

Relationship Between Test Anxiety Symptoms and Self-Regulation among Psychology Students at Najran University College of Education: A Correlational Study



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Abstract:

Introduction: The purpose of this study was to ascertain the connection between test anxiety symptoms and self-regulation in Najran University's College of Education Bachelor of Psychology students. Additionally, it seeks to identify self-regulation-related predictors of test anxiety symptoms.

Methods: To address the goals and questions of the study, the researchers employed a descriptive approach. There were 135 male and female students in the sample. The researchers created a self-regulation scale and a test anxiety symptom scale.

Results: The sample had high levels of self-regulation and test anxiety symptoms. Test anxiety symptoms and self-regulation had a statistically significant negative correlation (-0.227). In addition, symptoms of test anxiety can be predicted by self-regulation.

Discussion: This research shows that self-regulation is one of the primary sources of test anxiety for college-going students. Surprisingly, behavioral self-regulation is a predictor of symptoms of test anxiety. This highlights the great importance of counselling sessions geared toward enhancing the self-regulation strategies necessary for decreasing test anxiety.

Conclusion: This research helps to fill existing information gaps in self-regulation and its connection to symptoms presented by college students suffering from test anxiety.

Keywords: Test anxiety symptoms, Self-regulation, Predictive study, Psychology, Undergraduates, Saudi Arabia.

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1. INTRODUCTION

Higher education is a significant level, but it is accompanied by some difficulties. The initial difficulty is that of anxiety associated with tests. It is a psychological condition in which a person experiences high levels of discomfort during tests. It is a situational symptom [1] that serves as a major obstacle during tests. In some cases, this fear can have a dual effect: it can motivate someone to study for tests but also adversely affect results.

Mental anxiety, especially test anxiety, negatively affects learners since it reduces their self-esteem and efficacy [2], makes them experience depression [3], and causes their study skills to deteriorate [4]. This shows how important it is to study anxiety and predict it through related psychological factors.

In tackling this challenge, self-regulation stands out as an important psychological factor that helps students control their thoughts, feelings, and actions, allowing

them to reach their educational goals. Research carried out by Zimmerman [5] shows that students who have effective self-regulation abilities are more self-motivated by academics and have high levels of self-confidence. They are better at planning, time management, and monitoring their performance. All this helps them perform better on exams and thus decreases test anxiety.

Many studies have investigated how anxiety is related to academic performance [3, 6], but more studies have focused on self-regulation as a main factor in test anxiety, especially around here. For example, Ocak *et al.* [2] reported a strong negative link between self-regulation and test anxiety. This finding raises the question of whether different components of self-regulation can predict the level of test anxiety experienced by students.

The proposed study aims to focus on a sample of Psychology Undergraduates at Najran University, examining their levels of self-regulation, test anxiety symptoms, the statistical relationship between the two, and the predictive role of self-regulation dimensions in test anxiety symptoms. All these offer both psychological and practical insights for academic programs that aim to develop skills to reduce and manage test anxiety in students.

1.1. Statement of the Problem

Test anxiety is among the psychological issues many university students encounter. This is depicted through negative expectations related to cognitive elements of thinking, which form a significant component for understanding the negative link between anxiety and performance. This anxiety can occur for various reasons, such as symptoms related to anxiety reducing working memory during a testing period, or through various long-term factors that include avoiding assessment situations, studying problems, and a lack of preparation for tests [7].

The feeling of test anxiety is associated with various psychological factors and causes. Some causes are related to external circumstances, and others are linked to the student's psychological structure, such as self-regulation. Self-regulation, as a psychological variable, is closely connected to competencies in personal development, health, and academic or professional success. Positive self-regulation encourages individuals to cope with situations that evoke anxiety, fear, and stress through cognitive appraisal strategies and positive adaptation to stressful circumstances [8].

Despite the numerous studies addressing test anxiety and its relationship to self-regulation, the review of previous literature revealed a research gap that the current study seeks to address. Researchers have categorized this gap into three main areas. First, most previous studies have addressed self-regulation as a general framework without examining its subdimensions deeply as predictors of anxiety symptoms. Second, few studies have examined this relationship among psychology students at Saudi universities (specifically, Najran University). The gap here lies in the fact that these students study theories of "self-regulation" and "anxiety"

academically, raising a research question that has not been thoroughly investigated: Does their cognitive and theoretical awareness of these two variables translate into procedural behaviour and actually lead to a reduction in anxiety symptoms? Third, while many previous studies have described only levels of test anxiety and its correlation with self-regulation, the current study aims to develop a predictive model that can inform the design of behavioural intervention programs on the basis of accurate statistical data. This bridges the gap between theoretical academic research and practical counselling applications in student counselling centres.

On the basis of the above, the research problem can be formulated as follows:

- [1] What is the level of self-regulation among Psychology Undergraduates at the College of Education, Najran University?
- [2] What is the level of anxiety symptoms among Psychology Undergraduates at the College of Education, Najran University?
- [3] Does a statistically significant relationship exist at the 0.05 level between self-regulation and symptoms of test anxiety among Psychology Undergraduates at the College of Education at Najran University?
- [4] Is it possible to predict symptoms of test anxiety through self-regulation dimensions at the 0.05 level for Psychology Undergraduates at the College of Education at Najran University?

1.2. Significance of the Study

In the context of the abovementioned objectives of the current study, the importance of the study may be stated as follows: the relative importance of the current study is based on its attempt to determine the degree of anxiety symptoms, the degree of self-regulation of the study sample, and the type of relationship between the two variables, in addition to their predictive relation. From a practical or applied perspective, the importance of the study is emphasized in terms of the ability to use the results of the study in the process of preparing psychological counselling programs for university students related to improving the skills of self-regulation and the ability to address the problem of anxiety related to the results of the examination in a positive manner.

2. THEORETICAL FRAMEWORK

2.1. Test Anxiety Symptoms

Test anxiety is described as a mental state where an emotional episode occurs in an individual as a result of self-doubt concerning their abilities, especially during testing occasions. This negative emotion prevents a person from overcoming the obstacles encountered during testing, thus increasing their anxiety, which is triggered by a threat to their ego from the assessment. In this case, the person is overwhelmed by negative cognitive reactions to their academic stress, which include anxiety, worry, and fear [9].

Test anxiety refers to a set of visible, physiological, and behavioural symptoms related to anxiety regarding possible negative consequences or failure at an examination or similar evaluation circumstances [10]. When test anxiety is considered a general level of anxiety, it is highly likely that students with lower educational levels will experience this anxiety. When a person is threatened by the prospect of failing an examination or a similar scenario, he or she experiences psychological symptoms such as tension, fear, and a perception of danger that has a significant effect on his or her performance in class. This anxiety has been linked with poor educational performance and learning difficulties. Moreover, some physiological symptoms associated with anxiety, such as a red face, muscle contraction, a racing pulse, and a sensation of panic, reduce concentration levels. Students tend to become cranky and easily distracted, which affects their productivity in class [2].

