

# Examining the Associations between Psychological Immunity and the Exams Anxiety in the Context of the Covid-19 Pandemic

Waleed Khalid Abdulkareem Baban<sup>1</sup>, Gelas Abdulla Ismael<sup>2</sup>, Izaddin Ahmad Aziz<sup>3,4\*</sup>

<sup>1</sup>Psychological and Educational Counseling Department, Salahaddin University, Erbil, Iraq

<sup>2</sup>Kindergarten Department, University of Sulaimani, Sulaimanya, Iraq

<sup>3</sup>Special Education Department, Salahaddin University, Erbil, Iraq

<sup>4</sup>English Department, Bayan University, Erbil, Iraq

Email: waleed.baban@su.edu.krd, gelas.ismael@univsul.edu.iq, \*izaddin.aziz@su.edu.krd, izaddin.aziz@bnu.edu.iq

**How to cite this paper:** Baban, W. K. A., Ismael, G. A., & Aziz, I. A. (2023). Examining the Associations between Psychological Immunity and the Exams Anxiety in the Context of the Covid-19 Pandemic. *Open Journal of Social Sciences*, 11, 186-201. <https://doi.org/10.4236/jss.2023.118013>

**Received:** June 23, 2023

**Accepted:** August 12, 2023

**Published:** August 15, 2023

Copyright © 2023 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0). <http://creativecommons.org/licenses/by/4.0/>



Open Access

## Abstract

This study aimed to identify the level of psychological immunity of 12th-grade students. It also endeavors to identify differences in the level of such immunity grades according to the variables of sex and track (scientific or literary) of the students. The study also aims at identifying differences in the level of their test anxiety according to the same variables. To identify the level of the relationship between psychological immunity and test anxiety the sample was targeted as well. The researchers followed the descriptive approach. To achieve the objectives of the study, a questionnaire was used as an instrument to elicit data from a sample of the study that consisted of 500 male and female students, 12th-grade students in the city of Sulaymaniyah-Iraq for the academic year (2020-2021). The participants were chosen by stratified random method. As for the instrument, the psychological immunity scale consisted of (36) items, and the test anxiety scale of (29) items. SPSS was used to analyze the data. The results show that the most prominent was that the students of the twelfth preparatory stage had psychological immunity and that differences were noticed in their psychological immunity according to gender and in favor of males. It also concluded that there are differences in the students' psychological immunity according to the academic tracks and in favor of the scientific branch. The results also were positive in terms of test anxiety with both genders. However, there are statistically significant differences in test anxiety according to their tracks and in favor of the literary branch. Finally, the results of the research showed a very strong inverse correlation between psychological immunity and test anxiety.

---

## Keywords

Psychological Immunity, Test Anxiety, COVID-19, Students

---

### 1. Introduction

During the last decade, there has been a clear interest in supporting them as they develop their optimistic outlooks and their potential, since this may have an impact on how effectively they teach and, in turn, how their pupils learn. According to Gable and Haidt (2005), educational psychology ought to put more emphasis on cultivating the best traits for success in life. Acquiring knowledge on how to attain psychological well-being may be one of positive psychology's most significant impacts (Seligman & Csikszentmihalyi, 2014). Psychological immunity is the term for the psychological defense mechanism that guards the psyche in a manner similar to how the physical immune system protects the body.

Aziz and Mahmood (2023) believe that man has a psychological immune system whose function is to protect the individual from the negative effects of emotional stress, similar to the biological immune system in the body (Dubey & shahi, 2011). Psychological immunity is a complex, organized and hygienic system to protect the individual from psychological and environmental disorders and faces any psychological and emotional pressures, similar to the biological immune system (Fathi, 2019). It has also been mentioned by Wilson that the psychological defense mechanisms work to justify and reinterpret negative information, in a way that makes its effects positive in order not to affect the emotional aspect and leads the person to a normal and good feeling (Al-Bayoumi, 2019).

The value of this study lies in its attempt to underline an important aspect of the positive personality, which is psychological immunity, which has an effective role in absorbing psychological disorders experienced by 12th-grade students especially anxiety and stress due to delaying their final exams during the outbreak of (Covid-19). The negative effects on the students' psychological status are considered alongside how psychological immunity may help the individuals in restoring their psychological balance in such critical and difficult conditions. Relatedly, Lazarus (2000) suggested that personality traits affect the strength and resistance of the individual's coping processes during pressures, whether directly through what the individual possesses or indirectly through the individual's assessment of the threatening and pressing situation (Lazarus, 2000).

Anxiety has become a feature of the contemporary time due to the rapid and multiple changes, including the outbreak of epidemics and diseases, foremost of which is (Covid-19), which has caused the wheel of life to slow down and made fear and anxiety-threatening the psychological structure of the individual and society alike. These rapid changes had a special impact on those whose psychological structure had got enough immunity yet like the teenagers, including –of course- 12th-grade students.

