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(Original Research)

Test Anxiety Among Special Education Students at the University of Dohuk, Iraq: Prevalence, Predictors, and Intervention Implications

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Abstract: The objective of this study was to investigate the level of test anxiety of special education students at the University of Dohuk, College of Basic Education. By using a descriptive approach, the study assessed test anxiety among randomly selected students of the second and fourth years. A sample of sixty students with evenly distributed gender and academic year was taken. A test anxiety scale was established validity and reliability by employed to gather data. Statistical analysis revealed that the special education students showed above-average levels of test anxiety, which statistically significant relative to the hypothetical mean. Data showed no statistically significant differences in test anxiety levels by gender or year of study in the university. These findings highlight the universality of test anxiety as a pervasive phenomenon among special education students irrespective of gender or year of study. Findings suggesting a need for comprehensive interventions that will help such students acquire quality coping strategies, or psychological support for test anxiety and improve overall performance throughout their studies.

Keywords: Test anxiety, Special education, University students, Gender differences, Academic level.

1.   Introduction

Test anxiety is one of the most relevant psychological challenges faced by university students all over the world and has significant implications for academic performance, mental well-being, and career development. Prevalence rates of test anxiety in university students have been found to range between 15% and 22% and are determined by gender, ethnicity, and socioeconomic status (von der Embse et al., 2018).

Empirical research invariably illustrates that test anxiety can critically disrupt students' thinking processes under testing conditions. Physical stress reactions characterized by test anxiety occur when learners are faced with evaluative settings, resulting in physical, thinking, and conduct disturbances (Jirjees et al., 2024). Not only does test anxiety impact immediate testing performance, it can substantially alter students' socio-emotional, emotional, and academic well-being in the long term (Batra et al., 2023).

Incidence of anxiety among college and university students has been on the increase, with a recent study indicating a median incidence of 32% between studies (7.4% to 55%) with higher incidence among undergraduates, females, and Asian institution students compared to European institution students (Batra et al., 2023). The COVID-19 pandemic also furthered the trend by introducing new sources of stress into learning environments worldwide (Qolamani, 2022).

For special education students specifically, test anxiety has specific challenges. Special education students are learning to serve vulnerable populations and must learn complex education theory as well as practical application (Fishstrom et al., 2022). It has been found that there are several factors that affect test anxiety in university students, including psychological distress, study location, and parental education level (Tsegay et al., 2019). Studies indicated that health science and medical students were subjected to particularly high anxiety levels, suggesting that demanding professional preparation courses could create additional stresses (Hanfesa et al., 2020).

Recent research emphasized that academic anxiety may have a powerful impact on students' academic performance and emotional well-being, such that specific interventions would be needed to reduce both anxiety and outcome achievement (Fishstrom et al., 2022). Subsequent research found that students' subjective sense of course difficulty had a powerful impact on their test anxiety and academic performance, suggesting subjective definitions of academic difficulty are of special significance (Ballen et al., 2019).

In Middle Eastern educational environments, educational stress is compounded by socioeconomic problems and shifting professional demands (Jarso et al., 2023). Research that was done reported test anxiety prevalence rates of more than 54% among health science students, with significant impacts on academic performance and retention (Hanfesa et al., 2020). It is important to comprehend these trends in order to develop effective support systems in schools (von der Embse et al., 2018).

Test anxiety has been conceptualized as a multidimensional construct that involves cognitive, emotional, behavioral, and physiological dimensions (Putwain et al., 2021). The cognitive dimension involves concern over potential failure and its consequence, while the emotional dimension involves feelings of tension, apprehension, and nervousness (Eysenck et al., 2022). Behaviorally, test anxiety may be manifested in avoidance, procrastination, or study habits (Brenner, 2022). Physiologically, it may be experienced as increased heart rate, sweating, and gastrointestinal distress (Jerrim, 2023).

Understanding the contributory factors for test anxiety is essential in developing pragmatic interventions. They are personality traits, academic self-concept, previous experience in testing, perceived test difficulty, and environmental factors (Morinaj & Hascher, 2022). Sex differences have been consistently noted, with female students typically reporting higher levels than males (Harpell & Andrews, 2023). These findings, however, are not applicable to all educational environments and may be influenced by cultural and societal factors (Widlund et al., 2020).

The correlation between test anxiety and performance is established, and meta-analyses have persistently indicated negative correlations between anxiety and performance on exams (von der Embse et al., 2018). These effects appear particularly prominent for multidimensional and cognitively demanding tasks, perhaps to explain the overwhelming impact on students of higher learning. Current research shows that test anxiety can explain 5-10% of variance in the performance

of university students on examinations, a gigantic effect on academic achievement (Tan & Pang, 2023).

