Eurasian Journal of Science and Technology

2021, Volume 1, Issue 3

Original Article

Relationship Between Defense Mechanisms and Empathy with Biological Channels of Anxiety Relief in Students

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Citation R. Sharifi Pisheh, D. Manavipour, **Relationship Between Defense Mechanisms and Empathy with Biological Channels of Anxiety Relief in Students**. *Eurasian J. Sci. Technol.,* **2021**, *1*(3), 139-158.

https://doi.org/10.48309/EJST.2021.286768.1024

Article info:
Received: 17 February 2021
Accepted: 24 May 2021
Available Online: 26 May 2021
ID: JSTR-2105-1024
Checked for Plagiarism: Yes
Language Checked: Yes

Keywords:
Defense mechanism, Empathy, Anxiety release channel.

ABSTRACT

The aim of the present study was to investigate the relationship between defense mechanisms and empathy on anxiety biological discharge channels in students of Islamic Azad University, Roodehen Branch. The research method was descriptive-correlational and the statistical population of this study included 170 students of Islamic Azad University, Roodehen Branch, selected as the sample size using the available random sampling method. For data collection, three questionnaires predicting the discharge paths, DSQ defense styles and Toronto empathy questionnaire were used. To analyze the data, descriptive statistics was first computed. In the inferential section, in order to test the research hypotheses and questions, the Kolmogorov-Smirnov test was used to measure the normality of the data and multiple regression was used to test the research hypotheses. The results showed that defense mechanisms (developed, immature, psychotic) have a significant effect on empathy and the channels of discharge of striated, smooth and chaotic anxiety. Also, empathy has no significant effect on the discharge channel of striated, smooth and cognitive anxiety.

Introduction

In any society, the role of students as a launching pad for that society towards growth and development is clear. Students are not only the main body of specialists in various fields, but also the future managers and leaders of other parts of the country. As the student community grows, the importance of mental health, reducing anxiety, relaxation and concentration, and thus increasing the efficiency of educated people, also increases.

All human beings experience anxiety in their personal and public lives. It is natural for a person to become anxious in the face of stressful and unforeseen dangers and situations. Carrying this occasional or chronic anxiety in our daily lives causes us to be unable to concentrate and relax enough to do our daily tasks.

Anxiety is an unpleasant, vague feeling for no apparent reason, often accompanied by symptoms of the autonomic nervous system. Anxiety is a warning sign that causes symptoms similar to fear in humans, except that fear is a human response to a known external threat. If a person's anxiety is severe and has been involved for a long time, it can be detrimental to him or her and play an important role in causing mental illness such as coronary heart disease, hypertension, angina and mental disorders. Anxiety is not dependent on a

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particular time or culture, and its experience begins at birth and continues throughout life, and is created with all new experiences of each person, such as entering school, a job, or any new situation [4].

The defense mechanisms that are responsible for protecting me from various forms of anxiety may be normal or abnormal, efficient or inefficient, depending on the type of action. Studies show that the defense mechanisms disrupted can lead to defects in the identification and expression of emotion [5]. Accordingly, defense mechanisms influence a person's ways of reacting to emotional conflict and daily internal and external tensions [6]. Different people use different mechanisms, and these differences lead to the formation of different lifestyles among humans [7]. Defense mechanisms are among the variables that consciously and unconsciously affect the level of cognitive and emotional processing of the individual and cause disturbance in the emotional system of the individual [8].

Humans resort to compensatory or compromising behaviors to reduce the anxiety caused by deprivation, in other words, they use a defense mechanism. These behaviors are acquired and vary in quantity and can be considered normal and natural behaviors because each person has some of these behaviors. In addition, such behaviors are used as a shield or protector against severe anxiety and worry, but excessive use of these mechanisms may lead to psychological distress [9].