Sherman and Cohen (2006) suggested that, fragile psychological immunity may generate a great danger to the health and balance of adolescents as it threatens their internal entity as a result of the negative influences that arise from this immature immunity. It may lead to such problems as a weak ability to adapt, poor performance, inability to practice daily life tasks, low motivation to study, and a feeling of psychological exhaustion (Sullivan, 2008).

The outbreak of (Covid-19), could lead to the suspension of life in various fields, it led to an increase in higher psychological pressures that would accelerate the rhythm of anxiety among individuals, which would negatively affect their behavior (Aydemir & Ulusu, 2020). Thus, it could be eligible to state that we live in an era of fear. Anxiety, a negative phenomenon in modern life, represents the feeling of fear, caution, stress, and uneasiness (Perz, et al., 2022; Yildirim et al., 2020). The issue of anxiety has occupied an important position in previous and contemporary psychological studies (Weinberger et al., 2020). According to Olah (2002), the exposure of the adolescent, to adversity on a continuous basis, gradually leads them to drain their energy and weaken their psychological ability to confront the problems they face in their daily life becoming negative in the way they think; all are indicators of weak psychological immunity.

To date, an increasing focus has been placed on the factors that enhance the individual's ability to withstand and enables him/her to be resilient in terms of their psychological or environmental potentiality to face the force majeure and overcome 12th-problems and crises. Psychological immunity is one of the key psychological characteristics for an individual to successfully overcome pressing, successive traumatic and stressful situations (Mukhaimer, 1996). Psychological immunity creates a defensive system that helps one to adapt constructively to traumatic, stressful, and painful situations. In addition, such a system creates a sort of highly enduring personality that can resist pressure and mitigate its negative effects to reach a state of compatibility and views the present and the future optimistically besides leading a life free of anxiety and depression (Olah, 2005).

This paper seeks to identify how strong 12th-grade students' psychological immune system is; what the impact of the delay in final exams on their high levels of anxiety is, and what the relationship is between their psychological immunity and their test anxiety. Special care is given to the time during the outbreak of (COVID-19), which led to the delay of 12th-grade final exams, which made the students face a state of stress, anxiety, and mental exhaustion for being concerned about their academic future.

In addition, this study may benefit educators and psychologists for it provides practical strategies related to how to confront the conditions of the outbreak of Covid-19 (or similar pandemics), which paralyzed various areas of life, including education who's the 12 grade in Kurdistan Region a decisive year for students to join the colleges they desire.

## 2. Method

### 2.1. Participants

The sample was composed of 500, 12th-grade students from both genders. They were chosen from the two educational directorates of the city of Sulaymaniyah, 250 males and 250 females. Academically, 250 of the participants were literary in their major and 250 were scientific.

### 2.2. Measures

The researchers resorted to using two instruments to meet the purposes of the study in identifying the prevalence of the current research variables among the sample members and finding out the nature of the relationship between these two variables in terms of strength and direction. Therefore, the researchers found it necessary to construct the two scales in the way shown below:

#### 2.2.1. Psychological Immunity Scale

Based on the theory of Olah (1996), the researchers designed a scale to measure psychological immunity among Kurdish 12<sup>th</sup>-grade- high school students. The scale was of 36 multiple-choice items with 5 options for the respondent to select what s/he finds the most convenient choice. The options were set according to the Likert method: *always, often, sometimes, rarely, never applies to me*. The weights were determined for the responding alternatives ranging between (5-1) respectively, and the psychometric properties of validity and stability were calculated, which will be Explain it later (Table 1).

It is clear from the results contained in the above table that all items of the psychological immunity scale were significant at a significance level of (0.05) and with a freedom range of (268), which indicates that the scale has the validity of the construct and the method of the two contrasted groups.

#### 2.2.2. Test Anxiety Scale

Owing to the lack of an appropriate instrument to measure test anxiety during the outbreak of Covid-19 virus, this scale was designed based on the principles of Mandler and Marson theory (Mandler & Sarason, 1952). The researchers believed that it would be more accurate and convenient to the conditions of the research sample. Thus, (29) items were set according to the Likert method, each of which has five choices to answer: *always, often, sometimes, rarely, never applies to me*. The weights of choices were determined, ranging from (5-1) Straight.