In Kurdistaion test anxiety is a very common issue that affects students' academic performance and their well-being in schools, and even in colleges. There are several studies have reported high levels of exam anxiety among students at different educational levels (Faqe et al., 2016; Hatami & Ardalan, 2010). And there are many factors involved, such as gender, field of study, and displacement have been linked to varying levels of anxiety (Khammo & Cavusoglu, 2016; Khammo, 2015). Despite its prevalence, test anxiety remains an under-addressed issue in local educational policy and support systems, as there is not much for those who are anxious in exams e,g, choosing oral or written exam (all have to do one exam system). Understanding its impact is essential for developing effective interventions to support students' academic success.

2. Literature Review

Test anxiety is a multidimensional psychological condition that gets significant attention in education research due to its pervasiveness and impact on the performance of learners during examination times. It is a specific kind of anxiety that occurs before, during, or after evaluative situations such as tests or exams (Zeidner, 1998). The term has been conceptualized in various ways in literature due to its multidimensionality and several effects on the learning process of learners (Putwain et al., 2021).

Current studies operationalize test anxiety as an evaluative situation-specific trait characterized by the experience of cognitive, emotional, physiological, and behaviorally (undesirable) responses to test situations (Putwain et al., 2021). On the cognitive level, test anxiety manifests as worry, negative self-referential cognitions, and attention-concentration problems (von der Embse et al., 2018). The affective experience will involve nervousness, tension, and apprehension, but the physiological responses can be increased heart rate, sweating, and gastrointestinal upset (Jerrim, 2023). University student test anxiety has been found by a number of studies to exist at different rates based on the population being assessed and assessment approach. A meta-analysis of rates of prevalence estimated rates between 15% to 40% in college students, with particularly high rates in competitive educational environments (Hembree, 2019).

Multiple theoretical frameworks have been proposed to explain test anxiety's mechanisms and effects. The cognitive-attentional interference model suggests that test anxiety diverts cognitive resources away from task-relevant activities toward worry and self-preoccupation (Eysenck et al., 2022). This theory explains why high test-anxious students often perform below their potential despite adequate preparation (Wine, 1982). Supporting this perspective, brain imaging studies have documented altered neural activation patterns in test-anxious individuals, with hyperactivity in emotion-processing regions and reduced activation in executive function areas (Hembree, 2019).

The skills deficit model, alternatively, proposes that test anxiety stems from inadequate academic preparation and study strategies (Naveh-Benjamin et al., 2020). According to this perspective, students develop anxiety because they recognize their insufficient preparation, creating a negative cycle of anxiety and underperformance (Naveh-Benjamin et al., 2020). Research supporting this model demonstrates that interventions targeting study skills significantly reduce test anxiety for many students (Park et al., 2014).

Self-regulation theory provides another valuable framework, emphasizing the role of metacognitive processes in test anxiety (Brenner, 2022). This approach highlights how students' ability to monitor and regulate their learning processes, emotional states, and performance expectations can either mitigate or exacerbate test anxiety. Research found that students with stronger metacognitive skills reported lower test anxiety levels and demonstrated greater resilience in evaluative contexts (Silaj et al., 2021).

Gender differences in test anxiety have been consistently documented across studies. Meta-analytic findings confirmed that female students typically report higher levels of test anxiety than their male counterparts (Harpell & Andrews, 2023). These differences appear to persist across cultures and educational levels. However, the causes of these gender disparities remain contested. Some researchers attribute them to socialization factors and differential performance expectations (Widlund et al, 2020). Research specifically identified female gender as a significant predictor of test anxiety among university students, alongside younger age and junior academic status (Jirjees et al., 2024).

Academic level also appears to influence test anxiety patterns, although findings are somewhat inconsistent. Longitudinal studies show that test anxiety typically happens during transitional periods, such as the first and last years of university education (Khalaila, 2021). First-year students are usually plagued by anxiety regarding adapting to new academic expectations and performance levels, while fourth-year students are stressed by professional preparation and high-stakes culmination exams (Khalaila, 2021). Explaining the pattern, research has shown that first-year health science students exhibited unusually high levels of test anxiety (Hanfesa et al., 2020).

Various intervention strategies have proven effective at reducing test anxiety in students of a university. Cognitive-behavioral interventions that tackle restructuring of negative cognition and coping self-statements have proven consistently to be effective (Parrish, 2022). Mindfulness-based and relaxation training have also been reported to be beneficial, helping to aid students with the regulation of physiological arousal as well as to remain present while being examined (Chen et al., 2021). Moreover, academic skills interventions for study strategy, test-taking strategies, and time management have been found to be effective, especially for those students whose anxiety is due to preparation deficits (Kaur Khaira et al., 2023).