Defense mechanisms are a safe way to reduce stress and anxiety when dealing with stress as a result of not accepting the facts, a means of reducing anxiety and stress in severe situations. Of course, not all mechanisms are negatively effective, and depending on the defense styles that are divided into several groups, they can be used usefully, but in any case, these defenses are a distortion of reality and due to the sharing of logical beliefs and defense mechanisms seem to be useful in distorting reality and finding meaningful connections between their components. Our perceptions of ourselves, goals, ideas, and feelings related to internal and external reality are altered by defense mechanisms. These defenses, like the immune system, are often active without our being aware of them. The role of defense mechanisms in protecting the individual against anxiety is essential. There is growing evidence that with defense mechanisms we can better understand human evolution and how it adapts and interacts [10-13].

Empathy is based on self-awareness. The more open we are to our own feelings, the better we will be at perceiving the feelings of others. In all relationships, the source of concern for others is emotional harmony and the ability to empathize with them. This ability - the ability to recognize the feelings of others - plays a role in various areas of life, from sales and management to love and parenting, to compassion for others and political activities; based on Tichtner's theory, empathy stems from a kind of physical imitation of another person's helplessness that later evokes the same feelings in a person. He was looking for a word that is different from empathy, which means the general feeling of another person's misery and suffering, without sharing that person's feelings [14]. Correct or accurate empathy is reading the thoughts and feelings of others or, in other words, evaluating the ability to accurately deduce the specific content of the thoughts and feelings of others successfully. The ability to correctly infer the specific content of the thoughts and feelings of others demonstrates the skill of empathy in the individual. People can usually be very effective in managing their relationships when they are able to understand and control their emotions and empathize with the feelings of others. People with social skills have the talent to manage work teams, and this is because of their empathy when doing work. In addition, they are people who specialize in convincing others that this is a mixture of self-awareness, self-discipline, and empathy. Lack of communication skills can make even the smartest people feel helpless in their relationships and seem selfish, greedy or unfeeling. These social skills allow a person to connect with others, arouse others' emotions, and inspire them in developing intimate relationships, persuade and influence

people, and reassure others. This is where we realize the role of defense mechanisms in everyday life communication and having an empathetic spirit and establishing proper communication with others [15-17].

Previous Studies

Anna Babl *et al*. (2019) addressed comparison and change of defense mechanisms during the course of psychotherapy in patients with depression or anxiety disorder, which was performed on 47 outpatients with depression or anxiety disorders. The results showed that during treatment, the overall defense function (ODF) as well as the adaptive defense significantly increased, while the maladaptive and neurological defense did not change. At the beginning of treatment, the ratio of adaptive defenses and ODF in patients with anxiety disorders was significantly higher than that of patients with depressive disorders. However, depressed patients showed greater improvement in their defensive function during treatment. The findings also support the view of defense mechanisms as a useful theoretical concept and emphasize that the change of defense mechanisms is effective in the change during psychotherapy.

Hutford et al. (2019) approached defense mechanisms during psychotherapy in patients with depression or anxiety disorder. In this study, a total of 47 outpatients with depression or anxiety disorders were adjusted for 25 sessions of cognitive-behavioral therapy with integrated elements or emotion-focused therapy (CBT + EFT) or self-regulatory components, theory-based (CBT + SR). To evaluate changes in defense performance, a method with the rating of the observer, the Defense Mechanism Scoring Scale (DMRS) was used in each of the first, eighth, sixteenth and twenty-fourth sessions. The results showed that during the treatment period, overall defense function (ODF) as well as adaptive defense increased significantly, while maladaptive and neurological defense did not change. At the beginning of treatment, the ratio of adaptive defenses and ODF in patients with anxiety disorders was significantly higher than those of patients with depressive disorders. However, depressed patients showed greater improvement in their defense function during treatment. The results support the view of defense mechanisms as a useful diagnostic and theoretical concept and also support the view that a change in defense mechanisms may be a mechanism related to a change in the psychotherapy process [18].