### 2.3. Psychometric Properties

To make sure of the standard characteristics of the test anxiety scale, (500) students were applied to electronic version of the scale, and then its psychometric properties were calculated as follows:

#### Validity of the Scale

The American Psychological Association has identified three indicators of validity:

**Table 1.** Construction validity of the scale of psychological immunity based on two contrasted groups.

Item	Arithmetic Mean		Standard Deviation		Calculated T-value	Statistical significance at the level (0.05)
	Higher group	Lower group	Higher group	Lower group		
1	4.42	3.76	0.592	0.942	6.962	significant
2	4.76	4.23	0.444	1.085	5.284	significant
3	4.27	3.64	0.696	0.876	6.538	significant
4	4.73	4.24	0.460	1.080	4.91	significant
5	3.62	3.33	0.633	0.809	3.351	significant
6	4.44	3.82	0.528	0.905	6.901	significant
7	3.64	3.07	0.687	0.857	6.034	significant
8	4.56	4.04	0.542	1.239	4.391	significant
9	4.63	4.21	0.485	1.045	4.26	significant
10	3.70	3.15	0.672	0.738	6.379	significant
11	4.41	3.59	0.591	1.017	8.123	significant
12	4.39	3.75	0.488	0.920	7.105	significant
13	3.72	3.17	0.665	0.824	6.012	significant
14	4.43	3.78	0.497	1.027	6.639	significant
15	4.42	3.87	0.629	0.913	5.825	significant
16	4.36	3.76	0.642	1.026	5.833	significant
17	4.64	4.34	0.541	1.066	2.879	significant
18	4.59	4.20	0.495	0.945	4.197	significant
19	4.58	3.59	0.539	1.082	9.543	significant
20	4.51	3.81	0.633	0.902	7.42	significant
21	4.42	3.72	0.566	0.990	7.17	significant
22	4.46	3.70	0.608	1.017	7.483	significant
23	3.86	3.06	0.588	0.817	9.232	significant
24	3.73	3.17	0.631	0.787	6.313	significant
25	4.57	3.94	0.497	1.238	5.482	significant
26	4.62	4.12	0.487	1.140	4.722	significant
27	4.61	3.79	0.488	0.915	9.21	significant
28	4.50	3.92	0.571	0.881	6.473	significant
29	4.47	3.69	0.557	0.902	8.526	significant
30	3.81	3.21	0.641	0.814	6.647	significant
31	4.46	3.70	0.529	1.039	7.605	significant
32	4.65	3.96	0.478	1.266	5.914	significant
33	4.53	3.64	0.557	1.054	8.661	significant
34	4.59	3.92	0.523	1.008	6.899	significant
35	4.46	3.86	0.500	0.971	6.383	significant

content validity, test validity, and construction validity (A.P.A., 1985, P: 9). To gauge the validity of their scale, the current researchers utilized face validity and construct validity. They arrived at the results as follows:

### 1) Face Validity

The items of the scale in its initial form were presented to (31) experts in education and psychology. They were asked to review the validity of the items on the scale and the multiple choices set to answer them. Their feedback was analyzed by percentage and chi-square test ( $X^2$ ). An item was considered valid when the calculated value of ( $X^2$ ) was a function at the level (0.05) corresponding to (6.23) or more, which corresponds to (84%) of the experts and arbitrators. The results showed that all items were statistically significant, which means that all the scale's items were valid.

### 2) Construct Validity

The researchers have relied on the indicator of the relationship between the item's degree and the scale's total degree as one of the signals of construction validity, which are as follows:-

The experimental validation of the item, through its link with the scale's total degree, is more accurate than its face validity as it reveals that the item measures the same concept that the total degree measures. This means that the items are homogeneous in measuring what they were prepared to measure. It also means that the item-total degree relationship can measure one aspect (Rahim & Rahim, 1989).

The researchers calculated the correlation coefficient of the item's degree to the total degree of the scale using the Person Correlation coefficient. Anastasi (1976) mentioned that the item's correlation with an internal or external test is an indicator of its validity. It was found that all the items were statistically significant and had an acceptable direct correlation at the significance level of (0.05) and with a degree of freedom (498), i.e. that all the items of the scale were valid, so no item was excluded as **Table 2** illustrates:

**Table 2.** Correlation coefficients of the psychological immunity scale's item.

Item	Correlation coefficient	Item	Correlation coefficient	Item	Correlation coefficient	Item	Correlation coefficient
1	0.518***	8	0.675***	15	0.562***	22	0.554***
2	0.580***	9	0.529***	16	0.355***	23	0.670***
3	0.454***	10	0.535***	17	0.619***	24	0.517***
4	0.519***	11	0.619***	18	0.428***	25	0.581***
5	0.238***	12	0.428***	19	0.405***	26	0.544***
6	0.534***	13	0.504***	20	0.619***	27	0.566***
7	0.487***	14	0.588***	21	0.583***	28	0.476***
						29	0.529***

The critical value of the correlation coefficient with a degree of freedom (498) at a level of significance \*0.05 = (0.104), \*0.01 = (0.115), \*\*\*0.001 = (0.147).

The values in the table show that all the items were statistically significant at the significance levels approved by the researchers, and thus the scale (29) items in its final design.

#### 2.4. Reliability

The researchers identified the value of the scale's reliability coefficient using the method of analysis of variance and using the alpha-Cronbach equation. It was found that the value of the reliability coefficient of the test anxiety scale was (0.89), which is an acceptable value for calculating the reliability of psychological scales. Thus, the reliability of the scale was confirmed.