A consequence of test anxiety is a struggle with concentration, confusion, mental barriers, a lack of self-efficacy, poor self-esteem, and cognitive expectations related to failure [11]. The reason for this is the intense, irrational fear experienced by some students during exams, which has a direct effect on poor academic achievement despite the effort put in. Test anxiety has previously been shown to be a factor in learning problems, poor academic achievement, and the depletion of cognitive resources [8]. The complexity of test anxiety can be explained by the inclusion of irrelevant task-related cognitions, increased physiological arousal, and inefficient study habits. Testing circumstances, mainly tests, are perceived by students who experience high levels of testing anxiety as threats to their personhood. Individuals with negative self-concepts experience reduced social acceptance among their peers and can be alienated from their environment. They are regarded as noncompliant by their parents and teachers, which can even contribute to their poor performance. These types of learners exhibit poor attitudes towards their work, as they lack adequate attention to their tasks, and show helplessness, poor self-confidence, self-doubt, and reduced self-satisfaction. They credit their successes to external factors, including luck and failure, as well as internal factors (*e.g.*, lack of ability) [12].

The early symptoms and signs can be divided into three categories. First, there are physical/physiological symptoms related to test anxiety. These symptoms include headaches, nausea, diarrhea, profuse sweating, shortness of breath, rapid pulse rate, dizziness, fainting, muscle cramps, nail biting, gnawing pen caps, popping finger joints, and palms, among others. Second, there are psychological symptoms related to test anxiety. These symptoms may include feelings of anger, racing thoughts, fear, feelings of helplessness, and confusion, among others. Finally, behavioural/cognitive symptoms of test anxiety include inability to concentrate, negative reactions such as sleeping during exams, crying, restlessness, comparing oneself to others, low self-confidence, insomnia, and more [13].

Test anxiety is widespread and can have negative effects on well-being and performance. Reactions may involve physiological symptoms such as tremors, gastrointestinal symptoms, and sweating. Moreover, they may include intrusive negative thoughts and images, and feelings of panic, which impair the ability to concentrate on activities and tasks [14]. Eysenck and Calvo, as cited in Gaur and Gautam [15], indicated that anxiety impairs the efficiency of cognitive processing, especially in tasks that depend on working memory. Their theory differentiates between performance, or the outcome, and efficiency, or the mental effort one uses to achieve that outcome. An anxious individual may perform well but try harder and utilize more cognitive resources to compensate for intrusive thoughts and worry. The extra effort reduces processing speed and mental flexibility, leading to longer processing times or a perception of greater difficulty. Zeidner [10] explained test anxiety in terms of how individuals regulate their thoughts, emotions, and behaviors to accomplish goals, such as performing well on exams, even under stress or anxiety. This, he said, comprises three main stages: planning, where goals and strategies are set; monitoring, or tracking progress in accordance with actions; and evaluation, or reflection about performance for the sake of future improvement. In this context, self-regulating students are able to handle their anxiety related to examinations *via* strategies such as concentrating and overcoming difficulties for improved results. In contrast, self-regulation can lead students to postpone, panic, or quit when they are anxious.

Test anxiety may result from factors such as authoritarian parental beliefs, rigid educational beliefs, critical comments by teachers, self-evaluations, or experiences [13]. Other factors may include low self-esteem and self-efficacy beliefs, teachers' degradation, poor time management skills during test periods, a lack of skills, low motivation levels, self-criticism, self-statements, poor learning habits, the absence of appropriate learning strategies, high test performance expectations, and failure to meet responsibility and obligations. In addition, difficult school programs and extended study periods can impact test anxiety [2]. Moreover, cognitive distortions are intertwined with metacognitive processes, where individuals become excessively self-aware and engage in heightened self-monitoring. This heightened self-focus can lead to increased awareness of physiological symptoms, which in turn fuels anxiety and distracts from task-focused processing [16].

Another variable with a mediating role in the current context in relation to face-to-face speaking anxiety in exam settings is self-regulation [17]. Moreover, according to a study by Al Fraidan and Alsubaie [3], there is an inversely related outcome between test anxiety and students' achievement score; cognitive aspects are more relevant than emotional aspects in terms of test anxiety. Test anxiety is one of the prime sources of reduced academic performance; nonetheless, it can be controlled with proper training, which can aid in overcoming the cause of test anxiety.

Symptoms of test anxiety can be categorized into three main components. The first symptom is the cognitive component. This involves fear of failure and feelings of inadequacy when a person performs a certain task. This symptom may occur even before the exam process begins. The other symptom is what is commonly referred to as the emotional component. It consists of symptoms including muscle tension, vomiting, sweating, and an accelerated heart rate. Such symptoms can be experienced even before the exam in question takes place. The final symptom is referred to as the behavioral component [18]. This comprises ineffective study skills, avoidance behaviors, procrastination, escapism, and disruptive behaviors during exams.

2.2. Self-Regulation

Self-regulation is the process by which learners set goals and monitor, organize, and control their learning on the basis of their academic abilities and different life circumstances. Therefore, what most university students need is to manage their academic affairs to keep pace with the scientific journey. This leads to their need to follow a guiding plan in the academic field, which is their ability to achieve their academic goals and to monitor their achievement, self-efficacy, self-esteem, self-regulation, and other characteristics of self-regulation that contribute to supporting the implementation of academic advice plans for university students [19].

Since self-regulation is a psychological trait, it does not exist at the same level in everyone; some individuals have high levels of self-regulation, whereas others have low levels, which manifests as a loss of self-control and leads to harmful behaviors such as panic-driven purchases and addictive behaviors such as gambling or excessive video gaming. Low self-regulation can result in depression, aggressive behaviors, and an inability to make positive decisions [20].

Self-regulation, a goal-oriented strategy, is an effective way to increase college students' psychological well-being and has been widely used for college students. It comprises the ability to modulate emotions, thoughts, and behaviors that, over time, help maximize adaptive adjustment. Students who develop greater maturity in terms of self-regulatory abilities through this transition will be more likely to thrive. It is also proposed that self-regulators react less defensively and appraise events more positively, thus leading to fewer cognitive distortions. A substantial number of studies have provided evidence that university students with pronounced self-regulatory skills report higher levels of identity achievement and hope for themselves, lower levels of emotional exhaustion, depression, and stress [21].

A positive manifestation of self-regulation is associated with the promotion of health-positive behaviors, increased physical and psychological wellness, and positive performance in the workplace [22]. It also encompasses the ability of individuals to observe and modify their thoughts and actions, which entails adaptive reflections and a positive critique of decision-making processes to

attain proposed solutions and establishes metacognitive thinking geared towards the fulfilment of one's own objectives and goals [23].