In the specific context of students with special education, there have been few studies examining patterns of test anxiety and effective interventions. Existing evidence shows that these students can be assisted through integrated strategies that combine cognitive-behavioral approaches with learning academic skills. More studies are needed to develop individualized interventions that address the unique needs and difficulties of this population (Aspelin et al., 2021).

Understanding test anxiety among special education students in diverse cultural contexts remains an important research demand. Most prior studies were conducted in Western educational settings, limiting our understanding of how cultural factors could influence expressions and effective interventions in other settings (Tan & Pang, 2023). The aim of this research is to contribute to filling that gap by evaluating test anxiety among Iraqi Kurdish learners and contributing an informed voice to our comprehension of a compelling global educational issue.

3. Methods

This section outlines the methodology adopted in the current research, presenting the procedures followed to achieve the research objectives. The research utilized a descriptive approach to investigate test anxiety among students of the Department of Special Education at the College of Basic Education, University of Dohuk.

3.1 Research Method

The researchers employed the descriptive method as it was deemed appropriate to the nature and objectives of this study. This approach allowed for collecting and analyzing data regarding test anxiety levels among special education students without manipulating variables.

3.2 Research Population

Having an official approval to carry out the research, the sample of the study was set as all students of the Department of Special Education of the College of Basic Education, University of Dohuk, who were pursuing morning studies in the 2024-2025 academic year. The population consisted of a total of 384 students (105 male and 243 female).

3.3 Research Sample

To achieve the research objectives and collect needed information, the researchers randomly sampled 60 students from the Department of Special Education, equally divided between academic years (second year and fourth year) and gender. The sample included 15 male and 15 female students at each of the second and fourth year levels, meaning that there were 30 students per year level. Both years (first and Third) were excluded due to some reasons, such as the first-year students being new to such an environment and most of them being new to mixed classes (male and female), which could impact their psychological status. Also, since the third year is close to the second year, it was preferred to take the fourth year to find if there are differences between the second and fourth years.

3.4 Research Instrument

To meet the research objectives, there was a need for a measuring tool for test anxiety. After reviewing numerous previous research studies and measures on test anxiety, the researchers utilized the measure created by Al-Ghadi (2011), as the present research participants were suitable since it was previously used for students in universities and therefore was capable of suiting this research sample as well with a virtually similar demographic background. It contains 34 items with four responses each (strongly agree, agree, disagree, strongly disagree).

3.5 Psychometric Properties of the Scale

Validity

Validity is one of the most important attributes in determining whether a scale is valid or not. To ensure the validity of the instrument, the researchers placed the scale in front of an experts' committee and educators and psychologists who are specialists in their area. Based on the experts'

points of view and observations made, each item had an 80% agreement rate and above, which was employed as the item acceptance criterion. A few recommended comments and adjustments were made on the scale after revision to fit the cultural context for the Duhok area. For that, the instrument was thus found to possess adequate validity.

Reliability

Reliability is another critical characteristic that follows validity. Split-half technique was employed by the researchers to determine the reliability coefficient of the instrument. Spearman-Brown formula was employed in order to obtain the reliability coefficient odd and even items, and it was obtained as 0.79 with a high correlation coefficient. Therefore, the scale was established to utilize.

Implementation and Scoring

After completing the instrument and preparing it for administration, the researchers administered it to the sample of 60 students. The researchers explained the purpose of the research and how to answer the items in the scale. The administration process took approximately two weeks with a mean response time of about 20 minutes for each student. After completing the application process, the researchers scored the responses using 4 for "strongly agree," 3 for "agree," 2 for "disagree," and 1 for "strongly disagree." Total scores based on each student's responses to the scale items were calculated using this.

Statistical Methods

The researchers relied on the Statistical Package for Social Sciences (SPSS) to process the data using the following formulas:

- Expert agreement coefficient for the face validity of the research instrument
- Spearman-Brown correlation coefficient to calculate the reliability coefficient of the instrument
- T-test for one sample to determine the level of test anxiety among Special Education students

T-test for two independent samples to detect significant differences in test anxiety levels among Special Education students according to variables (gender, academic level)

4. Result

The results are presented according to the research objectives as follows:

First Objective: Identifying the Level of Test Anxiety Among Special Education Students

To achieve this objective, the data were statistically processed using SPSS. The mean and standard deviation of the sample scores (n=60) were calculated and compared with the hypothetical mean of 85. The results are presented in Table 1.

