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Influences of Test Anxiety on Freshman Students' Academic Achievement at Universities

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The study aimed to investigate the Influence of Test Anxiety on Freshman Students' Academic Achievements at Eastern Ethiopian Public Universities. A correlational research design was employed through stratified and systematic random sampling techniques to collect pertinent data from 353 freshman students. The quantitative data collected through the questionnaire were analysed by stepwise multiple linear regression, independent t-test, one-way ANOVA, and Karl Pearson's Coefficients of Correlation to answer the basic research questions and hypotheses. Firstly, the cognitive, behavioural, and emotional components of test anxiety respectively contributed about 50%, 29%, and 40% negatively to the variation of grade point average as a measure of academic achievement among freshman students. Secondly, test anxiety resulted in significant gender differences in students' academic achievement. Finally, female students were more susceptible than their counterpart males to test anxiety. To conclude, the cognitive, behavioural, and emotional components of test anxiety were found to be the most influential variables that negatively affected freshman students' academic achievement. To go over the main point, test anxiety matters for students during and before the exams because of fear of failure, competition with other classmates, and friends, or fear of losing the race competition influences the performance of students.

Keywords: academic achievement, cognitive, emotionality, Haramaya University, psychology, test-anxiety

INTRODUCTION

Test Anxiety (TA) is a cognitive, behavioral, and emotional response of a student that evokes negative emotions about a test (Amsalework, 2014). It is an undesirable reaction toward tests and problems that face students in their learning. It is a psychological condition in which students experience anxiety in test situations. Moreover, it is a

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severe psychological condition that is experienced by any student either before or during the examination or evaluative situation (Ali, Awan, Batool, and Muhammad, 2021). TA is an emotional reaction or state of stress that occurs before the test and continues throughout the test period. It is a major educational problem among students from lower level to higher levels of education (Bolbolian, Asgari, Sefidi, Sarvari, 2021). Moreover, it has been observed that both high and low achievers experience TA during their stay in the education system in their education life. For, instance, high achievers experience TA because they often desire to be the best and strive to maintain their image as good students whereas inadequate preparation for exams, and poor study skills of the low achievers make them anxious to the extent that they are unable to concentrate in test situations (Crowel, Kaminsky, & Powdel, 2023). A series of early studies showed that college students with high TA performed poorly in evaluative situations than low anxious students. Furthermore, Ali *et al. (*2021); Crowel *et al*.(2023) concluded that high achievers experience less TA as compared to low achievers. Female high achievers experienced more TA as compared to male high achievers whereas male low achievers experienced more TA than female low achievers.

For, instance TA affects an estimated 100 million freshman students all over the world; approximately 16-20% of students have had high TA and another 18% of students deal with moderate TA (Bolbolian *et. al*, 2021; Crowel *et al*., 2023)). TA is a form of anxiety that manifests when people think their abilities are being tested and they fear the results will be unfavorable. Tests are a key decision-making tool in academic and professional settings in Western nations and the rest of the world, too. As prior research has indicated, it has been discovered that 20% to 40% of college students have TA, which hinders their academic success (Rosenberg and Hamiel, 202; Crowel *et al*., 2023). TA often occurs in the educational world and is experienced by students from lower to higher levels. It is one of the factors in learning that can interfere with students' academic achievements (SAAs) of cognitive functions, such as difficulty concentrating, remembering, conceptualizing, and solving problems. Moreover, it interferes with learning by reducing the ability to focus attention and reduce students' memory during tests (Setyowati, Rayaginansih, Fahriza, and Fauziah, 2019). According to Mihretu (2017), a research conducted in Ethiopia universities found that there was a statistically significant high negative relationship between students' academic achievement (SAA) and TA, r(165) = - .87**, p = .001). The negative sign in the coefficient connotes the occurrence of an inverse relationship between SAA and TA. As the level of TA increases, the SAA decreases and vice versa. Hence, there was a statistically significant negative relationship between SAA and TA at alpha = 0.05. Moreover, research conducted in the same country, Ethiopian, Addis Ababa University, College of Education & Behavioural Studies, Department of Psychology by Raju, Misganaw, and Esa (2020) found that there was a higher mean of TA of freshman students. According to Miretu (2017), TA can manifest differently in students across various fields of study, and there can be distinct levels of anxiety observed between students in natural sciences and social sciences. The specific dynamics, however, depend on several factors, such as the nature of the subject matter, the type of exams, and individual student experiences. He tried to indicate how exam anxiety might differ between students in these two areas.