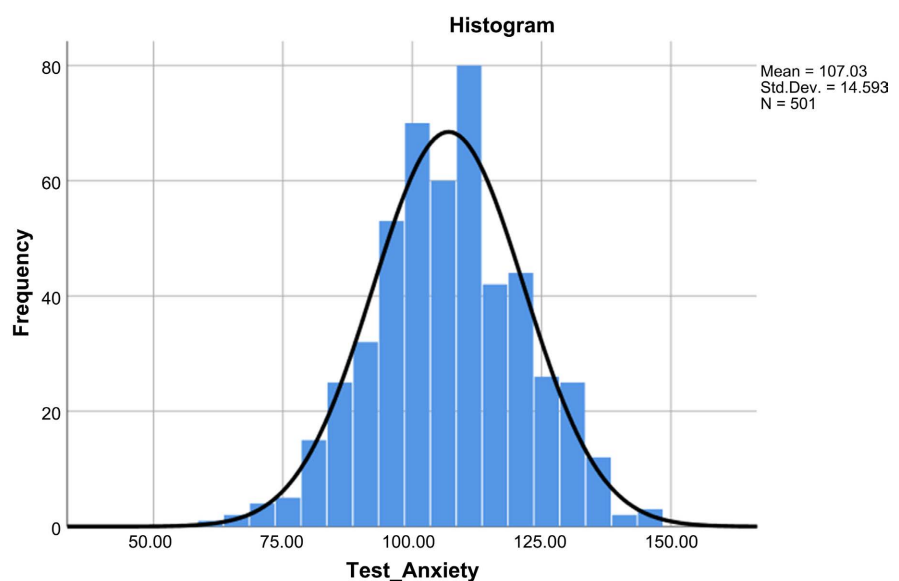
#### 2.5. The Application of the Study's Measuring Instruments

The researchers applied the two measurement tools used for the purposes of this research on the sample electronically and through social networking sites of Sulaymaniyah Directorates of Education—East and West. They were asked to fully adhere to the application of the procedures adopted in the research methodology. The application of the research lasted from (22/06/2020) to (18/7/2020). After the application of the two scales to the research sample, those responses were corrected and subjected to statistical analysis of the research results.

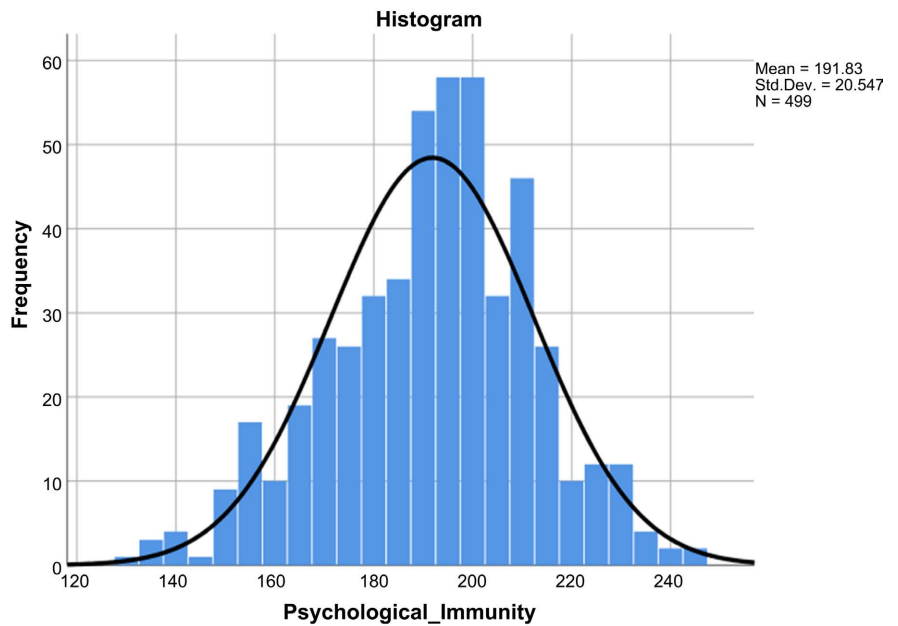
#### 2.6. The Normal Distribution

Before Analyzing the Results, the Distribution shape of the data obtained as a result of the application of two measuring tools for the research variables should be known. Accordingly, the researchers subjected the data (for each variable separately) to the statistical analysis to identify the shape of the normal distribution, which is shown in **Table 3** and **Figure 1**, and **Figure 2**.