Self-regulation is also linked to metacognitive skills, as it determines the methods and timing of planning, monitoring, and evaluation processes. Therefore, information and organizational elements complement each other and are essential for achieving optimal performance. For this reason, skills related to self-regulation and metacognitive awareness can be considered influential factors in performance, creating differences between individuals [24].

Baumeister, as cited in Mrak [25], identified four main components of self-regulation theory:

- [1] The behavioral standard, whether held by an individual or a group.
- [2] The person's motivation to strive toward achieving this standard.
- [3] Monitoring one's own progress, particularly in instances where the standards are violated or not met.
- [4] Willpower-the strength that enables people to control their desires.

Overall, the theory of self-regulation attempts to describe how and why individuals continually make decisions regarding which emotions they should feel, how they should behave, and what things they should say or do.

Albert Bandura is often considered by many researchers as the pioneer of the theory of self-regulation. His social cognitive theory and social learning theory are among the most notable examples of his influence on the scientific community during the 1990s. Bandura began studying how individuals control their behaviour through the process of "self-regulation".

Bandura [26] suggested that one can learn by observing others' behavior, which is referred to as observational learning. However, learning is not only through practicing what they have observed others in society do; it is also linked with the cognitive processing of events in the external environment. However, one of the strongest points of Bandura's work is his emphasis on cognitive information processing regarding individuals' contemplation of their own capabilities and potentials. According to him, humans are capable of observing, contemplating, gauging, and regulating their own behavior. Moreover, the monitoring, overseeing, controlling, guiding, and evaluation of one's own performance against self-determined standards is referred to as "self-regulation" by Bandura. Through self-regulation, an individual can effectively manage his or her behavior [2].

According to social cognitive theories of self-regulation, individuals actively participate in their own lives and attempt to control significant events through regulating their thoughts, behaviors, and environmental factors to achieve their own goals. According to the

proposed idea, a mutual association exists between behaviors, the environment, and factors related to human beings, including emotions and beliefs. Here, it can be seen that human beings are not passive reactors; instead, they actively seek to exert control over their behaviour as well as their learning environment. Thus, self-regulation can be considered one of the factors contributing to perceived personal efficacy, a determinant of a person's attempt to direct efforts even when faced with fatigue, boredom, and stress [27]. A person with weak self-efficacy beliefs doubts his or her ability to succeed and therefore tends to lack sufficient effort and perseverance when faced with a task.

In neuroscience, self-regulation is a brain function facilitated by the use of neurotransmitters. Importantly, self-regulation should be understood from a paradigm that requires a multidimensional approach to produce diverse models across physiological and psychological dimensions to grasp the concept of goal setting in self-regulation theory [28].

Self-regulation skills have been shown to have positive implications for all types of individuals, including students in institutions of higher learning, as they have been identified among the most important factors that determine academic adjustment. This is because it has been associated with positive study behaviors, effectiveness, active learning, critical thinking, academic achievement, motivation to learn, flexibility in changing environments, autonomy, and creativity when dealing with complex tasks.

Those who possess high self-regulation skills can better engage in the right activities for effective decision-making, which is positively related to their performance [23]. The positive aspect of self-regulation can further be seen in the ability to carry out tasks more effectively, exhibit qualities such as creativity and persistence, and show greater levels of vitality—that is, feeling energized to achieve target goals [29]. Moreover, self-regulation is an important indicator of various outcomes, as it is the primary objective for understanding growth and development. It is one of the significant factors for various positive outcomes, such as mental and physical health, school readiness, performance achievement, and overall health and educational achievement [30].

Self-regulation is significantly related to academic self-discipline and educational goal completion, as it is a powerful measure of self-confidence, hope, optimism, resilience, motivation, and performance. This promotes resilience in students to overcome struggles and achieve their objectives of strengths, abilities, and qualities, which contributes to their success in academia. Self-regulation also helps students meet their challenges in their educational life with confidence and flexibility [31].

3. METHODOLOGY

3.1. Research Design

The method applied was descriptive, aiming to identify the level of self-regulation and symptoms of test anxiety

among the respondents. We also aimed to determine the relationship between self-regulation and symptoms of test anxiety. The current study was conducted in the first semester of the 2025/2026 academic year. The study included 135 students (gender: 57 male, 78 female; age: 19–20) enrolled in a bachelor's program in psychology.

3.2. Study Population and Sample

The study population for the current research comprises male and female students enrolled in the bachelor's program in Psychology at the College of Education, Najran University, with a total of 725 students. The study sample included 135 students (57 male and 78 female), accounting for approximately 19% of the total study population. The participants involved in this research were male and female students enrolled in a bachelor's degree program in psychology at the College of Education, Najran University, Kingdom of Saudi Arabia. The study sample was selected through a purposive sampling method. As shown in Table 1, the researchers adopted the following criteria to include and exclude study participants.

Table 1. Inclusion and exclusion criteria.

Inclusion Criteria	Exclusion Criteria
The student must be enrolled in a Bachelor of Psychology program.	First-year students were excluded to ensure that participants were familiar with the academic environment and university assessment methods, thus minimizing the impact of beginning anxiety or lack of experience on their responses.
The student must be a "full-time student" to ensure uniformity in exposure to the university environment.	Incomplete responses were excluded.
The student must have successfully completed Level 1 and be currently enrolled in Levels 2 through 8.	Visiting students were excluded to ensure a unified academic environment for participants and to avoid any discrepancies that might arise from differences in study plans or assessment systems at their home universities, thus enhancing the validity and generalizability of the results to the original study population.
Giving voluntary, informed consent to participate in the study.	Participants in the pilot sample were excluded (to avoid the effect of familiarity with the study measures).

The study measures were presented via a Google Forms link. After properly documenting the data and obtaining informed consent, the researchers clearly explained the study details and emphasized that the data would be used exclusively for scientific research purposes. The researchers also ensured that participants provided written consent before completing the study questionnaires. The link to the measures was sent via administrative communications (corresponding tracking system), official student emails, and social media, particularly WhatsApp.

3.3. Instruments of the Study

3.3.1. Self-regulation Scale

The researchers developed their own scales owing to the specificity of the cultural and environmental context. The adopted measures may be designed for Western environments or other cultures, making them unsuitable for generalization to the local environment (such as terms, values, or social customs). In particular, the researchers conducted the study on a sample representative of the culture of a region in southern Saudi Arabia, which has its own nature, characteristics, customs, and traditions.

Researchers have analyzed different scales of self-regulation. These include the "Self-Regulation Scale" developed by Karca and Bektas [32] and the "Self-Regulation Scale" by Neal and Carey [33]. Researchers have also analyzed the content of results from studies based on self-regulation. This enabled them to design self-regulation situations and statements.

The instrument consists of 21 items in three dimensions of self-regulation: cognitive self-regulation, emotional self-regulation, and behavioral self-regulation. These dimensions are assessed for a total of seven items each, using a three-point response format: always, sometimes, and never.