Mahdavi *et al*. (2019) probed into the effect of intensive and short-term psychotherapy on the expression of emotions and defense mechanisms in women with breast cancer. This article was a quasi-experimental study and its statistical population included women with breast cancer who have completed their chemotherapy course and have referred to psychological centers for psychological services. Six eligible patients were selected to enter the psychotherapy program based on Davanloo's therapeutic approach. Participants were selected through purposive sampling and joined this study voluntarily. Measurement instruments included Emotional Expression Questionnaire (EEQ) and 40-item defense style questionnaire. ISTDP facilitated emotional expression, expression of latent emotions, relief of emotional malaise, strengthened the adult mechanism, and regulated neurotic and immature mechanisms in breast cancer patients. The results showed that this psychological approach can be used as a non-pharmacological method to improve the mental health and quality of life of women with breast cancer [19-21].

Morrison (2019) did a study on empathy changes mediated by the effects of cognitive-behavioral group therapy but not based on mindfulness-based stress reduction for social anxiety disorder. The results showed that the disorder Social anxiety disorder (SAD) was associated with problems with the ability to exchange positive emotions (positive emotional empathy). Mixed evidence also suggests the potential recognition of impaired positive and negative emotions of others (cognitive empathy) and impaired sharing of negative emotions of others (negative emotional empathy) [22-24].

Therefore, they focused on whether the two most effective treatments for SAD, cognitive-behavioral group therapy (CBGT) and mindfulness-based stress reduction (MBSR), improve empathy in SAD compared with waiting list status, or whether improvement in empathy would become social anxiety. In a randomized controlled trial, participants with SAD performed an empathic task at baseline, after treatment / waiting list (N = 81) and 1-year follow-up (n = 37). Compared with MBSR and waiting list, CBGT led to significant improvements in positive emotional empathy. CBGT-related changes in positive emotional empathy also improved social anxiety both after treatment / waiting list and at 1-year follow-up. Other indicators of empathy did not change in all three conditions. Thus, one way that CBGT may provide special benefits to people with SAD is to increase their ability or willingness to share the positive emotions of others [25-27].

Singh (2018) investigated the Impact of anxiety on the defense mechanisms of miscellaneous and indian students. The aim of this study was to investigate the effect of anxiety on different defense styles of Groningen (Dutch) and Indian (Indian) students. In this cross-cultural comparison, the aim was to examine how much students would experience anxiety and what types of defense mechanisms they would use. The Indians were assumed to be highly anxious and to use defense mechanisms faster, while the Dutch were less anxious and sometimes used defense mechanisms. The study involved 200 students (100 from Groningen (Netherlands), the Netherlands, and 100 from Patila (Indians) in India. To measure anxiety and defense styles, the style questionnaire defense (DSQ-40) was applied and the data were analyzed to measure correlation, regression and maneuver. The results showed that anxiety has a significant effect on the population and Indians use neurotic defense mechanisms, mature and immature more than Dutch students.

In another study by Kara Settipani *et al.* (2017), the impact of child anxiety on anxiety was scrutinized. The effect of comparing high and low levels of child anxiety on mothers' reports, mother factors in the adaptive relationship, and modulators of the relationship between the child's compromise and distress were investigated. Maternal perception of coping with youthful images of young people with high or low levels of anxiety in anxiety-provoking situations that cause social anxiety, general anxiety, or separation anxiety in a sample of 7 to 17-year-olds with anxiety disorder (N = 70, M = 11.66, 47.1% male) was considered. The results indicated the effect of child anxiety on anxiety in mothers, so that mothers reported more under child anxiety conditions [28].

Situational analysis showed this effect for social and general anxiety situations. In addition, a correlation was found between mothers' greater adaptation and more negative beliefs about their child's anxiety experience, which existed in different situations. Mothers' empathy moderated the relationship between general residency and the child's distress. Maternal anxiety also moderated the relationship between residence and the child's distress, with outcomes varying by type of situation. The findings, in theory, suggest a link between child distress and reported maternal housing, and suggest that maternal beliefs about anxiety are an important therapeutic goal. The mother's high empathy may be related to a greater degree of adaptability in response to the child's behaviors, while the mother's anxiety may be related to more adaptive responses to the child's behaviors.