According to him, natural sciences often focus on objective facts, formulas, and specific problem-solving methods, which can lead to performance-based anxiety. Students may feel pressure to memorize complex formulas, solve problems quickly, and demonstrate precise knowledge. Therefore, the TA can be higher if students struggle with understanding concepts that have a clear "right" or "wrong" answer, or if they have difficulty with lab-based tests where practical skills are assessed whereas social sciences tend to involve more subjective reasoning, essays, and theoretical knowledge, which can create a different type of anxiety. Students may experience stress due to the need to interpret theories, apply concepts to real-world examples, or develop critical thinking skills (Miretu, 2017; Setyowati, *et al.,* 2019; Raju *et al.,* 2020). Since many tests in social sciences are essay-based, students may feel anxious about their writing skills, language difficulties (English as foreign language and medium of instruction in all Ethiopian Universities), structuring arguments, or managing time during long-form responses. On the other hand, tests in natural sciences often focus on problem-solving (e.g., equations, experiments, lab work), which can be stressful if students have not practiced enough or if they do not feel confident in their technical skills. For instance, multiple-choice questions or short-answer questions in these subjects might contribute to TA, as students might second-guess themselves on seemingly straightforward questions; lab tests or practical assessments can be sources of anxiety, particularly for students who are less comfortable in hands-on environments or who fear making errors during experiments; however, the assessment in social sciences is often more essay-based, requiring students to express their understanding and critical thinking abilities (Miretu, 2017; Ragu *et al*., 2020; Rosenberg and Hamiel, 2021). This might cause anxiety related to writing under time pressure, organizing thoughts clearly, and citing references properly. Some social sciences tests include open-book formats or take-home essays, which can relieve some anxiety but might lead to procrastination or increased stress as students feel the pressure to present deep, well-researched arguments (Miretu, 2017; Setyowati *et al*., 2019).

The other fundamental perceptual difference between these two fields was that students in the natural sciences might experience fear of failure more acutely because the subjects often appear to be more “black and white,” with clear right or wrong answers (Miretu, 2017; Rosenberg and Hamiel, 2021). A mistake in a problem-solving question can be perceived as a major failure, leading to heightened anxiety. Students may also worry about practical errors (in lab work, for instance) that could directly impact their grade whereas students in social sciences may feel more anxious about subjectivity in grading and interpretation. They might fear that their viewpoint or analysis will not align with the examiner's expectations (Rosenberg and Hamiel, 2021). TA in social sciences could also stem from writing fluency- the need to express well-structured, coherent arguments within a limited time frame. There's a sense of vulnerability when students worry their arguments will not be perceived as strong or well-supported. It was expected that there is often a higher emphasis on precision and technical skill in the natural sciences, which can increase anxiety levels. Students may feel the pressure of competition as well, especially in fields like mathematics, physics, or chemistry, where tests often have high stakes for career progression; however, social sciences students may feel less direct pressure related to technical expertise but may experience TA due

to the need for creative thinking and the desire to meet higher expectations for argumentative depth, insight, and originality in their essays. Peer pressure may also play a role, as students in fields like psychology or sociology might compare their understanding of complex theoretical frameworks or their ability to synthesize large volumes of reading (Miretu, 2017; Setyowati *et al.,* 2019; Rosenberg and Hamiel, 2021).

To summarize what has been said so far is that natural sciences tend to produce more performance-based anxiety, particularly related to problem-solving under time constraints and the fear of making simple mistakes during lab tests or calculations. The emphasis on memorization, formula application, and technical skills can lead to significant stress, but social sciences often produce anxiety related to subjectivity, writing, and argumentation. The challenge is not about memorizing or calculating, but about demonstrating a nuanced understanding of theories and concepts within the context of essay questions or case studies (Putwain and Symes, 2020; Rosenberg and Hamiel, 2021). In both fields, the level of TA varies based on the student's strengths, preparation habits, and personal experiences. However, the types of anxiety tend to differ, performance anxiety in natural sciences versus interpretation and argumentation anxiety in social sciences. TA is a common problem among students and it affects SAAs (Karfe and Ntasin, 2018). It is disruptive to learning and test performance. A high level of TA is an inherently unpleasant experience. High TA could potentially contribute to lower subjective well-being through the presence of unpleasant failure-focused emotions and cognition (Putwain and Symes, 2020).

According to Rosenberg and Hamiel (2021), there are three components of TA: cognitive, behavioral, and emotional. They stated that emotional components are associated with behavioral or physical responses to test situations, such as excitement, tension, nervousness, and physical discomfort. Moreover, they tried to indicate that TA can manifest in various ways, with students displaying a range of behaviors when they are overwhelmed by stress during tests. Some real examples of how students might experience panic or intense TA during testing situations include (i) physical symptoms of panic (shaking hands or body, sweating profusely, shortness of breath, racing heart). (ii) Cognitive overload (blanking on questions when a student may be unable to recall information they studied, difficulty understanding questions, and overthinking). (iii)Social withdrawal or isolation (avoiding interaction, and appearing disoriented when students experience TA, they may have trouble engaging in conversation or seem distant, still processing the emotional toll of the experience was very much low after the tests). (iv) Verbal expressions of panic that include self-critical comments when a student might frequently say things like, "I cannot do this," "I am going to fail," or "I am not smart enough," which signals a deep level of TA and self-doubt. Secondly, excessive apologizing-when some students, despite having no control over the situation, apologize to their teachers or peers repeatedly, thinking they have failed before even completing the exam. These behaviors all reflect how intense the emotional and physical effects of TA can be among the students. It's a complex response involving not only the mind but also the body, which can severely impact a student's ability to perform during tests (Karfe and Ntasin, 2018; Ali *et al.,* 2021; Bolbolian *et al.,* 2021). TA arises from the interplay of negative thoughts, heightened emotional distress, and

maladaptive behaviors, and the interaction between these components can create a vicious cycle that worsens anxiety over time. Understanding and addressing these components together is key to managing and reducing TA among freshman students in the universities under study.