3.3.2. Psychometric Properties of the Self-regulation Scale

3.3.2.1. Validity

The self-regulation scale was then presented to three expert judges specializing in psychology. Items that did not achieve agreement from at least two of the three judges were rejected. The content validity assessment results indicated that the items were considered appropriate, with scores ranging from 66.6% to 100%. The necessary modifications were made to items that required changes based on the judges' responses.

The internal consistency validity of the self-regulation scale was also calculated by administering the scale to a pilot sample of 33 male and female students to meet the study criteria and characteristics. The analysis revealed the following correlation coefficients and significance levels between the dimensions and the total score of the scale:

It is evident from Table 2 that the self-regulation scale demonstrates validity through the correlation and significance levels between the dimensions and the overall score.

Table 3 shows that the self-regulation scale demonstrates validity through the correlation and significance levels between the items and their related domains.

3.3.2.2. Factor Analysis of the Self-regulation Scale

Table 4 shows that the highest branching of the items was used for the factors; thus, the items were placed into three dimensions of the self-regulation scale.

3.3.2.3. Reliability

The subjects used the Cronbach's alpha method for the representative sample test to check the internal consistency validity of the self-regulation scale. The total reliability coefficient for the self-regulation scale was 0.787.

3.3.2.4. Scoring the Self-regulation Scale

In the current study, the self-regulation scale is scored via a three-point scale: always (3 points), sometimes (2 points), and never (1 point). The researchers ensured that the study sample's responses were accurate and undistracted, as the three-point scale provides more precise and consistent answers in these cases.

3.3.3. Test Anxiety Symptoms Scale

Researchers have examined various test anxiety scales, including those by Cioffi *et al.* [34] and Putwain *et al.* [35]. Second, they conducted a content analysis of symptoms and signs related to test anxiety in prior psychological research. On the basis of this analysis, test anxiety symptom statements were generated. After poorly performing items were removed, the scale consisted of 16 items representing four dimensions of anxiety symptoms: physiological (3 items), cognitive (4 items), emotional (4 items), and behavioural (5 items). All the items are self-reported, with responses rated as yes or no.

3.3.4. Psychometric Properties of the Test Anxiety Symptoms Scale

3.3.4.1. Validity

The Test Anxiety Symptoms Scale was then submitted to three judges who are experts in psychological counselling and clinical psychology. The researchers retained only those items agreed upon by at least two of these three judges. There was agreement on appropriateness, with percentages ranging from 66.6% to 100%. Researchers made changes to the items that needed alteration.

Table 2. Correlation and significance levels between self-regulation scale dimensions and total score.

Dimension	Correlation Coefficient	Significance Level
Cognitive Self-Regulation	0.866	0.01
Emotional Self-Regulation	0.658	0.01
Behavioural Self-Regulation	0.630	0.01

Table 3. Correlation and significance levels between self-regulation scale items and total score.

Dimension	Items	Correlation Coefficient	Significance Level
Cognitive Self-Regulation	1	0.860	0.01
	2	0.880	0.01
	3	0.797	0.01
	4	0.838	0.01
	5	0.857	0.01
	6	0.807	0.01
	7	0.716	0.01
Emotional Self-Regulation	1	0.518	0.01
	2	0.694	0.01
	3	0.569	0.01
	4	0.600	0.01
	5	0.585	0.01
	6	0.590	0.01
	7	0.554	0.01
Behavioural Self-Regulation	1	0.583	0.01
	2	0.646	0.01
	3	0.667	0.01
	4	0.663	0.01
	5	0.647	0.01
	6	0.638	0.01
	7	0.581	0.01

Table 4. KMO and Bartlett's test for the self-regulation scale.

Kaiser–Meyer–Olkin Measure of Sampling Adequacy	0.876						
Bartlett's Test of Sphericity Approx. Chi-Square	1095.813						
df	210						
Sig	0.01						
-	Component						
Dimensions/	Items	1	2	3	4	5	6
Cognitive Self-Regulation	1	0.465	0.444	0.265	-0.014	0.046	0.287
	2	0.805	0.139	0.052	0.212	0.032	-0.084
	3	0.614	0.086	0.253	-0.381	0.323	0.232
	4	0.673	-0.017	0.323	0.288	0.058	0.217
	5	0.780	0.107	0.182	0.184	0.238	0.007
	6	0.469	0.228	0.095	0.127	0.303	0.313
	7	0.568	0.051	0.416	0.036	0.461	0.101
Emotional Self-Regulation	1	0.134	0.598	-0.026	0.043	0.555	0.059
	2	0.345	0.678	0.084	0.135	0.567	0.240
	3	0.159	0.508	-0.009	0.445	0.307	0.096
	4	0.191	0.695	0.068	0.159	0.079	0.204
	5	0.126	0.643	0.124	0.198	0.158	0.309
	6	0.102	0.829	0.022	0.101	0.245	0.055
	7	0.420	0.567	-0.023	0.120	-0.120	0.544
Behavioural Self-Regulation	1	0.191	0.198	0.493	0.274	0.226	0.053
	2	0.380	0.256	0.416	0.236	0.356	-0.083
	3	0.207	0.178	0.643	-0.013	0.144	0.368
	4	0.055	0.114	0.756	0.187	0.322	-0.025
	5	0.182	0.103	0.730	0.182	0.456	0.091
	6	0.250	0.445	0.539	0.214	-0.099	0.097
	7	0.202	0.220	0.704	0.446	0.048	0.510

Table 5. Correlation and significance levels between dimensions of the test anxiety symptoms scale and total score.

Dimension	Correlation Coefficient	Significance Level
Physiological Symptoms of Test Anxiety	0.562	0.01
Cognitive Symptoms of Test Anxiety	0.845	0.01
Emotional Symptoms of Test Anxiety	0.868	0.01
Behavioural Symptoms of Test Anxiety	0.865	0.01

Table 6. Correlation and significance levels between test anxiety symptoms scale items and total score.

Dimension	Items	Correlation Coefficient	Significance Level
Physiological Symptoms of Test Anxiety	1	0.554	0.01
	2	0.472	0.01
	3	0.514	0.01
Cognitive Symptoms of Test Anxiety	1	0.817	0.01
	2	0.591	0.01
	3	0.818	0.01
	4	0.888	0.01
Emotional Symptoms of Test Anxiety	1	0.652	0.01
	2	0.781	0.01
	3	0.600	0.01
	4	0.595	0.01
Behavioural Symptoms of Test Anxiety	1	0.890	0.01
	2	0.878	0.01
	3	0.770	0.01
	4	0.907	0.01
	5	0.761	0.01

In addition, the internal consistency validity of the Test Anxiety Symptoms Scale was determined by using it on the same sample that had been used for the internal consistency of the Self-Regulation Scale. The results revealed that there were levels of correlation for the dimensions as well as for the total for the scale, as highlighted below:

Table 5 clearly shows that the Test Anxiety Symptoms Scale has validity, as evidenced by the correlations and significance levels between the dimensions and the overall score.

