characterized by feelings of 'anxiety', problems that in their severest form are diagnosable as psychological disorders. As test anxiety is primarily a concern over negative evaluation, it is most closely associated with the Diagnostic and Statistical Manual-5 (DSM-V: APA,2013) classification of social phobia. Social phobias are characterised by marked and persistent fear of social or performance situations in which embarrassment may occur (APA, 2013). This phenomenon emanates from stirred-up state in the physiological level which can lead to worry, dread, fear of failure, and catastrophic experiences before or during test situations among students (Birjandi & Alemi, 2010). The anxiety level increases when individuals face ambiguity and are unprepared to cope with stressful situations.

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There are forms of test anxiety, namely cognitive test anxiety (CTA) and emotional Test anxiety (ETA). The CTA also known as worrying, consists of students' negative cognitions about performance, self-evaluation, and the consequences of failure (Gibbons, McNally, & Viarengo 2018; Mavilidi, Hoogerheide, & Paas, 2014; Putwain & Symes, 2018). This implies that the worrying student has doubts about their competence thinks how much brighter others are and perceives themselves as highly vulnerable to failure. On the other hand, the ETA component refers to the affective-physiological arousal that is experienced in evaluative situations (Bal-Incebacak et al., 2019, Kültür, & Özcan, 2022). It is not limited to just the arousal itself, but it includes the subjective perception of the internal events in the test taker. Ringeisen et al., (2016) added that these emotional reactions are associated with subjective control over the evaluation process and the importance one attributes to the results of an evaluation. Individuals experiencing emotional-related test anxiety may exhibit symptoms such as increased heart rhythm, chills, sweating, stress, tension, and nervousness when the individual is tested (Bal-Incebacak et al., 2019).

Furthermore, it has been documented that 25% to 40% of university students worldwide, experienced test anxiety Abdullah, & Al-Ameri, 2019; Alamri & Nazir, 2022). Yet there is no conclusive study on the determinants of test anxiety. For instance, Tsegay (2019) conducted a study on test anxiety among medical students in Ethiopia. Tsegay further reported that test anxiety was remarkably higher in female students (79.75%) than in their male counterparts (33.62%). Alamri & Nazir, (2022) studied test anxiety among medical students in Saudi Arabia. The study discovered that students with a higher grade point average (GPA) demonstrated significantly lower test anxiety than those with a lower GPA. Even though the two studies were conducted among students pursuing tertiary education, different findings were discovered. Apart from gender and GPA related factors, other studies pointed students' poor time management techniques, incompatible study habits and psychological distress (Aziz & Serafi, 2017; Kurt, Balci & Kose, 2014). Also, excess course load and lack of revision time before the writing test/examination (Cipra & Müller-Hilke, 2019; Javanbakht & Hadian, 2014), were among the cluster determinants of test anxiety among tertiary students. Considering the inconclusive findings from the previous studies, it is very essential to explore the phenomenon comprehensively.

According to Mudhovozi, (2012), experiencing normal test anxiety is actually beneficial to every student, as it helps increase students' motivation to prepare adequately for a test. Notwithstanding, it can negatively affect students' psychological, emotional and social well-being if not managed effectively (Hamzah, et al., 2018; Salend, 2012; Singh, Junnarkar, & Sharma,2015). High test anxiety has been recorded to be the most common mental health problem among tertiary students worldwide (Hamzah, et al., 2018; Singh, Junnarkar, & Sharma,2015). Test anxiety is destructive when the individual experiences too much anxiety before, during, or after an examination or test which can result in emotional and physical distress leading to difficulty in concentrating, emotional worry, and possible failure. In addition, severe test anxiety reduces working memory and impairs meaningful reasoning (Arbabisarjou, 2016, Ebrahimi, & Khoshsima, 2014). This consequently, affects the individual ability to comprehend and provide a solution to a given test item. Additionally, highly test-anxious students are found to perform about 12 percentile points below their low-anxiety peers (McDonald, 2001). Additionally, test anxiety can aggravate students' asthma or high blood pressure conditions (Alamri and Nazir, 2022). Other side effects of the extreme level of anxiety affect an individual's mental and physical health and also have a negative effect on their personal, social, familial, occupational, and educational performance (Zahrakar, 2008). A higher level of test anxiety can be detrimental to students' general well-being, meanwhile, there is limited study on test anxiety globally (Alghamdi,2016).