Table 1: Results of the T-test for One Sample to Measure the Level of Test Anxiety

Sample Size	Observed Mean	Hypothetical Mean	Standard Deviation	Calculated T-value	Tabulated T-value	Significance
60	91.85	85	14.75	3.595	1.98	Statistically significant

The results show that the observed mean of the sample scores on the research instrument was 91.85 with a standard deviation of 14.75. The calculated t-value was 3.595, which is statistically significant at the 0.05 level with 59 degrees of freedom. When compared with the tabulated value of 1.98, the results indicate statistically significant differences, demonstrating an above-average level of test anxiety among the research sample.

Second Objective: Identifying Significant Differences in Test Anxiety Levels According to Variables (Gender, Academic Level)

Differences in Test Anxiety Levels According to Gender

To verify this objective, the researchers analyzed male and female results on the research instrument and statistically processed them by applying the t-test for two independent samples using SPSS. The results are presented in Table 2.

Table 2: Statistical Differences in Test Anxiety Levels According to Gender

Gender	Sample Size	Mean	Standard Deviation	Calculated T-value	Tabulated T-value	Significance
Males	30	91.93	15.68	0.043	1.98	Not significant
Females	30	91.76	14.03			

The table shows that the male group (n=30) had a mean score of 91.93 with a standard deviation of 15.68, while the female group (n=30) had a mean score of 91.76 with a standard deviation of 14.03. The calculated t-value for the gender variable was 0.043, which is smaller than the tabulated value of 1.98. This indicates no statistically significant differences between males and females in test anxiety levels.

Differences in Test Anxiety Levels According to Academic Level

To verify this objective, the researchers analyzed the results of second-year and fourth-year students on the research instrument and statistically processed them by applying the t-test for two independent samples using SPSS. The results are presented in Table 3.

Table 3: Statistical Differences in Test Anxiety Levels According to Academic Level

Academic Level	Sample Size	Mean	Standard Deviation	Calculated T-value	Tabulated T-value	Significance
Second Year	30	93.66	16.53	0.939	1.98	Not significant
Fourth Year	30	89.86	14.76			

The table shows that second-year students (n=30) had a mean score of 93.66 with a standard deviation of 16.53, while fourth-year students (n=30) had a mean score of 89.86 with a standard deviation of 14.76. The calculated t-value for the academic level variable was 0.939, which is smaller

than the tabulated value of 1.98. This indicates no statistically significant differences between second-year and fourth-year students in test anxiety levels.

5. Discussion

The findings of this study are insightful as far as knowing the incidence and trends of test anxiety among special education students at the University of Dohuk's College of Basic Education are concerned. From the findings, it can be seen that the degree of test anxiety among the students is significantly above the theoretical mean, which implies that test anxiety among these students is a significant problem (von der Embse et al., 2018). These high anxiety levels are consistent with the literature emphasizing the prevalence of test anxiety among college students across the globe, particularly those pursuing specialized or professional preparation programs (Tsegay et al., 2019).

The above-average test anxiety levels in the current study are consistent with reports from similar populations. A study revealed a 54.7% test anxiety prevalence rate among first-year health science students (Hanfesa et al., 2020), and other studies revealed a 52.3% prevalence rate among medical students (Tsegay et al., 2019). Such similar findings show that students in professional preparation programs like special education may be experiencing heightened anxiety emanating from academic performance and evaluative settings. The rigour of special education programmes, with their focus on both theoretical knowledge and practical application, may be a contributory factor in these elevated levels of anxiety (Fishstrom et al., 2022).

The absence of gender disparities in levels of test anxiety in the sample is somewhat surprising given previous research in this area. The majority of past studies, including large meta-analyses, have demonstrated that test anxiety has consistently been reported as higher in female students than in males (Putwain et al., 2021). The lack of gender differences in the present study could be explained by specific characteristics of the sample or the cultural context (Widlund et al, 2020). Perhaps at the Department of Special Education at Dohuk University, both genders experience the same pressures of study and consequently have the same level of anxiety (Yatkin et al., 2023). Alternatively, with the sample size being relatively small (30 males, 30 females), there simply may not have been sufficient statistical power to detect gender differences if they do, in fact, occur in the population (Aspelin et al., 2021).

Similarly, the absence of significant differences in the levels of test anxiety between second-year and fourth-year students contradicts some previous research showing that test anxiety varies by academic level (Khalaila, 2021). However, the current results are consistent with studies that found no significant differences in test anxiety by study year among UAE university students (Jirjees et al., 2024). This consistency across grades could indicate that test anxiety is a widespread concern throughout the special education program, rather than being isolated at particular points of transition (von der Embse et al., 2018).