As shown in Table 6, the test anxiety symptoms scale demonstrates validity through the correlation and significance levels between the items and their related domains.

3.3.4.2. Factor analysis of the Test Anxiety Symptoms Scale

Table 7 shows the crossovers of the items on the factors of the test anxiety symptom scale.

3.3.4.3. Reliability

Cronbach's alpha was used to assess the reliability of the test anxiety symptoms scale. This study utilized the same sample used to compute the reliability of the self-

regulation scale. Table 8 shows the reliability for both the dimension scores and the overall scale score. The overall reliability of the Test Anxiety Symptoms Scale was 0.721, which is considered acceptable.

3.3.4.4. Scoring the Anxiety Symptoms Scale

The test anxiety symptom scale in the current study is scored via two response options: a "yes" response is worth two points, and a "no" response is worth one point. It is generally accepted in psychological studies that scales and tests assessing symptoms related to specific conditions or traits should be determined with a "yes" or "no" response for accuracy. In addition, psychological symptoms are often treated as "present" or "nonpresent." This approach to assessing psychological symptoms also reduces the likelihood of participants giving neutral responses due to social desirability.

3.3.5. Data Analysis

The following statistical methods were used:

- [1] Descriptive statistics (means and standard deviations)
- [2] Pearson correlation coefficient
- [3] KMO and Bartlett's Test
- [4] Cronbach's Alpha Reliability
- [5] Stepwise Regression Analysis

Table 7. KMO and Bartlett's test for test anxiety symptoms scale.

Kaiser–Meyer–Olkin Measure of Sampling Adequacy	0.860				
Bartlett's Test of Sphericity Approx. Chi-Square	812.154				
df	190				
sig	0.01				
-	Component				
Dimensions/	items	1	2	3	4
Physiological Symptoms of Test Anxiety	1	0.655	-0.056	0.156	0.222
	2	0.542	0.077	0.197	0.021
	3	0.666	0.035	-0.070	0.142
Cognitive Symptoms of Test Anxiety	1	0.292	0.567	0.075	0.198
	2	0.258	0.779	-0.019	0.084
	3	0.297	0.541	0.481	0.112
	4	0.348	0.458	0.132	-0.157
Emotional Symptoms of Test Anxiety	1	0.220	0.272	0.543	0.096
	2	0.140	0.129	0.706	0.137
	3	0.049	0.196	0.696	-0.061
	4	0.175	0.187	0.621	0.037
Behavioural Symptoms of Test Anxiety	1	0.105	0.154	0.017	0.772
	2	0.049	0.032	0.022	0.678
	3	0.286	-0.024	0.097	0.737
	4	0.089	0.175	0.157	0.786
	5	0.019	0.200	0.333	0.567

Table 8. Reliability coefficients (Cronbach's alpha) for both the dimension scores and the overall test anxiety symptoms scale score.

Dimension	Number of Items	Cronbach's Alpha
Physiological Symptoms of Test Anxiety	3	0.651
Emotional Symptoms of Test Anxiety	4	0.699
Cognitive Symptoms of Test Anxiety	4	0.687
Behavioural Symptoms of Test Anxiety	5	0.718
Overall (Test Anxiety Symptoms Scale score)	16	0.721

4. RESULTS AND DISCUSSION

4.1. First Research Question: What is the Level of Self-Regulation among Psychology Undergraduates at the College of Education, Najran University?

To address this question, the researchers computed the means and standard deviations of the responses to the study groups for the items, the total score for each dimension, and, finally, the overall score of the self-regulation scale as indicated below:

As presented in Table 9, the level of self-regulation exhibited by the male and female undergraduates studying psychology was high, with a mean of 2.472 and a standard deviation of 0.356. Each of the three aspects of self-regulation, *i.e.*, cognitive, emotional, and behavioural, also

exhibited high levels. This is because psychology students have high levels of self-regulation since they are able to master knowledge and skills that aid in understanding human behaviour; hence, they are in a position to employ self-regulation strategies to achieve academic objectives.

Moreover, a psychology course is characterized by self-efficacy strategies, psychological flexibility, thinking skills, and communication processes that clearly underpin positive strategies regarding self-regulation. Moreover, a psychology course is associated with understanding the knowledge and skills needed to appreciate human behavior mechanisms that underpin positive strategies for oneself and other people. Students with a psychology mindset understand themselves in terms of adaptability to psychological pressures.

Table 9. Means and standard deviations of the study sample's responses to items, dimension scores, and overall self-regulation scale score.

Item	Mean	SD	Level
Dimension: Cognitive Self-Regulation			
1. I make sure to set clear and specific goals before starting a task.	2.385	0.532	High
2. I break large tasks into smaller ones to make them easier to accomplish.	2.459	0.556	High
3. Before starting my tasks, I make sure to set timelines for them.	2.296	0.681	Moderate
4. I regularly review my progress toward my goals to ensure I'm on track.	2.422	0.628	High
5. I adjust my plans positively when I face unexpected obstacles.	2.421	0.651	High
6. I focus my attention on the current task and avoid distractions.	2.481	0.633	High
7. I use techniques like mind maps or summaries to organize information.	2.400	0.648	High
Total for Cognitive Self-Regulation	2.409	0.405	High
Dimension: Emotional Self-Regulation			
1. I give myself a sense of satisfaction when completing a task or part of it.	2.814	0.460	High
2. I motivate myself to start tasks even when I don't feel like it.	2.585	0.615	High
3. I engage in positive self-talk to encourage myself when facing challenges and difficulties.	2.607	0.533	High
4. I make sure to confront feelings of frustration, so they don't affect my performance.	2.422	0.616	High
5. I imagine the feeling of success and achievement to motivate myself to keep going.	2.777	0.467	High
6. I look for enjoyable or useful aspects in tasks I dislike.	2.459	0.632	High
7. When I face difficulties, I avoid feeling frustrated and imagine overcoming them to continue achieving my goals.	2.466	0.570	High
Total for Emotional Self-Regulation	2.590	0.375	High
Dimension: Behavioural Self-Regulation			
1. As soon as I see a problem or challenge, I start looking for possible solutions.	2.533	0.557	High
2. When studying, I make sure everything around me is organized so I can focus efficiently.	2.540	0.582	High
3. I control the time I spend on social media or entertainment, so it doesn't negatively affect my tasks.	2.214	0.705	Moderate
4. I make sure to finish my tasks within the time I set for them.	2.311	0.663	High
5. I avoid procrastination and start tasks I planned as soon as possible.	2.296	0.611	High
6. I maintain healthy habits to keep my energy for achieving my goals.	2.400	0.625	High
7. I schedule breaks to avoid boredom or fatigue.	2.614	0.572	High
Total for Behavioural Self-Regulation	2.415	0.430	High
Overall Self-Regulation Score	2.472	0.356	High

The high level of self-regulation among students can be explained in light of theories and research literature, particularly Bandura's theory, which suggests that individuals learn by observing the behavior of others. Learning is not only about practicing what has been observed in society but is also linked to the cognitive processing of events in the external environment [26]. Self-regulation is learned and observable among students. In addition, the nature of specialization (psychology) acts as a significant indicator in promoting self-regulation, observing others' behavior, and learning from them. Moreover, there is a reciprocal relationship between behaviors, the environment, and cultural factors related to the individual. The cultural characteristics of the southern region of Saudi Arabia at Najran University reveal that feelings, beliefs, and self-regulation are factors that contribute to perceived self-efficacy, defined by the cultural system in which students live and are aware.