**Table 3** and **Figure 1**, and **Figure 2** show that the participants' scores are



**Figure 1.** The participants' data according to the test anxiety scale.



**Figure 2.** The participants’ data according to the psychological immunity scale.

**Table 3.** Statistic values identifying the way the obtained data distributed.

Statistical analyses	Statistical values of psychological immunity scale	Statistical values of the test anxiety scale
Value of Kolmogorov–Smirnov Test	0.081	0.037
Tabular value of Kolmogorov–Smirnov Test at (0.05)	1.36	1.36
A critical value of the Kolmogorov–Smirnov test according to the output of SPSS	0.000	0.098
Arithmetic mean	191.83	107.029
Mode	194.00	107.00
Mean	191.00	102.00
Difference	422.195	212.965
Discriminatory deviation	20.547	14.593
Range	116	84.00
Skewness	–0304	–0.041
Kurtosis	0.023	–0.026
Minimum	130	61.00
Maximum	246	145.00
Number of participants (data)	500	500

normally distributed, which leads the researchers to use identifying statistical methods (parametric).

Statistical methods



The researchers have used SPSS in fulfilling the process needed in this paper and doing the data analysis via the use of the following statistical methods:

- Chi-squared test for face validity of the study's two scales,
- Kolmogorov-Smirnov Test to identify the normal distribution of the two instruments' scores
- The researchers used the SPSS statistical package to complete the practical procedures for comprehensive data science.
- The arithmetic mean equation to calculate the distribution of the study instruments' scores.
- Mode equation to calculate the shape of the distribution of the study instruments' scores.
- The median equation to calculate the distribution of the study instruments' scores.
- Equation of the range to calculate the distribution of the scores of the study instruments.
- Standard deviation equation to calculate the distribution of the study instruments' scores.
- Variance Equation to calculate the distribution of study instruments' scores.
- The skew equation to calculate the distribution of the study instruments' scores.
- The kurtosis equation to calculate the distribution of the study instruments' scores.
- The Cronbach alpha equation to identify the reliability of the test anxiety scale.
- Rolon's equation to identify the reliability of the psycho-immunity scale.
- T-test for two independent samples to calculate the differences in the study's variables according to sex and major, as well as to calculate the validity coefficient of the peripheral comparisons of the psycho-immunity scale
- T-test for two independent samples to calculate the two research variables performed by the participants.
- Pearson correlation coefficient to calculate the correlation between the two research variables.

### 3. Results

The first aim of the study is to identify the level of psychological immunity among 12<sup>th</sup>-grade students. It has been found that the arithmetic means value of the sample amounted to (147.74), and the hypothetical mean value amounted to (105). To identify the significance of the differences, the researchers used the T-test for one sample, and the results showed that the calculated T-value amounted to (67.54) at the level of significance (0.05) and with a degree of Freedom (499) was greater than the T-table value. **Table 4** displays the results.

The results show that the 12<sup>th</sup>-grade students have psychological immunity. The researchers attribute this immunity to the students' positive view of the future. This point goes in agreement with what Olah (2006) indicated that

**Table 4.** Difference in 12<sup>th</sup>-grade students' psycho-immunity.

Arithmetic mean	Hypothetical mean	Standard deviation	T-value	T-table	Degree of freedom	Statistical significance at (0.05) function
147.74	105	14.13	67.54	1.96	949	

psych-immunity can be developed by such positive aspects as hope, optimism, love of life, and avoiding pessimism, which make one feel happy, safe, and be more persistent and stable. Thus, psycho-immunity may create a balance between a person and his/her environment in order to reach higher levels of strength, adaptation, a feeling of happiness and psychological well-being.

The second aim of this study is to identify the differences in psychological immunity among the 2<sup>th</sup> grade students according to sex. The arithmetic mean of the males was calculated, and it was found that it reached (150.85) with a standard deviation of (4.55), while for the females' arithmetic mean reached (144.67) with a standard deviation of (18.97). After using the t-test for two independent samples, it was indicated that the calculated t-value amounted to (4985), which is greater than the T-table value of (1.96) at a level of significance (0.05) and a degree of freedom (496). **Table 5** shows the results obviously in figures.

What stands out in the table is, differences can be spotted in the psychological immunity of the participants according to their sex with a bias for the males. This may be justified by the nature of the males being brought socially up in the Kurdish community as they are prepared to be independent and able to shoulder responsibilities. Consequently, Kurdish males are tougher than females, which makes them be with higher immunity psychologically and more resilient towards life upside-downs.

The third aim is to identify the difference of psychological immunity differences among the 12<sup>th</sup>12<sup>th</sup>-gradients according to the academic branch (scientific - literary). To achieve this goal, T-test was used with the two samples. The arithmetic mean value of the scientific major was (150.22) with a standard deviation of (4.58), and the arithmetic mean of the literary one amounted was (145.29) with a standard deviation of (19.14). The calculated T-value reached (3.95), which is greater compared to the T-table value of (1.96) at the level of significance (0.05) and the degree of freedom (497) as shown in **Table 6**.