In Ghana, in spite of the devastating effects of test anxiety, a study on the disorder among university students in Ghana is difficult to find, meanwhile, university students are Ghana, Bentil (2020), investigated the relationship between examination anxiety and pupils' academic performance in Junior High Schools in

Effutu Municipality in the Central Region. In that study, he indicated test anxiety was prevalent among the students. Also, Antwi-Danso, Amissah, Effrim, (2015) explored test anxiety among Senior High Students in the Agona Municipality. Of relevance, the study pointed out the prevalence of test anxiety among students. It is important to note, these studies were all conducted among pre-tertiary population, and the studies did not identify the determinant of the student's test anxiety. What is the state of test anxiety among university students in Ghana? It is very crucial to explore this disorder among a population the prevalence of the disorder globally is between 25% to 40% (Abdullah, & Al-Ameri, 2019; Alamri & Nazir, 2022). To find answers to this literature gap, this study explored the prevalence and the determinants of test anxiety among selected university students in Ghana.

This study is grounded on the Individual Psychology by Alfred Adler (Adler, 1956). According to Adler, a human being is born with an instinct moving toward competence or self-mastery, and he termed this instinct as striving for superiority (Adler, 1996. 2012). Thus, striving for perfection or superiority is the natural human desire to move from a perceived negative position to a perceived positive one (Adler, 2012). Generally, school environments are structured to foster healthy competition among students. As result, students seize every opportunity to excel in every school activity, especially those that are related to their academic work. Apart from the intrinsic drive excel academic, university students are pressured to satisfied the expectations of peers, parents, lecturers, and society. The inability of student to manage effectively both internal and external expectations in relation to a test score can result to test anxiety.

Objectives

The above literature shows that we are not fairly well informed of the prevalence of test anxiety and its associated factors within the Ghanaian context. We aimed to assess the determinants among a sample of university students in Ghana. The main research questions examined is: (1)What is perceived cognitive test anxiety among university students in Ghana?

We also tested two hypotheses:

(1) There is no statistically significant difference between male and female university students' cognitive test anxiety.

(2) There is no correlation between student accommodation and their cognitive test anxiety experiences. The findings of this study could inform the intervention that could target university students who could be at risk for test anxiety.

Methods

- **Participants and procedure**

Samples of 230 university students were conveniently selected from the First Year students of the Department of Languages in the Faculty of Education and Communication Sciences of a public university in the Ashanti Region of Ghana. The sample comprised 141 males and 89 females, and participation in the study included the following selection criteria: (a) a registered student, (b) voluntary participation in the study, and (c) aged 18 years and above. On the days of data collection, any student present in the lecture room and who met the criteria participated in the study. Students filled out a written consent form, and data collection took place in the lecture rooms after a teaching session had ended in the absence of the researchers. Students were informed to give the filled questionnaire to Course Representatives, which were then submitted to the researchers. To ensure anonymity, no form(s) of identifiers were on the questionnaire and the participants were informed that participation was voluntary and that they could withdraw from the study at any stage if they so desire. The data collection lasted for 30 days. The participants did not receive

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any form of inducement or reimbursement.

- **Measures**

The questionnaire was in two sections. Sections A, focused demographic information of the participants (Gender, Age, Level of Education, and Accommodation status). Section B adopted the Westside Cognitive Anxiety Test scale. which consisted of 10 questions used to assess test anxiety. This is a 5-point Likert Scale type ranging from 5 (Extremely or always true) to 1 (Not at all or never true). For example, the item states that '*the closer I am to a major exam, the harder it is for me to concentrate on the material*'.