The cognitive, behavioral, and emotional components of TA are deeply interconnected. Cognitive distortions (like worry and negative thinking) fuel emotional reactions (fear, frustration) and drive maladaptive behaviors (avoidance and over-preparation), which in turn worsen the emotional state and reinforce negative thinking. Overcoming TA often requires addressing all three components through strategies like cognitive restructuring, relaxation techniques, and behavioral interventions to break the cycles of anxiety and improve performance (Ndirangu, Muola, Kithuka, and Nassiuma, 2009; Rana and Mahmood, 2010; Balogun, Balogun, and Onyencho, 2017; Bolbolian *et al.*, 2021). According to Rosenberg and Hamiel (2021T), TA is a common challenge for many students, but there are several strategies they can use to cope with it effectively. Some key ways students can manage and reduce TA include (i) preparation and planning (starting early where last-minute cramming often increases TA. Students who start studying well ahead of time tend to feel more in control and confident and break down the learning material instead of overwhelming themselves with large chunks of information. This reduces feeling overwhelmed and boosts confidence; creating a study schedule when planning study sessions ensures that students are well-prepared and not rushed. Using a schedule or planner can help them stay organized and focused. (ii) Relaxation techniques that include breathing exercises, progressive muscle relaxation, and visualization can drastically reduce the levels of TA. (iii) Mindfulness and positive thinking involve staying present and focused on the task, rather than worrying about the outcome. Techniques like grounding (noticing what they see, hear, or feel in the present moment) can reduce anxious thoughts. Positive self-talk that can be used to replace negative thoughts ("I am going to fail," "I am not ready") with more positive, realistic affirmations ("I am prepared," "I will do my best") can shift the mindset. Challenge negative beliefs that can often, TA stems from irrational fears of failure. Students can work on identifying and challenging these thoughts, realizing that one test does not define their abilities (Sisay, Tsinat, Nigussie, Shegaye, and Endalamaw, 2020; Rosenberg and Hamiel, 2021). (iv)Healthy lifestyle choices such as adequate sleep are crucial for cognitive function, focus, and overall well-being. Well-rested students are more likely to feel calm and perform better under pressure. Moreover, regular physical activity can help reduce overall stress levels. Eating nutritious meals, especially breakfast on the test day, can help maintain energy levels and concentration. Avoiding too much caffeine or sugary snacks is important as they can lead to energy crashes or jitters (Sisay et al., 2020; Rosenberg and Hamiel, 2021).

Finally, test accommodations such as extended time, a quiet room, or breaks during the test may be available for students with more severe anxiety even though most Ethiopian Universities do not agree with this statement. These accommodations can help level the playing field and reduce anxiety during the test-taking process. By combining preparation, relaxation techniques, and positive thinking, students can manage TA and perform more effectively. Over time, practicing these strategies can lead them to less

stress and greater resilience when faced with high-pressure situations (Sisay *et al*., 2020; Rosenberg and Hamiel, 2021).

As a previous study shows, internationally 29.1% of freshman students reported a higher rate of developing TA (Damer and Melendres, 2011). TA creates irrelevant thoughts, preoccupation, and decreased attention and concentration, which leads to poor AA. In particular, it is linked to memory and can have an impact on SAAs because it disrupts the attention and concentration of students. When attention and concentration are impaired, it will disrupt memory (Yousefi, Talib, Mansor, and Juhari, 2010). Besides, TA is strongly associated with test failure consequences. The highly test-anxious individual may be concerned about the possibility of test failure and low test performance. In test situations like this, possibilities for TA become active. TA and other deficits related to TA interfere with SAAs (Amsalework, 2014). Additionally, as the previous study shows 10%–35% of college students experience a high level of TA during the test (Szafranski, Barrera, Norton, 2012). In Ethiopia, the prevalence of TA among first-year health science students at University of Gondar was 54.7% (Sisay *et al.,* 2020), and the prevalence of problematic TA among medical students was 52.30% in Addis Abeba University (Light, Shegaye, Woynabeba, Gebreselassie, and Getinet, 2019). The influence of TA on students may vary depending on its interaction with the test performance. Low to moderate TA is often deemed beneficial as it enables the body to discharge energy equivalent to the test at hand. High-level TA may be devastating because it excites the body system above normal functioning capacity, and impacts negatively on test performance (Karfe and Ntasin, 2018). TA can manifest differently between freshmen and seniors due to a variety of factors, including academic experience, maturity, coping skills, and pressure levels. In short, while both freshmen and seniors can experience TA, the nature of that anxiety tends to differ. Freshmen may experience anxiety due to inexperience, uncertainty, and a desire to prove themselves. Seniors, on the other hand, might experience anxiety due to high-stakes pressure tied to their long-term academic and career goals. However, seniors generally have more developed coping strategies and a clearer sense of how to manage the stress associated with tests. According to Light *et al.* (2019), social support from friends, professionals, and families can act as a buffer against the negative effects of TA by providing emotional comfort, reducing stress, offering coping strategies, and boosting self-esteem. The presence of empathetic, understanding, and positive social connections can significantly enhance a student's ability to manage TA and perform better in academic settings. Conversely, a lack of social support or negative, critical support can exacerbate anxiety and hinder academic performance. Therefore, fostering supportive relationships both at home and among peers can be a key factor in promoting mental well-being and educational success (Yousefi *et al.,* 2010; Szafranski *et al.,* 2012; Amsalework, 2014; Light *et al.*, 2019; Chishti and Rana, 2021).