Choi et al. (2016) dealt with the effect of verbal empathy and touch on anxiety in patients under flexible bronchoscopy. The aim of this study was to investigate the hypothesis that whether verbal (verbal) empathy and intentional touching of a bronchoscopist, i.e. a person who examines the trachea and bronchi for the purpose of treatment, would reduce patients' anxiety. The sample of this study included 267 patients with a mean age of 65 years. The results showed that verbal empathy and touch by the bronchoscopist before bronchoscopy reduced anxiety in patients with roots of high levels of anxiety [29-31].

Research Method

This research can be considered as a descriptive research based on how to obtain the desired data. In terms of path, it was a survey (correlation) in which an attempt was made to examine the relationship between independent variables and dependent variables. In this study, variables and indicators were also described. In terms of data collection, it is a field method that includes the collection of initial data or new information from the subjects themselves by methods such as observation, questionnaire, interview and so on. In terms of depth, it is more broad than deep [32-34].

Statistical Community

The statistical population of the study included students of Roodehen Branch of Azad University in 2019.

Statistical Sample

According to the type of study and the number of predictor variables in regression analysis according to the recommendation of Tabachink and Fidel (2007), sample size in the present model was the number of predictor variables plus 104 (i.e., 106 = 104 + 2). Finally, the final sample size of 170 people was determined. Based on the non-random sampling method, medical students of Islamic Azad University of Roodehen were selected as the sampling unit and 3 questionnaires were administered to students simultaneously. Sampling method was available in this non-probability study. Finally, 167 questionnaires were filled out and returned to the researcher for statistical analysis [35].

Validity

In this study, the following measures were taken to increase the content validity of the questionnaire: a) Using standard questionnaire, and b) using the opinions of professors, especially supervisors and consultants.

Reliability

In this study, Cronbach's alpha was used to assess the reliability of the research questionnaires, the results of which are listed in Table 1.

Table 1 Cronbach's alpha coefficient for each dimension of the questionnaire

Result	Cronbach's alpha coefficients	Number of questions	Variables
Acceptable reliability	0.723	8	Developed defense mechanism
Acceptable reliability	0.820	24	Undeveloped defense mechanism
Acceptable reliability	0.713	7	Neurotic defense mechanism
Acceptable reliability	0.873	20	Mucosal muscle channels
Acceptable reliability	0.883	31	Smooth muscle channel
Acceptable reliability	0.792	12	Cognitive turmoil
Acceptable reliability	0.735	16	Sympathy

According to Table 1 above, because the alpha coefficients of all variables were greater than 0.7, so the questionnaire had good reliability.

Instruments

The questionnaires used in this research are as follows:

Andrews Defense Mechanisms Questionnaire (DSQ)

The Defense Styles Questionnaire (DSQ) was developed in 1993 by Andrews et al. This questionnaire has 40 terms that are scored in a 9-point range from strongly disagree to strongly agree. DSQ assesses the defense mechanism and three defense styles at three

levels: immature, developed, and psychotic. Andrews et al. (1993) reported correlations between test and retest between 0.46 and 0.86, and Cronbach's alpha for developed, mentally retarded, and immature styles was 0.68, 0.58, and / 80, respectively. The DSQ in Iran was reviewed and standardized by Heidari Nasab (2006) and in order to assess the simultaneous reliability and validity, the correlation between defense mechanisms and personality traits was studied based on the Neo 5 Personality Factor Questionnaire. The reliability and validity of the questionnaire structure were also evaluated based on the calculation of the correlation of each material with the related mechanism and style. Therefore, the findings related to the validity of the questionnaire have the same validity and validity as the original version. In Ehteshamzadeh, Pasha and Samimi (2012) research, Cronbach's alpha method and two halves were used to determine the reliability of the defense mechanisms questionnaire, which were 0.84 and 0.82 for the whole questionnaire, respectively, and for immature defense style components. 0.80 and 0.80, respectively, and the developed defense style were 0.55 and 0.63, respectively, and the mentally disturbed defense style was 0.55 and 0.60, respectively, which indicated the optimal reliability coefficients of the mentioned questionnaire.