The most interesting aspect of **Table 6** indicates differences in the psychological immunity of the participant according to their academic major and in favor of the scientific branch. This bias can be justified by the fact that the scientific branch is more challenging compared to the literary one. According to **Olah (2005)**, the thoughts, knowledge, and beliefs that a person holds have a vital role in developing psychological immunity. In addition, having positive energy enables one to overcome difficult situations and raise psycho-immunity levels.

The fourth aim of this research is to identify the differences in test anxiety with the participants. To attain this goal, the researchers calculated the arithmetic mean of the participants and found that its value was (122.11), while the

**Table 5.** Sex-based differences in 12<sup>th</sup>-grade students' psycho-immunity.

Sex	number	Arithmetic mean	Standard deviation	T-value	T-table	Degree of freedom	Statistical significance at (0.05)
Males	248	150.85	4.55	4.98	1.96	496	Function
Females	250	144.67	18.97				

**Table 6.** Academic major-based differences in 12<sup>th</sup>-grade students' psycho-immunity.

Major	number	Arithmetic mean	Standard deviation	T-value	T-table	Degree of freedom	Statistical significance at (0.05)
Scientific	248	150.22	4.58	3.95	1.96	496	significant
Literary	250	145.29	19.14				

hypothetical mean value was (122.11). To identify the significance of differences, the researchers used T-test with one sample. It was found that the calculated T-value reached (65.74) at a function of (0.05) with a degree of freedom amounted to (499), which is greater than the T-table value of (1.96).

The above results show that 12<sup>th</sup>-grade students have test anxiety. This is probably attributed to the gravity of the circumstances the students were going through. They must have been worried about the exam experience, which can be a normal response, or had concerns about their future which would be shaped by the exams that they were not sure to take on its regular time because of the lockdown. Thus, the level of this anxiety correlates with the degree of the external threat. Also, the individual's performance in the test situation is commensurate with psychological motives related to the nature of performance that leads to stimulating some behaviors that may weaken performance; this is away from any emergency circumstance that may be associated with the examination period. (Table 7)

**Table 7.** Shows the results of the T-value.

Hypothetical mean	Arithmetic mean	Standard deviation	T-value	Table T-value	Degree of freedom	Statistical significance at (0.05)
87	122.11	9.22	65.74	1.96	499	significant

The fifth aim is to identify the 12<sup>th</sup>-grade students' sex-based differences in test anxiety.

To achieve this, the researchers calculated the arithmetic mean for both sexes. It was found that its value for males was (122.56) with a standard deviation of (3.39), while for females it was (121.67) with a standard deviation of (12.59). Having calculated the t-value using T-test with the two independent samples, the results showed that the calculated T-value amounted to (1.07) at a statistical significance of (0.05) with a degree of freedom of (498), which was smaller than the table T-value of (1.96) as shown in Table 8.

**Table 8.** The 12<sup>th</sup>-grade students' sex-based differences in test anxiety.

Sex	number	Arithmetic mean	Standard deviation	Calculated T-Value	Table T-value	Degree of Freedom	Statistical significance at (0.05)
Males	250	122.56	3.39	1.07	1.96	498	Not significant
Females	250	121.67	12.59				

This result indicates no differences in test anxiety between the sexes because the conditions are similar for both, especially the delay in the final exams and the risk of being infected by the Covid-19 virus. Thus, they equally attempted to control their anxious psychological energy due to fear of external danger.

The sixth aim of the study is to identify the academic major-based differences in test anxiety among the participants.

To do so, the researchers used the T-test for two independent samples. The results suggested that the arithmetic mean value of the scientific major was (120.38) and the standard deviation was (12.233). The calculated value reached (4.260), which is greater compared to the T-table value of (1.96) at a significance level of (0.05) with a degree of freedom (498). See **Table 9** below.

**Table 9.** Academic major-based differences in test anxiety with 12<sup>th</sup>-grade students.

Academic Major	number	Arithmetic mean	Standard deviation	Calculated T-Value	Table T-value	Degree of Freedom	Statistical significance at (0.05)
Scientific	249	120.38	12.233	4.260	1.96	498	significant
Literary	251	123.84	3.917				

The results in **Table 9** clearly exhibit that there are statistically significant differences in test anxiety among 12<sup>th</sup>-grade students according to the academic branch with a bias for the literary major. This difference can be justified by the reason that students of the literary branch are more worried about forgetting what they have studied, unlike students of science majors who depend less on memorization or by-heart learning processes.

The seventh aim is to identify the relationship between 12<sup>th</sup>-grade students' psychological immunity and test anxiety.

To attain this aim, Pearson's correlation coefficient has been used. The correlation coefficient between the two variables amounted to (-0.83), which indicates a very strong inverse correlation between the two variables. This result is reasonable as the more the individual is psychologically immune, the less stress s/he will feel, and the better his/her psychological and physical growth will get enhanced. Consequently, this enhanced strength and immunity will make the person more persistent and resilient as well as less anxious.