Therefore, this study differs from previous research in terms of geographical, conceptual, and methodological gaps. Geographically, the study was conducted at Eastern Ethiopian public universities, namely Dire Dewa, Haramaya, and Jigjiga. Methodologically, the previous researchers used a mixed research method design where mean, standard deviation, and correlations were used to analyze statistical data, and thematic analysis was made to analyze qualitative data. However, in the current study,

the researchers used a correlational research method design which is purely quantitative design, where stepwise multiple linear regression, independent sample t-test, Karl Pearson's correlations, and one-way ANOVA were used to analyze the quantitative data to answer the basic research question and hypotheses. Conceptually, the current study was focused on the influence of TA on freshman SAA. Furthermore, previous studies did not include all teachers and other stakeholders as respondents; however, the current study included freshman students as the major sources of information or respondents. Furthermore, the researchers' personal experiences and observations in the past four years at Haramaya University showed that the freshman students have been stressed, fainting, panicking, and disturbing other students, nervous, and feeling frustrated before and during the mid or final exams. This is another reason that motivates the researchers to conduct the current study on this problem. Therefore, this study was aimed at investigating the influence of TA on freshman SAA at Dire Dewa University (DDU), Haramaya University (HU), and Jigjga University (JJU).

Basic research question and hypotheses

A basic question was forwarded to answer the problems under the study.

1. To what extent does TA influence freshman SAA at DDU, HU, and JJU?

Research hypotheses

Three basic research hypotheses were forwarded to answer the problems under the study.

1. H_{01}.There is no statistically significant mean difference between female and male students on the influence of TA among freshmen at DDU, HU, and JJU.
2. H_{02}. There are no statistically significant relationships among the components of TA and freshman SAA at DDU, HU, and JJU.
3. H_{03}.There is no statistically significant mean difference among the three universities in TA under the study.

Review of Related Literature

TA is a psychological condition in which people experience extreme anxiety in testing situations. While many students experience some degree of anxiety before and during tests, TA can impair learning and hurt test performance (Doherty and Wenderoth, 2017). TA is referred to as the set of psychological and behavioural responses that accompany concern about likely negative consequences or failure of an exam and evaluation situations. It is a situation-specific trait that refers to the anxiety states and worrying conditions that happen during examinations. TA is a severe psychological condition that is experienced by any student either before or during the test and evaluation situation (Yousefi *et al.,* 2010; Ali *et al.,*2021).

Academic Achievement (AA)

AA is taken as an important aspect of the system of formal education. It is generally referred to as how many marks a student is achieving in her/his academics. It is usually measured through conducting assessments or continual evaluations. Students go through different examinations throughout their whole academic life. Anxiety issues stand out

amongst the most widely recognized mental issues affecting SAA scores. It can influence students, sense of pride, companion connections, and social practices (Costello, *et al.,* 2003). Even subclinical levels of TA can hurt the prospective AA and outcomes related to the development of students (Grover, Ginsburg, & Ialongo, 2007). Students of every academic potential can be affected by TA. The way everyone expresses is different from another. Few students become terrified of tests or examinations and the apprehensions of the reaction of their parents in case of their low AA or failure (Hill, 1980; Grover et al., 2007). Many researchers have investigated that students who are suffering from TA normally require more periods to finish an exam. They also require more effort to reach the degree of AA shown by students who are not sung from TA (Mavilidi, Hoogerheide, & Paas, 2014; Doherty and Wenderoth, 2017).

Trait TA

Trait anxiety is a general characteristic of an individual's personality. Individuals who experience an anxiety trait have an attitude and reaction that reflects their ability to understand the nature of certain environmental stimuli and stressful situations as more or less difficult or threatening. People who develop a more anxious trait are more prone to reacting to a large level of stimuli and will be able to worry in less dangerous and hard situations. Trait anxiety can be difficult to isolate and measure directly because it is not typically manifested in behaviour (Kvaal, Ulstein, Nordhus, and Engedal, 2005). They define trait anxiety as relatively stable individual differences in anxiety proneness, that is, differences in the disposition to perceive a wide range of stimulus situations as dangerous or threatening, and the tendency to respond to such threats with state anxiety reactions. Trait anxiety may also be regarded as reflecting individual differences in the frequency and intensity with which state anxiety has been manifested in the past, and in the possibility that such states will be experienced in the future (Kvaal *et al.,* 2005).

State Anxiety (SA)

SA is defined as anxiety that only manifests in specific circumstances and typically has a clear trigger point. Not everyone who experiences high levels of anxiety will also experience high levels of trait anxiety; nonetheless, if trait anxiety is high, SA will also be high (Chishti and Rana, 2021). Anxiety about state tests is a temporary emotional condition characterized by tension and apprehension. High-anxious people react to testing by elevating their state (emotionality), and the state manifestations then cause cognition to be triggered. In general, it's possible to consider how evaluative circumstances and trait anxiety interact to cause state TA (Zeidner and Matthews, 2017).