In addition, the high level of self-regulation among students reflects the ability to perform tasks more effectively and demonstrates qualities such as creativity and perseverance, which is a sense of energy to achieve set

goals [29]. Researchers see the impact of academic content (specialized awareness) at this high level, attributing it to the nature of "psychology specialization." Students study self-learning theories, motivation, and cognitive processes. This accumulation of knowledge develops what is known as "metacognition," making them more capable than others of monitoring their academic goals and adjusting their strategies to meet college requirements.

Additionally, students in institutions of higher education have varied opportunities through activities such as extracurricular activities, which could enable them to gain skills that help them control their thoughts, emotions, and behaviors to achieve academic success. These also allow them to integrate their personal values and long-term visions with set goals and challenges. In an effort to meet the set goals, students adjust their study approaches to suit their needs, thus increasing their capacity to self-regulate to adapt to life in institutions of higher learning [36]. The students' feelings of responsibility towards learning and achievement could also influence their ability to achieve high levels of self-regulation, given that they have the ability to control their thoughts, emotions, and behaviours to meet academic goals [37].

Table 10. Descriptive statistics for the test anxiety symptoms scale responses.

No	Item	Mean	SD	Level
Dimension: Physiological Symptoms				
1	I feel muscle tension before entering the exam hall.	1.614	0.488	High
2	I feel short of breath when entering the exam hall.	1.414	0.494	Moderate
3	I experience hand tremors or sweating while sitting in the exam hall.	1.585	0.493	Moderate
	Overall score for the Physiological Symptoms dimension	1.533	0.495	Moderate
Dimension: Emotional Symptoms				
4	I experience memory loss as soon as I see the question paper.	1.763	0.426	High
5	I feel tense when I think my classmates are better prepared than I am.	1.496	0.501	Moderate
6	I feel disappointed when I leave the exam hall.	1.525	0.51	Moderate
7	I fear the exam so much that I feel unable to recall information.	1.659	0.475	High
	Overall score for Emotional Symptoms dimension.	1.579	0.345	Moderate
Dimension: Cognitive Symptoms				
8	I feel frustrated when I encounter a difficult question in exams.	1.8	0.401	High
9	In my opinion, exams are a source of psychological stress.	1.792	0.406	High
10	Although I am prepared for exams, I feel fear and insecurity.	1.748	0.435	High
11	Due to the tension I experience, I wish I could avoid exams completely.	1.696	0.461	High
	Overall score for the Cognitive Symptoms dimension	1.731	0.308	High
Dimension: Behavioral Symptoms				
12	Because of the fear of exams, I avoid studying or postpone it.	1.311	0.464	High
13	I experience insomnia the night before the exam.	1.792	0.406	High
14	I find it difficult to manage my time effectively while studying for exams.	1.666	0.473	High
15	When I leave the exam hall, I realize I made mistakes on questions I knew due to anxiety during the exam.	1.748	0.435	High
16	I tend to rush through the exam to escape the tension I feel.	1.57	0.496	High
	Overall score for the Behavioural Symptoms dimension	1.617	0.312	High
	Total score for Test Anxiety Symptoms	1.615	0.234	High

This finding supports that of Jan and Parveen [38] and Belletti and Vaillant [39], who reported that university students have a higher level of self-regulation. On the other hand, the findings are inconsistent with those of Brunda and Nambiar [40], who reported a lower level of self-regulation among university students. This finding contradicts those of Al-Momani and Hazali [41] and Sangaire [42], who reported moderate levels of self-regulation among university students.

4.2. The Second Research Question: What is the Level of Test Anxiety Symptoms among Psychology Undergraduates at the College of Education, Najran University?

To answer this question, the mean values and standard deviations for the study respondents' responses to statements, the total score for each dimension, and the total score for the Test Anxiety Symptoms Scale were computed. The results are presented in Table 10.

As shown in Table 10, the total mean test anxiety score was 1.615, with a standard deviation of 0.234, which is high. The emotional dimension contributes more to test anxiety, which is in line with the concept of test anxiety as an emotional state characterized by intense fear, nervousness, and tension occurring in the context of academic evaluations *via* exams. However, a study by Cassady and Johnson [3] revealed that the cognitive factor of anxiety contributes more to test anxiety. Similarly, a study by Alemu and Feyssa [6] revealed that the cognitive

factor contributes more to anxiety than does the emotional factor.

This can be explained by the fact that the emotional factor acts as the driver and motivator of behavioral actions, which, in turn, reflect on cognitive structures, negative and pessimistic thoughts, and feelings of frustration, manifesting as physiological symptoms such as headaches during exams. Having examined the content of the items and statements that reflect this system, we notice that the highest level among the items is the statement "I feel frustrated when I encounter a difficult question in exams," with an average of 1.8, which is the highest level for emotional symptoms of test anxiety. This is followed by the item "I feel tense when I think my classmates are better prepared than I am," with an average of (1.79). Notably, the behavioral symptoms of test anxiety reflect the second level, such as the statement "I experience insomnia the night before the exam," with an average of (1.79), as well as the item "When I leave the exam hall, I realize I made mistakes on questions I knew due to anxiety during the exam," with an average of (1.74). Through emotional and behavioral symptoms, which are reflected in physiological symptoms such as "I suffer from headaches or stomach pain during exam days" with an average of (1.75), and through the tension accompanied by frustration that leads to insomnia the night before the exam, memory does not function efficiently, resulting in forgetting topics during the exam.

The results indicate a high level of test anxiety symptoms. This aligns with theoretical frameworks that explain test anxiety symptoms such as difficulty concentrating, confusion, lack of self-efficacy, low self-esteem, and cognitive expectations related to failure [11]. The current result is attributed to the irrational fears experienced by most students during exams, reflecting the general culture prevalent among them. Test anxiety is also linked to factors such as authoritarian parenting beliefs, rigid educational beliefs, harsh criticism from teachers, and self-evaluations [13]. In addition, it is associated with poor time management during exam periods, a lack of skills, low motivation levels, self-criticism, self-talk, poor learning habits, and the absence of appropriate learning strategies. Cognitive distortions and negative thoughts about exams and their difficulty act as negative feedback that fuels and exacerbates test anxiety symptoms.