- **Statistical analysis**

The questionnaires were checked for completeness and data were entered into Microsoft Excel 2020 spreadsheet. This was subsequently imported into SPSS software version 26, which was to conduct data analysis. The demographic data were analysed using frequency and percentages, while RQ1 mean and standard deviation. Independent sample T-test was employed to test hypothesis 1, while Kruskal – Wallis Test statistics was used for hypothesis 2. The participants did not receive any form of inducement or reimbursement.

Results

The sample was made of 230 students (141 males and 89 females), with the majority (84) of the respondents representing (36.5%) being within the age 21-25 and the least (27) respondents representing 11.7% were in the age of 36 and above. With regards to the educational level of the respondents, 138 (60.0%) were L100 students, 70(30.4%) were in level 200, and 22(9.6%) were in level 300. It important to note that, more than half of the respondents were staying outside university campus. They were either in private hostels (37%), self-rented apartments (16.5%) or residing at their homes (Table 1).

Table1: Socio-demographics of the respondents (n=230)

Variables		**Frequency**	**Percentage %**
Gender	Male	141	61.3%
	Female	89	38.7%
Age	15-20	28	12.2%
	21-25	84	36.5%
	26-30	56	24.3%
	31-35	35	15.2%
	36 above	27	11.7%
Educational level	L 100	138	60.0%
	L 200	22	9.6%
	L 300	70	30.4%
Accommodation type	School hostel	45	19.6%
	Private hostel	86	37.4%
	Rented Apartment	38	16.5%
	Home	61	26.5%

Source: Fieldwork

Research Question 1: ***What is perceived cognitive test anxiety among university students in Ghana?***

Table 2 below, shows the most perceived cognitive test anxiety among the respondent was the thought that *During exam, I think I may fail* (Mean=3.76, Std. Dev. =1.326) followed by I am not really myself when I take important exams (Mean= 3.63, Std. Dev. 1.298). The least thought among the respondents was " *after an exam, I worry about the outcome* (Mean =2.68, Std. Dev. 1.319).

The table 2: **Perceived Cognitive Test Anxiety Impairment**

Variables	N	Maximum	Minimum	Mean	Std. Deviation
The closer I am to a major exam, I can't concentrate	230	5	1	2.96	1.253
I worry that I will not remember what l have studied.	230	5	1	3.14	1.331
During an exam, I think I may fail	230	5	1	3.76	1.326
I lose focus on important exams	230	5	1	3.49	1.274
I remember the answer to exam questions after the exam	230	5	1	3.24	1.332
I worry so much before a major exam.	230	5	1	3.25	1.344
I not really myself when I take important exams.	230	5	1	3.63	1.239
My mind sometimes wanders when I am taking exams	230	5	1	3.17	1.298
After an exam, I worry about the outcome	230	5	1	2.68	1.319
I feel that whatever I do will not be good enough.	230	5	1	3.14	1.424
Total	230				

Source: Fieldwork (2021)

Hypothesis 1: **There is no statistically significant difference between male and female university students' cognitive test anxiety.**

Table 3 below presents an independent sample t – test that was conducted to compare test anxiety scores for male and female respondents of the study.

Table3: Gender difference in Students' Cognitive Test Anxiety

		F	Sig.	T	Df.	Sig. (2-tailed)
Test Anxiety	Equal variances assumed	0.133	0.716	-2.268	228	0.024
	Equal variances not assumed			-2.273	188.713	0.024

Source: Fieldwork

There was a significant difference in scores for males (M = 3.1383, SD = .90725) and females (M = 3.4157, SD = .89784); t (228) = -2.268; p = .024, two – tailed. However, the magnitude of the difference showed from the mean values (=.277, 95%; eta= .023) revealed that, female respondents demonstrated high levels of cognitive test anxiety as compared to the male students. However, the effect size 0.23 was small (.01- small, .06- moderate, .14-large). This implies that females in this cohort were more likely to report being anxious about taking tests than their male counterparts.