Situation-specific Anxiety

A specific kind of circumstance or incident sets up situation-specific anxiety (MacIntyre and Gardner, 1994). This anxiety is a common psychological emotion that happens in a variety of settings, including job interviews and exams. Another one has to do with the general orientation of anxiety and specific learning contexts or scenarios when the learner does not feel capable of being proficient in passing a test (Amsalework, 2014; Chishti and Rana, 2021). Stressful evaluative contexts, stimuli, and variable anxiety

states that are encountered during a test circumstance are all examples of TA (Zeidner and Matthews, 2017).

Gender Effect

An important aspect that impacts on TA level is gender. Girls constantly scored higher as compared to boys in terms of TA (Unal-Karaguven, 2015). A comparison of TA levels of both genders indicated that females scored higher as compared to males (Paul, 2013). This can be because of females' willingness to describe TA indications (Hill & Sarason, 1966). Girls are focused on putting more effort into getting higher AA scores; on the other hand, males are more inclined toward the reasoning ability, while striving for higher AA (Zember & Blume, 2011). The effect of gender on students' academic achievement scores has been widely explored for centuries (Etile, 2005). When the comparison is made in the gender differences between boy and girl students, girl students were found to show higher achievement scores in certain instances (Chambers & Schreiber, 2004).

Effect TA

Some of the consequences of TA are natural and detectable for example weeping, becoming sick, or unethical conduct like deceiving. Many precise consequences can have a long-run impact on students. A few of them are academic motivation, students' behaviour towards academics, and the students' self-respect. It can inhibit students from giving her/his full potential. TA level of students reduces their enthusiasm for learning. If a student considers a test to be more frightening, there would be an increase in anxiety levels before the examinations (Amiri & Ghonsooly, 2015). Students with TA problems have inappropriate working styles and lack test-solving techniques. Various study strategies should be taught because of the individual differences in students (Bass, Burroughs, Gallion & Hodel, 2002). Such techniques aid students to keep themselves calm, attentive, and motivated while preparing for examinations. Moreover, teachers can communicate with parents about developing good study habits. Handling to cope with TA is an integral research area. The right coping strategy according to the student's particular TA issues promotes positive functioning and additional outcomes (Bass *et al*,, 2002; Stober, 2004).

METHOD

A correlational research method design was used to investigate the influence of TA on freshman SAA at DDU, HU, and JJU. Quantitative data were collected through a questionnaire from the participants. A correlational research design consists of quantitative data to help elaborate on the quantitative results (Creswell, 2018). The target population of this study was freshman students who joined DDU, HU, and JJU in 2022. The total population of this study was 6,807. HU had 2811 students (1892 natural and 919 social science); JJU had 1937 students (899 natural and 1038 social science); and DDU also had 2059 students (1183 natural and 876 social science). The sample size of this study was 378 freshman students from three universities. 150 students were selected from HU; 108 from JJU, and the rest 114 were selected from DDU through stratified and systematic random sampling techniques. The researchers applied Taro's

(1967) formula that has been used to determine the sample size for a well-defined population. Accordingly, a 95% confidence interval or an alpha value (α) = .05 was used to test the significance level of the statistical findings.

$$n = \frac{Ni}{1 + Ni(\alpha)^2}$$

Where $n =$ the sample size

$N =$ Population size

$\alpha =$ the level of precision

$$n_i = \frac{6807}{1+6807(0.05)^2} = \frac{6807}{18.02} = 377.7 \approx 378$$

378 questionnaires were distributed and 353 of them were returned to the researchers with a return rate of 93.40%. The researchers used a questionnaire to collect pertinent information from the respondents. The questionnaire consists of two sections: demographic information of the respondents and the measurement of the components of TA (cognitive, behavioural, and emotional). The second section had 50 items sourcing information on the components of TA (cognitive- 15 items, behavioural-15 items, emotional- 15 items and academic achievement 5 items). The items in the section were scored based on five-point Likert scale ranging from 1 = Strongly disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, and 5 = Strongly agree. Furthermore, the researchers believe that academic achievement (AA) was viewed as multifaceted-encompassing not just grades but also skills, research, extracurricular activities, and the ability to apply learning in real-world contexts. Since finding all these metrics has been too difficult, the researchers preferred to use the Grade Point Average (GPA) of a semester from the three universities for two reasons; (i) GPA is one of the most commonly used measures that can easily be calculated by averaging the grades a student receives in their courses, often weighted by the number of credits the course carries. (ii) Easy to calculate, and widely understood.

FINDINGS

To answer the first basic research question entitled, "To what extent does TA influence freshman SAA at DDU, HU, and JJU?" The researchers collected data through a questionnaire and analysed it as follows.

Table 1
Regression analysis of the influence of TA on freshman SAA

Model	R	R^2	USC		SC	t	Sig.
	0.71	.50	B	SE	Beta		
Constant			4.71	0.10		45.21	0.00
Cognitive			-0.31	0.04	-0.47	-8.07	0.00
Behavioural			-0.09	0.03	-0.16	-3.34	0.01
Emotional			-0.13	0.04	-0.19	-3.25	0.01
a. Predictors: (Constant), Cognitive, behavioral, emotional							
b. Dependent Variable: grade point average (GPA)							