The researchers suggest that the high level of test anxiety symptoms among the study sample may be due to the nature of their specialization and their psychological sensitivity. The marked increase in anxiety among psychology students at Najran University is explained by the phenomenon of “specialist anxiety.” These students feel additional pressure due to their mental health, which generates a strong desire for academic perfection to avoid discrepancies between their theoretical knowledge and practical performance. This high average also indicates that symptoms (whether physiological, such as palpitations, or cognitive, such as distractibility) dominate students' emotional and behavioral experiences related to test-taking. The researchers also noted that despite the study sample possessing a high level of self-regulation, they exhibited a high level of test anxiety symptoms. This may be due to the paradox of “high awareness and high anxiety.” The deeper implication of this finding is that the students possess high levels of self-regulation tools, yet suffer from high levels of test anxiety symptoms. This suggests that the self-regulation in this sample is “defensive” rather than “protective.” This means that students intensify their organizational efforts (intensive study, strict schedules) to compensate for high anxiety, not to prevent it.

On this basis, this finding can be applied practically, given that these students are “very organized but very anxious.” Therefore, support programs and psychological and academic counselling should shift from teaching “how to study” (organization) to “how to calm down” (emotional regulation). This is because their problem is not a lack of

skill but rather the “emotional exhaustion” associated with tests and assessments.

These results are consistent with those of Cassady and Johnson [3], who examined test anxiety and its relationship with depressive symptoms, especially pessimism and feelings of frustration, and with the findings of Ocak, Karafil, and Akar [2], who confirmed that the causes of test anxiety include low self-esteem and self-efficacy, decreased motivation, self-criticism, negative self-talk, and poor study habits.

4.3. The Third Research Question: Does a Statistically Significant Relationship at the 0.05 Level Exist between Self-Regulation and Symptoms of Test Anxiety among Psychology Undergraduates at the College of Education at Najran University?

To answer this question, the researchers calculated the correlation coefficient and significance level between self-regulation and test anxiety symptoms among the study sample.

The results shown in Table 11 indicate a negative correlation (-0.227) that is statistically significant at the 0.01 level between self-regulation and test anxiety symptoms. Although this result indicates that the correlation coefficient between test anxiety symptoms and self-regulation was low but statistically significant, it can be explained by the study sample. This means that as students' level of self-regulation increases, their level of test anxiety symptoms decreases, and *vice versa*.

Researchers explain this by stating that test anxiety is a multidimensional phenomenon influenced by other variables not covered in the current study, such as personality traits (*e.g.*, neurotic perfectionism), family pressures, or the nature of the testing environment itself. This means that while self-regulation skills are important, they are not the sole factor in completely eliminating anxiety; rather, they are part of a comprehensive system for academic adjustment.

The researchers attributed this finding to a number of factors, including the students' commitment to learning before the exam, which positively influenced their performance. Overall, exam anxiety before an exam can be a very effective stimulant for improving performance. Typically, students engage in self-regulation before exams to set goals, manage time, seek help, and perform activities aimed at achieving specific educational objectives [5].

Table 11. Correlation coefficient and significance level between self-regulation and test anxiety symptoms.

-		Test Anxiety Symptoms	Self-regulation
Test Anxiety Symptoms	Pearson Correlation	1	-0.227**
	Sig. (2-tailed)	-	0.008
	N	135	135
self-regulation	Pearson Correlation	-0.227**	1
	Sig. (2-tailed)	0.008	-
	N	135	135

Researchers attribute the inverse correlation to the fact that students with high levels of self-regulation possess a greater ability to manage their cognitive and environmental resources. They employ effective strategies such as study scheduling, monitoring comprehension, and self-evaluation. This cognitive control reduces their sense of "loss of control," which is the primary driver of test anxiety symptoms, consequently leading to a decrease in the stress and emotionality associated with tests and assessments. Self-regulation encompasses the ability of individuals to observe and modify their thoughts and actions, requiring adaptive reflection and constructive criticism of decision-making processes to achieve solutions [23]. This is reflected in the test performance.

In light of the key components of self-regulation theory (behavioral norms, personal motivation, monitoring of individual progress, and willpower) [25], students can control their impulses to achieve goals and cope with crises such as test preparation, time management, and study methods, thus mitigating anxiety symptoms. Cognitive social theories of self-regulation also point to participation in activities in their lives and attempts to control important events by organizing their thoughts and behaviours to achieve their goals [27]. This is reflected in students' performance in difficult situations, such as exams, and in their appropriate preparation for tasks, which reduces the severity of test anxiety symptoms. This finding is consistent with the correlational relationship between self-regulation and test anxiety.

In addition, studies such as [2] confirmed a moderately significant negative relationship between self-regulation skills and test anxiety levels, indicating that students who lack sufficient self-regulation skills experience inadequate exam preparation, which increases their anxiety. Moreover, the study by Cassady and Johnson [3] confirmed a negative relationship between test anxiety and academic achievement, and that the cognitive factor (which is influenced by self-regulation) contributes more significantly to test anxiety.

Researchers point to the need for further studies in this area on the relationship between test anxiety symptoms and self-regulation among higher education students, especially psychology students.

This finding can be applied practically by integrating self-regulation strategies into the curriculum. Psychology should not be taught solely as a theory; classroom activities should be incorporated to train students in goal setting, self-monitoring, and performance evaluation, thereby reducing their reliance on external guidance and lowering their anxiety. In addition, digital or print guides should be created that include clear protocols for managing anxiety symptoms before and during exams, emphasizing self-regulation as a tool for personal empowerment.

4.4. The Fourth Research Question: Is it Possible to Predict the Symptoms of Test Anxiety through the Self-Regulation Dimensions at the 0.05 Level of Psychology Undergraduates at the College of Education at Najran University?

To answer this question, researchers have employed stepwise multiple regression to rank the independent variables (dimensions) according to their explanatory power for the dependent variable. Through this method, they aimed to construct an optimum predictive model that explains the phenomenon using the fewest possible independent variables, eliminating those with the least predictive power. This is because there are interrelationships between the dimensions of self-regulation; stepwise regression helps avoid overlap by extracting the common variance and retaining the dimension with the highest predictive power. The results of stepwise regression also contribute to providing precise recommendations and applications of the findings.

Table 12 clearly demonstrates, through stepwise regression analysis, that the behavioral self-regulation dimension was an important predictor of anxiety symptoms. The results revealed that a high level of behavioural self-regulation is associated with a low level of test anxiety symptoms, whereas a low level of behavioural self-regulation is associated with a high level of test anxiety symptoms.

The study concluded that behavioral self-regulation is a statistically significant predictor of test anxiety symptoms. This confirms the real and reliable association between behavioral self-regulation and test anxiety symptoms within the study sample. However, the limited explanatory power of this model reveals that self-regulation explains only a small proportion of the variance in test anxiety. Therefore, behavioral self-regulation should be viewed as a contributing factor associated with the trajectory of test anxiety symptoms, not as the sole cause. The majority of the variance remains related to other variables (psychological, environmental, social, or academic) not addressed by the current model. This highlights the complex nature of the test anxiety phenomenon.