#### 4. Discussion

It has been reported that the published studies thus far unequivocally provide

evidence for the higher incidence of anxiety in patients with COVID-19 infection, and in the recovery phase (Uzunova et al., 2012; Aziz, 2022). The current study found that 12th-grade students have test anxiety. This is probably attributed to the gravity of the circumstances the students were going through. They must have been worried about the exam experience, which can be a normal response, or had concerns about their future which would be shaped by the exams that they were not sure they take on its regular time because of the lockdown. Thus, the level of this anxiety correlates with the degree of the external threat. Also, the individual's performance in the test situation is commensurate with psychological motives related to the nature of performance that leads to stimulating some behaviour that may weaken performance; this is away from any emergency circumstance that may be associated with the examination period. From the results, we indicated that there are statistically significant differences in test anxiety among 12th-grade students according to the academic branch with a bias for the literary major. This difference can be justified by the reason that students of the literary branch are more worried about forgetting what they have studied, unlike students of science majors who depend less on memorization or by-heart learning processes.

Psychological immunity has been described as the ability to remain resilient in the face of stress and anxiety. It is linked to an individual's psychological well-being and can be an important factor in determining how well they cope with exam anxiety (Al-Nuaimi, 2020). The results show that differences can be spotted in the psychological immunity of the participants according to their sex with a bias for the males. This may be justified by the nature of the males being brought socially up in the Kurdish community as they are prepared to be independent and able to shoulder responsibilities. Consequently, Kurdish males are tougher than females, which makes them be with higher immunity psychologically and more resilient towards life upside-downs.

One interesting finding is that 12th-grade students have psychological immunity. The researchers attribute this immunity to the students' positive view of the future. The most important relevant finding agrees with what Olah (2006) indicated that psych-immunity can be developed through such positive aspects as hope, optimism, love of life, and avoiding pessimism, which makes one feel happy, safe, and more persistent and stable. Thus, psycho-immunity may create a balance between a person and his/her environment in order to reach higher levels of strength, adaptation, a feeling of happiness, and psychological well-being.

Previous research suggested that psychological immunity can help reduce exam anxiety (Hembree, 1988). Studies have shown that people who have higher levels of psychological immunity are more likely to have lower levels of exam anxiety than those who do not have as much psychological exemption. Furthermore, those with greater psychological immunity may be better able to cope with the stress of exams and be more successful in their academic pursuits. For example, those with better psychological immunity may be better able to stay focused and concentrate on the material, even during high-pressure situations. Addi-

tionally, those with greater psychological immunity may be more likely to seek support from family, friends, and other resources. This can help them to better manage their exam anxiety, as well as increase their overall well-being.

The COVID-19 pandemic has caused a great deal of disruption, fear, and anxiety for people around the world. For students, the anxiety may be even greater due to the uncertainty of how their education will be affected, the changes to their daily routines, and the fear of getting sick or infecting their family and friends. When it comes to exam anxiety, students may feel overwhelmed by the thought of having to take tests in an unfamiliar online or remote format. They may worry about not having enough time or resources to adequately prepare, or be concerned about the reliability of the technology they'll be using. Additionally, they may experience heightened stress due to the disruption of their normal study routine or because of the added time pressure of having to complete their coursework and exams on an accelerated timeline.

## 5. Conclusion

These results demonstrate that the degree of stress and anxiety a person experiences before a test determines how strong their psychological immune system will be afterward. Furthermore, these results suggest a comparable, somewhat strong association between the stress level and the psychological immune response, and the anxiety level related to state exams. Future studies are necessary to examine immunological reactions in people who are under more psychological stress than were described in this study, such as when dealing with significant life events.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

- Al-Bayoumi, S. R. M. (2019). The Effectiveness of a Counseling Program to Support Psychological Immunity and Reduce Irrational Thoughts among a Sample of Taif University Students. *The Comprehensive Multi-Knowledge Electronic Journal for the Dissemination of Scientific and Educational Research*, 14, 409-444.
- Al-Nuaimi, M. A.-S. (2020). Psychological Immunity of the Students Whose Fathers Were Murdered and Its Relationship to Some Variables. In *The First International Scientific Conference for Psychological and Educational Sciences*. ZANCO Journal of Humanity Sciences.
- Anastasi, A. (1976). *Psychological Testing* (4th ed.). Macmillan .
- Aydemir, D., & Ulusu, N. N. (2020). Commentary: Challenges for PhD Students during COVID-19 Pandemic: Turning Crisis into an Opportunity. *Biochemistry and Molecular Biology Education*, 48, 428-429. <https://doi.org/10.1002/bmb.21351>
- Aziz, I. A. (2022). Need Satisfaction and Positivity Promoting Mental Health through the Context of the COVID-19's Pandemic. *Journal of Tikrit University for Humanities*, 29, 16-33. <https://doi.org/10.25130/jtuh.29.3.1.2022.23>