As revealed in Table 1, the stepwise multiple linear regression analysis about the influence of TA on freshman SAA was associated with the component of TA that has been measured by the regression correlation coefficient (.71). These components contributed 50% to freshman SAA as measured by stepwise multiple linear regression coefficients (R^2) *100 which is a coefficient of variation (explained variable or effect size). The accompanying computer printout shows a multiple regression equation that predicts the influences of TA where cognitive influence (x_1), behavioral influence (x_2), and emotional influence(x_3) were expressed by statistically significant independent variables: $Y = 4.71- .31x_1- .09x_2-.13x_3$ where 4.71 is constant. Firstly, 4.71 is the constant that can be used to predict the SAA (that has been measured by GPA) when all the predictors (cognitive, behavioral, and emotional influences) have been kept at zero. Although this value may not be meaningful in a real-world context (since a GPA with zero cognitive, zero behavioral, and zero emotional influences do not exist), it is part of the model's mathematical structure. Secondly, the cognitive coefficient (-.31) means that for each increment of a unit of the cognitive component of TA, the SAA (that has been measured by) GPA) is expected to decrease by .31, holding the behavioral and the emotional influences kept constant. Thirdly, the behavioral coefficient (-09) indicates that for each increment of a unit of behavioral components of TA, the SAA (that has been measured by GPA) is expected to decrease by .09, holding cognitive and emotional influences constant. Finally, the emotional components of the TA coefficient (-.13) suggest that for each increment of a unit of the emotional components of TA, the SAA (that has been measured by GPA) is expected to decrease by .13, holding cognitive and the behavioral components of the TA kept constant. The open-ended items from the questionnaire part indicated that as many students experienced with TA during the tests, students with high levels of TA in particular, experience distractions during exams and difficulties preparing for exams. Studying for a long period, and being emotionally disturbed (fainting and headaches among freshman students resulted in increasing dropout rates at the university, exam failures, and withdrawal from university.

Table 2
Gender difference among freshman SAA as the result of TA

Variables		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig.	MD	SED	95% CID	
									Lower	Upper
GPA	unequal variances assumed	13.60	.00	2.27	351	.02	0.13	.06	.02	.24

As depicted in Table 2, an independent-sample t-test was conducted to evaluate the gender difference among freshman SAAs as a result of TA. The result of Levene's test, F (2, 351) =13.60, $p < .05$, indicated the variances of the two populations were assumed to be unequal. Thus, the unequal variances assumption was used. Therefore, it was found that there was a statistically significant mean difference between genders on TA, t (351) = 2.27, $p < .05$, two-tailed. The 95% confidence interval of the difference between the means was 0.02 to 0.24. It shows that female freshman students were more affected than males by TA when compared with male freshman SAA as measured by GPA.

Table 3
Pearson correlations matrices among sex, GPA, and TA components

No	Variables	1	2	3	4
1.	Grade Point Average (GPA)	1	-.71**	-.54**	-.63**
2.	Cognitive component (CC)		1	.59**	.76**
3.	Behavioural component (BC)			1	.56**
4.	Emotional component (EC)				1

**. $p < .01$ (2-tailed)
*. $P<.05$ (2-tailed)

To answer the second basic research hypothesis entitled, "There are no statistically significant relationships among the components of TA and freshman SAA at the three universities." The researcher collected data through a questionnaire and analyzed it as follows. Table 3 depicts that there were statistically significant negative relationships among the three components of TA (cognitive, behavioral, and emotional) with freshman SAA as measured by GPA, r (351) = -.71**, r (351) = -.54**, and r (351) = -.63**, $p < .01$, two-tailed, respectively. Of all the three independent variables, the cognitive components of TA were the highest contributing factor followed by emotional and the least contributing factors were the behavioral components of TA. This means that TA had a negative relationship with freshman SAA.

Table 4
ANOVA Summary Table among the three universities on the influences of TA

Sources of Variation	Sum of Squares	df	Mean of Squares	F	Sig.
Between Groups	2.67	2	1.33	6.05	0.03
Within Groups	77.74	350	0.22		
Total	80.4	352			

*p < .05 one-tailed

Table 4 reveals that there were statistically significant mean differences among the three universities on the influence of TA among the freshman SAA as measured by GPA, F (2, 350) = 6.05, p < .05, one-tailed. It showed that there were differences among the three universities on the influences of TA on freshman SAA.

Table 5
Multi-comparisons (Post Hoc) on the influences of TA among the three universities

(I) Name of Universities	(J) Name of Universities	Mean Difference (I-J)	Std. Error	Sig.
HU	JJU	-.21*	.06	.02
DDU	JJU	-.16*	.07	.03
	HU	.21*	.06	.02

*p < 0.05 level.

As Table 6 reveals there were statistically significant mean differences among the three universities on the influences of TA components as it was measured through GPA. As the mean differences indicated in the table (see Table 5), the mean difference between HU and JJU was relatively highly negative; the mean difference between DDU and HU was still highly positive whereas the mean difference between DDU and JJU was relatively the least with negative. It was shown that the level of TA among freshman students was high at HU when compared with JJU. This indicated that there was a high level of TA associated with low AA.