According to these researchers, students have high levels of behavioral self-regulation. This is related to their ability to control these behaviors, cope with anxiety and mental stress, and test anxiety. The result is therefore attributed to the fact that behavioral self-regulation encompasses controlling one's emotions, maintaining positive thinking, planning, and organizing. Ultimately, this contributes to increased self-confidence and optimism, which in turn reduces levels of anxiety through a consequent improvement in test performance.

Table 12. Stepwise regression model for predicting anxiety symptoms through self-regulation dimensions.

Model Summary - Predictors: (Constant), Behavioral Self-Regulation					
Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate	
1	0.270	0.073	0.066	4.54092	
Anova					
Model	Sum of Squares	df	Mean Square	F	Sig
1 Regression	216.481	1	216.481	10.499	0.002
Residual	2742.453	133	20.620	-	-
Total	2958.933	134	-	-	-
Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Standard Error	Beta		
Constant	1.972	0.112	-	17.642	0.000
Behavioural Self-Regulation	-0.148	0.046	-0.270	-3.240	0.002
Excluded Variables					
Model	Beta In	t	Sig	Partial Correlation	Collinearity Statistics
					Tolerance
Cognitive Self-Regulation	0.415	0.679	0.036	0.036	0.568
Emotional Self-Regulation	0.331	0.741	0.029	0.029	0.495

Moreover, students with high levels of self-regulation of behaviors are also more competent and proficient at managing their time, avoiding the habit of procrastination during academic work, and coping with feelings of boredom while studying. They can manage the negative thoughts of examinations and thus are less affected by the symptoms of test anxiety.

Behavioral self-regulation is an important component in tackling test anxiety, as students are responsible for regulating their behaviors, indicating their capacity to control their emotions during tests and examinations [43].

Students with a high level of self-regulation can effectively control their behaviors. They are more sensitive to perceived sources of stress related to exams, exhibit strong goal-directed behaviors, hold strong beliefs regarding self-efficacy, and make intensive use of exercise and monitoring to meet stress-related goals. Additionally, they tend to rate themselves highly, which makes them capable of controlling and directing self-directed thoughts related to exams negatively [44].

Behavioral self-regulation protects against academic stress and states of fear and anxiety about exams and assessments. This is because behavioral self-regulation effectively helps students identify their strengths and weaknesses with respect to behaviors towards academic tasks. It is a type of insight based on the analysis of one's abilities, resources, and weaknesses, through which students characterized by a high level of behavioural self-regulation are capable of compensating for shortcomings through positive planning and activities. Furthermore, such students realize that exams and assessments are a function of the efforts they invest, which may contribute to lower levels of fear and test anxiety [8]. They also failed to identify any studies that explored the predictive

relationship between self-regulatory behavioral control and symptoms of test anxiety. Researchers thus recommend that more empirical research be conducted on these two variables.

CONCLUSION

This study is relevant for examining the link between self-regulation and test anxiety among students pursuing degrees in psychology at the university, and how well the components of self-regulation predict symptoms of test anxiety. The study revealed that psychology students have a high degree of self-regulation; that is, they can organize their thinking, regulate their emotions, and behave in a disciplined and well-organized manner. The study further revealed that Psychology students have high symptoms of test anxiety; that is, these students have a high degree of psychological and emotional reactions when confronted with an examination setting. The study further revealed that there is an inverse relationship between self-regulation and symptoms of test anxiety. Finally, the results revealed that behavioral self-regulation can predict anxiety symptoms. In light of these results, the study recommends developing psychological counselling programs to help students cope with test anxiety, designing developmental programs on self-regulation strategies, and implementing awareness programs that teach students positive ways to prepare for exams.

Despite the scientific importance of the findings of the present study, they must be interpreted in light of certain methodological limitations. First, the study relied on a purposive sample of psychology students at the College of Education, which may limit the representation of all student groups, as participants were selected on the basis of specific characteristics and criteria relevant to the

study's problem and objectives. Second, although the study sample represents 19% of the study population-a significant percentage-its relatively small size is a limitation that may affect the statistical power of the tests used. This necessitates caution when attempting to generalize the results to larger student populations. Third, the study relied on self-report measures to assess dimensions of self-regulation and symptoms of test anxiety. These instruments may be subject to social desirability bias, as students may tend to describe themselves more favorably than they are. Fourth, the results of this study are limited to the academic environment of Najran University. Consequently, the generalizability of the findings beyond this university or to other disciplines and geographical areas may be limited due to differences in cultural, social, academic, and environmental characteristics. Most importantly, the researchers noted several methodological limitations associated with the stepwise regression approach used. This method relies on strict statistical criteria to retain variables with the greatest contribution and excludes those that do not add significant statistical differentiation to the predictive model. Therefore, excluding the cognitive and affective dimensions from the model does not necessarily imply their theoretical ineffectiveness in self-regulation. Rather, this may be due to the overlap of these two dimensions with the behavioral dimension (multicollinearity), leading the statistical program to focus on the behavioural dimension, as it best explains the majority of the variance in test anxiety among the sample. The researchers also suggest that the nature of the current sample and its academic circumstances be given greater weight to organized behavioral practices (such as time management and studying) as a defense mechanism against anxiety. This has led to the emergence of this specific predictive model and opens the door for future studies using larger samples or different statistical methods to investigate the complementary role of the three dimensions of self-regulation in predicting test anxiety symptoms.

On the basis of these limitations, researchers believe that they open the door to future studies addressing self-regulation and its relationship to test anxiety symptoms, using larger, randomly selected samples. Furthermore, the suggestion is given to extend the pool of samples for the study by taking specializations other than psychology, for instance, applied specializations, institutions prior to university education, or other regions in the Kingdom of Saudi Arabia. Furthermore, a qualitative study, such as interviews, may also help in understanding personal experiences concerning the symptoms of test anxiety, among other factors. Finally, studies of students from diverse cultural and societal environments are needed to enhance the validity and generalizability of the results.

AUTHORS' CONTRIBUTIONS

The researchers confirm their contributions to the paper as follows: M.K. & O.A.: Study conception and design; M.K. & O.A.: Data analysis or interpretation; M.K.

& O.A.: Methodology; M.K. & O.A.: Draft manuscript. All the researchers reviewed the results and approved the final version of the manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical clearance (NU:34603-47) was obtained from the Ethical Approval Committee at Najran University, Saudi Arabia.

HUMAN AND ANIMAL RIGHTS

All procedures performed in studies involving human participants were in accordance with the ethical standards of institutional and/or research committees and with the 1975 Declaration of Helsinki, as revised in 2013.

CONSENT FOR PUBLICATION

Written informed consent was obtained from all participants involved in the study.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

The raw datasets generated and/or analyzed during the current study are available from the corresponding author [O.A.] upon reasonable request.

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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