- Aziz, I. A., & Mahmood, D. A. (2023). The Mediating Role of Positivity in the Relationship between Psychological Immunity and Emotional Control among Health Sector Workers in Erbil City. *Journal of Educational and Psychological Sciences*, 7, 65-88. (In Arabic) <https://doi.org/10.26389/AJSRP.E160323>
- Dubey, A., & Shahi, D. (2011). Psychological Immunity and Coping Strategies: A Study on Medical Professionals. *Indian Journal of Social Science Researches*, 8, 36-47.
- Fathi, N. A. (2019). *Perceived Self-Efficacy, Problem-Solving Ability, and Goal-Oriented as Predictors of Psychological Immunity among Academically Outstanding Students*. Ph.D. Thesis, Minia University.
- Gable, S. L., & Haidt, J. (2005). What (and Why) Is positive psychology? *Review of General Psychology*, 9, 103-110. <https://doi.org/10.1037/1089-2680.9.2.103>
- Hembree, R. (1988). Correlates, Causes, Effects, and Treatment of Test Anxiety. *Review of Educational Research*, 58, 47-77. <https://doi.org/10.3102/00346543058001047>
- Lazarus, R. S. (2000). Toward Better Research on Stress and Coping. *Journal of American Psychologist*, 55, 665-673. <https://doi.org/10.1037/0003-066X.55.6.665>
- Mandler, G., & Sarason, S. B. (1952). A Study of Anxiety and Learning. *The Journal of Abnormal and Social Psychology*, 47, 166-173. <https://doi.org/10.1037/h0062855>
- Mukhaimer, E. (1996). Perceiving Parental Acceptance and Rejection and Its Relationship to the Psychological Stability of University Students. *Journal of Psychological Studies*, 6, 299-275.
- Olah, A. (1996). Psychological Immune System: An Integrated Structure of Coping Potential Dimensions. In *The 9th Conference of the European Health Psychology Society*.
- Olah, A. (2002). Positive Traits: Flow and Psychological Immunity. *First International Positive Conference*, Washington DC, 3-6 October 2002.
- Olah, A. (2005). *Anxiety, Coping, and Flow. Empirical Studies in Interactional Perspective*. Treffort Press.
- Olah, A. (2006). Social Context of the Healthy Personality Development and Psychological Immunity: A Longitudinal Approach. *Journal of Personality and Social Psychology*, 5, 615-643.
- Perz, C. A., Lang, B. A., & Harrington, R. (2022). Validation of the Fear of COVID-19 Scale in a US College Sample. *International Journal of Mental Health and Addiction*, 20, 273-283. <https://doi.org/10.1007/s11469-020-00356-3>
- Rahim, A., & Rahim, B. A. (1989). *Test Anxiety (Concept-Treatment-Measurement)*. The Egyptian Renaissance House.
- Seligman, M. E., & Csikszentmihalyi, M. (2014). Positive Psychology: An Introduction. In *Flow and the Foundations of Positive Psychology* (pp. 279-298). Springer. [https://doi.org/10.1007/978-94-017-9088-8\\_18](https://doi.org/10.1007/978-94-017-9088-8_18)
- Sherman, D. K., & Cohen, G. L. (2006). The Psychology of Self-Defense: Self-Affirmation Theory. *Advances in Experimental Social Psychology*, 38, 183-242. [https://doi.org/10.1016/S0065-2601\(06\)38004-5](https://doi.org/10.1016/S0065-2601(06)38004-5)
- Sullivan, K. (2008). *Children and Ideal Parenting under Life Stresses* (Translated by K. Al-Amri). Dar Al-Farouk for Cultural Investments.
- Uzunova, G., Pallanti, S., & Hollander, E. (2021). Presentation and Management of Anxiety in Individuals with Acute Symptomatic or Asymptomatic COVID-19 Infection, and in the Post-COVID-19 Recovery Phase. *International Journal of Psychiatry in Clinical Practice*, 25, 115-131. <https://doi.org/10.1080/13651501.2021.1887264>
- Weinberger-Litman, S. L., Litman, L., Rosen, Z., Rosmarin, D. H., & Rosenzweig, C. (2020). A Look at the First Quarantined Community in the USA: Response of Religious

Communal Organizations and Implications for Public Health during the COVID-19 Pandemic. *Journal of Religion and Health*, 59, 2269-2282.

<https://doi.org/10.1007/s10943-020-01064-x>

Yıldırım, M., Arslan, G., & Ahmad Aziz, I. (2020). Why Do People High in COVID-19 Worry Have More Mental Health Disorders? The Roles of Resilience and Meaning in Life. *Psychiatria Danubina*, 32, 505-512. <https://doi.org/10.24869/psyd.2020.505>