DISCUSSIONS

TA is a complex psychological response that involves multiple components, and each of these components contributes to the overall experience of anxiety during testing situations. The key components of TA that were identified in the current study can be broken down into cognitive, behavioral, and emotional. The way each of these components contributes to TA as a whole is that the cognitive components where firstly, the negative thoughts and worry were a major cognitive contributor to TA is the tendency to engage in negative thinking or worry. This includes fears about failing, doubts about one's abilities, and catastrophic predictions about the consequences of failure (Ndirangu *et al.,* 2009; Rana and Mahmood, 2010; Bolbolian et al., 2021; Balogun *et al.,* 2017). Secondly, the overestimation of threats of the cognitive components of TA indicated that freshman students with TA often overestimate the threat posed by the test. They may see the test as an insurmountable challenge rather than a manageable task, which increases their stress level. Thirdly, focus on performance of cognitive component of TA suggests that an excessive focus on the outcome of the test (e.g., getting a good grade) rather than on the process (e.g., doing

their best, applying learned strategies) can lead to a constant stream of anxious thoughts. Fourthly, self-doubt of cognitive component of TA resulted among the students to constantly questioning one's abilities, feeling unprepared, or thinking that "others are better than me" can make anxiety worse and prevent a student from focusing effectively during the test. Generally, the cognitive components of TA were identified as the strongest contributing factor to the overall TA. These cognitive distortions and fears make the individual more likely to panic or freeze, impairing concentration, reducing test performance, and reinforcing the anxiety cycle (Etile, 2005; Khalid and Hasan, 2009; Rana and Mahmood, 2010; Zember & Blume, 2011; Paul, 2013; Bolbolian *et al*., 2021).

The behavioral components of TA are indicated that firstly, avoidance is a common behavioral response to TA. Students might procrastinate studying, avoid looking at study materials, or even try to avoid taking the test altogether (e.g., feigning illness). This avoidance behavior, in turn, can increase anxiety because it prevents preparation and reinforces the fear of failure. Secondly, test-taking behaviors to some individuals might engage in maladaptive test-taking strategies, such as rushing through the test, second-guessing answers, or not following instructions, all of which can result in poor performance. Thirdly, escape behaviors during the test imply that some students may engage in behaviors to distract themselves from the anxiety, such as repeatedly looking at the clock, fidgeting, or even leaving the test room early (if possible). These behaviors reduce the opportunity for effective studying and preparation, which can lead to even more anxiety. Moreover, avoiding or rushing through the test prevents the individual from performing to the best of their ability, creating a self-fulfilling prophecy where poor performance reinforces anxiety (Mavilidi, Hoogerheide, & Paas, 2014; Putwain and Symes, 2020; Ali et al., 2021).

The third component of TA in the current study was emotional components that include fear of failure, shame and embarrassment, and helplessness. These suggested that at the heart of TA is often a deep-seated fear of failure. This fear might stem from personal experiences, high expectations, or external pressure (e.g., parental or societal). Students might fear embarrassment if they fail the test, especially if they believe others expect them to succeed. This fear can create a sense of inadequacy. Some individuals experience a sense of helplessness during testing, feeling that no matter how hard they study or prepare, they are doomed to fail. These emotional reactions can create a heightened state of arousal and distress, making it difficult for the individual to think clearly, which further worsens anxiety and performance (Bass *et al*., 2002; Stober, 2004; Amiri & Ghonsooly, 2015; Zeidner and Matthews, 2017; Chishti and Rana, 2021). All of these components work together to create a cycle of anxiety in that (i) cognitive distortions lead to emotional reactions like fear of failure, which trigger physiological responses such as a racing heart and shallow breathing, making the individual feel even more anxious. (ii) these physical symptoms can impair test performance, leading to avoidance behaviors or poor test-taking strategies, which in turn can reinforce negative thoughts and feelings, perpetuating TA (Putwain and Symes, 2020).

The extent to which TA influence freshman SAA at the three public universities in the study area indicated that the three TA components (cognitive, behavioral, and emotional) were significantly predicted the level of SAA. In line with this finding, Cassady and Johnson (2002) suggested that the cognitive component of TA exerts a significant, stable, and negative influence on SAA. Furthermore, Rana and Mahmood (2010) stated that the cognitive component has a significant role in generating anxiety among students' emotionality. The students with high TA have low AA, and those with low TA have high AA (Khalid and Hasan, 2009). Besides, they emphasized that the emotional components of TA have negatively affected the SAAs. Students with high levels of TA fear humiliation, irrational, and negative thoughts, more stress about tests, poor test performance, and grades (Bolbolian et al., 2021). It was found that there were significant men differences between genders in the three components of TA. In line with this finding, Paul (2013) indicated that girls scored higher as compared to boys. Girls are focused on putting more effort into getting higher AA scores; on the other hand, boys are more inclined toward reasoning ability, while striving for higher AA (Zember & Blume, 2011). The effect of gender on students' AA scores has been widely explored for centuries (Etile, 2005).

The three components of TA (cognitive, behavioral, and emotional) were significantly and negatively correlated to freshman SAA. In line with this finding, Amsalework; (2014); Ali *et al*. (2021); Kultur & Ozcan (2022) found that there was a significant negative relationship between TA scores even though the context of the study was too different. TA explained a low part of the variance of test performance and low SAA. However, the emotional components of TA had significantly negative but weak relationships with SAA (Kultur and Ozcan, 2022; Bass, Burroughs, Gallion, & Hodel (2002). As a result, a variety of study strategies should be taught because of the individual differences in students such as helping students keep themselves calm, attentive, and motivated while preparing for examinations. Moreover, teachers should communicate with students about developing good study habits. Even subclinical levels of TA can hurt the prospective SAAs and outcomes related to the development of students (Grover, Ginsburg, & Ialongo, 2007). Students of every academic potential can be affected by TA. Few students become terrified in tests or examinations because of the apprehensions of the reaction of their parents in case of their low AAs or failure (Hill, 1980). Many researchers have investigated that students who are suffering from TA normally require more periods to finish an exam. They also require more effort to reach the degree of AAs shown by students who are not suffering from TA (Mavilidi, Hoogerheide, & Paas, 2014).