The stability of test anxiety across all four study years is of educational concern in that it suggests students do not acquire sufficient coping skills or habituate to evaluative situations as they progress through their program (Brenner, 2022). This trend highlights the necessity of early intervention to help students manage test anxiety at the initiation of their academic endeavor, with continuity throughout their school life (Parrish, 2022). Anxiety levels being consistent across academic years

may also be an indicator of assessment pressures being continuous throughout the special education program, with high-stakes tests being given at all stages of study (Tan & Pang, 2023).

The finding that test anxiety is above average for both male and female students and at all levels of academic study has important implications for educational practice (Ballen et al., 2019). It suggests that test anxiety is an institutional-wide problem within the Department of Special Education that must be tackled at the institutional level (Fishstrom et al., 2022). Rather than targeting specific demographic subgroups, support services may need to address the student population as a whole, targeting the universal causes of test anxiety that transcend gender and academic level (Chen et al., 2021).

These results must be considered within the broader educational and cultural context (Jarso et al., 2023). The Kurdish educational system, shared by numerous Middle Eastern nations, puts an enormous emphasis on test scores as the measure of academic success and even future prosperity (Yatkin et al., 2023). The cultural emphasis on high-stakes testing in this population could be responsible for some of the elevated levels of worry observed in these students (von der Embse et al., 2018). In addition, students in the special education program face unique pressures in relation to their future professional roles in dealing with vulnerable populations, potentially compounding performance problems and associated anxiety (Parrish, 2022).

The high test anxiety levels revealed in this study have important ramifications for student wellbeing and academic performance (Fishstrom et al., 2022). Research consistently indicates that test anxiety of high levels negatively impacts academic performance, posing threats to student success and career advancement (von der Embse et al., 2018). Beyond academic impact, the consequences of chronic anxiety can contribute to more broadlybased mental illness, affecting the general wellbeing and quality of life for students (Batra et al., 2023). Minimizing test anxiety should therefore not only be an academic consideration, but a mental health matter (Wood, 2006).

From an intervention perspective, these findings suggest the need for multilevel support interventions addressing the cognitive, emotional, and physiological components of test anxiety (Parrish, 2022). Literature emphasizes that effective interventions typically entail the combination of multiple approaches, which can include cognitive-behavioral techniques, relaxation skill training, study skill building, and academic support (Kaur Khaira et al., 2023). The continuity of test anxiety throughout academic levels suggests that these interventions must be integrated throughout the special education curriculum rather than being targeted at particular transition points (Aspelin et al., 2021).

This study has certain limitations that should be acknowledged, notably the small sample size (n=60) and the focus on a single university, which may restrict the generalizability of the findings. Future research should aim to include larger and more diverse samples to enhance external validity.

Furthermore, culturally contextualized interventions are recommended, considering the collectivist nature of Kurdish society. Interventions involving family, community leaders, and school counselors could provide more effective support for students experiencing test anxiety.

6. Conclusion

This study clearly demonstrates that special education students at the College of Basic Education, University of Dohuk, experience significantly elevated levels of test anxiety, a pervasive phenomenon that transcends gender and academic year distinctions. The absence of notable differences between male and female students, as well as between second- and fourth-year students, indicates that test anxiety emerges early in their academic journey and uniformly affects students throughout their studies. This persistent anxiety suggests insufficient development of effective coping strategies as students' progress, underscoring an urgent need for comprehensive, multifaceted support programs that address the psychological, emotional, and physiological dimensions of test anxiety. Consistent with existing theoretical frameworks on anxiety and academic performance, these findings highlight the importance of integrating anxiety management skills into the special education curriculum. Furthermore, academic institutions should prioritize providing accessible psychological counseling and equipping faculty with the training necessary to identify and support students struggling with test anxiety. Addressing test anxiety holistically—as both a learning challenge and a mental health concern—can enhance students' well-being, academic success, and professional preparedness. Given the collectivist cultural context of Kurdish society, interventions must extend beyond the individual level to include family members, school counselors, and community leaders. Culturally sensitive programs that incorporate community involvement, awareness campaigns, and educational workshops for parents and educators are vital to effectively mitigate test anxiety among these students. Limitations of this study include the relatively small sample size and the focus on a single university, which may limit the generalizability of the results. Future research should aim to examine larger and more diverse populations and explore the effectiveness of culturally tailored interventions through longitudinal and mixed-methods designs. Overall, this study calls for immediate and culturally informed action to better support special education students facing test anxiety, thereby promoting their academic achievement and psychological resilience

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