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Hypothesis 2: **There is no correlation between student accommodation and their cognitive test anxiety experiences.**

Table 4 presents the variance in cognitive test anxiety and respondents' accommodation status was estimated using the Kruskal – Wallis Test statistics.

Table 4: Cognitive Test Anxiety and Students' Accommodation Status

	Accommodation	N	Mean Rank	Median	Chi-square	Df.	Assymp. Sig.
Test Anxiety	School Hostel	45	105.66	21	2.467	3	.481
	Private Hostel	86	115.83	43			
	Rented Apartment	38	128.51	20			
	Home	61	114.20	31			
	Total	230					

The output revealed a significance level of .481 which is greater than the recommended threshold of $p<0.05$. this suggests that there is no difference in test anxiety among student groups in terms of the type of accommodation they occupy (School hostel, n= 45, Private hostel, n= 86, Apartment, n= 38, Home, n=61), X^2 (3, n = 230) = 2.467, p = .481. However, the mean rank values revealed that, respondents who live in rented apartments recorded the highest with 128.51; followed by those in private hostels with 115.83; those from home followed closely with 114.20 and the group with the least effect of test anxiety are students in school hostels with 105.66.

Discussion

This study was conducted to assess the perceived cognitive anxiety among university students in Ghana. This study found university students are fear failure experienced significant test anxiety (Mean= 3.76) than their counterparts who see failure as part of life. This is consistent with a previous study by Heckhausen and Heckhausen (2018), where they discovered that fear of failure is a major cause of depression and anxiety. Similarly, Berger and Freund (2012) confirmed that higher fear of failure at the beginning of the exam preparation period impaired affective well-being, and resulted in lower affective well-being at the end of examination preparation.

Furthermore, this study discovered that there exists a difference in cognitive anxiety between male and female students. The study revealed that there is higher cognitive test anxiety in females than in their male counterparts. This finding is consistent with Rezazadeh, & Mansoor, 2009) but does not agree with a study conducted in Iran (Saravanan, Kingston, & Gin 2014), and they did not find any significant difference between male and female students' cognitive test anxiety. and a study in India (Salend, 2012). where test anxiety is higher in males compared to female students.

Also, the findings do not reveal any statistical differences in students' residential status and test anxiety. However, according to the findings, the mean rank values revealed that, respondents who live in rented apartments outside campus recorded the highest with 128.51; followed by those in private hostels with 115.83; those from home followed closely with 114.20, with the least group to experience cognitive test anxiety are students in school hostels with 105.66. The observed differences between students in a rented apartment, or private hostel and those residential students (students in university halls) suggest that students outside are prone to test anxiety. This revelation contrast with a previous study (Brett, C., Mathieson, M. & Rowley 2022; Neves & Hillman, 2019)

Limitation

The data for this study was collected only from full-time undergraduate students therefore caution should be taken when interpreting the findings and generalizing them since part-time, sandwich and postgraduate students were not included in the study.

Conclusion and Recommendation

In conclusion, a significant percentage of cognitive test anxiety was found among the studied student population. Key test anxiety determinants found were accommodation status and gender. Based on the findings, we recommend that university authorities should take steps to provide accommodation on campus for all students since students in rented apartments were found to have higher test anxiety. Further, university counsellors should educate students on the key determinants of test anxiety and how to deal with these determinants to enable them to experience manageable test anxiety Also, university counsellors should provide psychoeducation for all students on developing appropriate study habits and test-taking skills.. In addition, there should be counselling services either group or individual counselling, to equip students with time management skills to promote effective time management behaviour among the students to enable them to bolster their academic achievements. Finally, there should be an emergency line for students experiencing test anxiety before, during, and after midterm or end-of-semester examinations for immediate psychological counselling to help students deal with any mental health issues.

Conflict of interest
All authors report no conflicts of interest.

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