Some key ways students can manage and reduce TA include (i) preparation and planning (starting early where last-minute cramming often increases TA). (ii) Relaxation techniques that include breathing exercises, progressive muscle relaxation, and visualization can drastically reduce the levels of TA. (iii) Mindfulness and positive thinking involve staying present and focused on the task, rather than worrying about the outcome. Techniques like grounding (noticing what they see, hear, or feel in the present moment) can reduce anxious thoughts. Positive Self-Talk that can be used to replace negative thoughts ("I am going to fail," "I am not ready") with more positive, realistic

affirmations ("I am prepared," "I will do my best") can shift the mindset. (iv) Healthy lifestyle choices that include adequate sleep are crucial for cognitive function, focus, and overall well-being. Moreover, regular physical activity can help them reduce overall stress levels. Avoiding too much caffeine or sugary snacks is important as they can lead to energy crashes or jitters (Sisay et al., 2020; Cowel *et al.*, 2023). Finally, test accommodations such as extended time, a quiet room, or breaks during the test may be available for students with more severe anxiety. These accommodations can help level the playing field and reduce anxiety during the test-taking process. By combining preparation, relaxation techniques, and positive thinking, students can manage TA and perform more effectively. Over time, practicing these strategies can lead to less stress and greater resilience when faced with high-pressure situations (Ndirangu *et al.*, 2009; Rana and Mahmood, 2010; Balogun *et al.*, 2017; Sisay et al., 2020; Bolbolian et al., 2021; Cowel *et al.*, 2023).

The finding of the current study reveals that there were significant mean differences among the three public universities on the influences of TA. As the mean differences indicated in the table (see Table 5), HU and JJU were relatively highly negative; the mean difference between DDU and HU was still highly positive whereas the mean difference between DDU and JJU was relatively the least negative. It was shown that the level of TA among freshman students was high at HU when compared with JJU, because of exam administration strictness, the hard history of HU on theft and plagiarism, well-qualified, experienced, and committed academic staff in assessing and evaluating of students learning, high competition among students, large population size, and some low achievers who have probably been assigned by Ministry of Education. On the contrary, this was inconsistent with a study conducted in Iran to determine the level of TA and contributing factors among freshman students (Miri, Piroozan, Naderi, Rezaei, 2013) and needs further study. The other reason might be when the parents' educational status is certifiable and above, the pressure that the students get from their fathers to work hard to be disliked, and getting from their mothers to work hard to be like them. In this study, components of TA were significantly associated with TA. This is supported by previous works carried out on TA and psychological distress. Therefore, the use of effective psychological interventions to TA, reduce psychological distress, and enhance academic motivation is required (Grover et al., 2007; Mavilidi *et al*., 2014; Miri *et al.*, 2013; Ali *et al*., 202; Cowel *et al.*, 2023).

CONCLUSIONS

The following conclusions were drawn based on the entire study and a summary of the above major findings. Most of the students feel anxiety during exams. The majority of students feel upset before taking the examination. They found much fear of failure in exams during the test. Due to the intensity of test stress, they got nervous and forgot the facts they knew. They are unable to attempt the test well even prepared for that. To go over the main point, TA matters for students during and before the exams because of fear of failure, competition with other classmates and friends, or fear of losing the race competition influences the performance of students. The three components of TA (cognitive, behavioral, and emotional) negatively affected the freshman SAA even though there were significant differences among the three universities. Above all, the

cognitive and emotional components were more directly affecting freshman SAA which led to poor AA. The cognitive, behavioral, and emotional components of TA had a high, moderate, and moderate significant negative relationship with freshman SAA, respectively. Students with a high level of TA were correlated with low AA whereas students with low and moderate levels of TA were correlated with high AA. Therefore, the cognitive, behavioral, and emotional components of TA were good predictors of SAA at the three Eastern Public Ethiopian Universities. Moreover, TA components significantly resulted in gender differences among freshman SAA in the three universities. Thus, test-anxious students became more aware of their knowledge deficits, which might have led to higher anxiety. Hence, test-anxious students need to acquire strategies that help them effectively acquire new knowledge and avoid repeated failure interventions aiming at reducing TA shortly before or during evaluative situations may not have the intended impact because they cannot offset knowledge deficits.

Students should use their time effectively during the exam; they should study and be ready for the exam; they should think positively about the exam; they should motivate themselves by resting or sleeping before entering the exam room; they should feel confident about their performance; they should minimize study for a long time during the exam week, and feel confident about their performance during the test. Freshman instructors, freshman program directors, and other stakeholders should give test-taking skills, study skills, and other academic skills like training; they should give a gap during the examination for students (i.e., lack of enough time for study and preparation is one cause of TA); They should give critical orientation for the students on how to effectively use their time, manage the challenges during the exam; they should provide worksheets, a tutorial class for the students, particularly for female students.

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