Anxiety Discharge Patterns Questionnaire Farhadi et al.

Farhadi, Ghorbani, and Bahrami (2010) investigated 75 articles on 640 students of the University of Tehran. In exploratory factor analysis, 27 items were obtained on three factors with factor loads of 0.35 and above, which were used for confirmatory factor analysis. Goodness indicators of confirmatory analysis fit showed that the model was consistent with the data. Cronbach's alpha coefficient of total scale and perceptual cognitive pathways (patterns), smooth muscle, and striated muscle were 0.93, 0.87, 0.83, and 0.86, respectively. Combined validity was 0.96, 0.93, 0.91 and 0.89, respectively [35-37].

Empathy Questionnaire

The Toronto Empathy Questionnaire (TEQ) was developed by Nathan Springer et al. (2010) in 16 questions. Factor analysis was used to prepare this questionnaire, showing empathy as a primarily emotional process. In three studies, TEQ showed strong convergence validity; positive correlation with social decoding behavioral measures, empathetic self-report measures, and negative outcomes by measuring autism symptoms. It also demonstrated good internal consistency (internal stability) and test reliability. TEQ is considered a short, reliable and valid tool for empathy assessment.

Positive correlation was observed in this test, $r = 0.80$, $p < 0.001$ and negative for autism $r = -0.33$ and $p < 0.01$. Cronbach's alpha for this questionnaire showed 0.87 and test-retest validity showed $r = 0.81$, $P < 0.001$. There was also a moderate effect on gender.

Data Analysis

In order to analyze the data in this study, descriptive statistics was used in the first part. In the inferential section, in order to test the research hypotheses and questions, Kolmogorov-Smirnov test was used to measure the normality of the data and multiple regression was used to test the research hypotheses.

Descriptive Statistics

Gender

Table 2 Description of the study sample by gender

Frequency	Abundance	Gender
83.2	139	**Man**
16.8	28	**Female**
100	167	**total**

According to the results of the questionnaires, most people (139 people), equivalent to 83.2% of the sample, were women and 16.8% of them (28 people) were men.

Age status of the respondents

Table 3 Description of the studied sample by age

Frequency	Abundance	Age
22.7	38	**20 to 25 years**
27.5	46	**26 to 30 years**
28.7	48	**31 to 35 years**
9.5	16	**36 to 40 years**
4.4	7	**41 to 45 years**
5.5	9	**46 to 50 years**
1.7	3	**51 to 55 years**
100	167	**Total**

As seen in Table 3, 22.7% of the respondents, i.e. 38 people fell in the age group of 20 to 25 years, 27.5%, i.e. 46 people in the age group of 36 to 30 years, 28.7%, i.e. 48 people in the age group of 31 to 35 years, 9.5 %, i.e. 16 people in the age group of 36 to 40 years, 4.4 %, i.e. 7 people in the age group of 41 to 45 years, 5.5 %, i.e. 9 people in the age group of 46 to 50 years and 1.7 %, 3 people in the age group of 51 to 55 years.

Education Status

Table 4 Description of the study sample by education

Frequency	Abundance	education
56.8	95	**B.A.**
40.7	68	**M.A.**
2.5	4	**Ph.D.**
100	167	**Total**

According to the results obtained from the data, 56.8% of the respondents had a bachelor's degree, 40.7% a master's degree and 2.5% Ph.D.

Descript

Ion of Research Variables

Table 5 Central indicators and dispersion of variables

Dispersion				Central		Variables
Elongation	tilt	Variance	Standard deviation	Middle	Average	
1,258	-0.682	2,012	1,418	3,500	3,575	**Developed defense mechanism**
1,269	0.217	1,269	1.126	2.2500	2,348	**Undeveloped defense mechanism**
1,348	-0.871	0.628	0.792	3,000	2,962	**Neurotic defense mechanism**
1,971	0.658	0.249	0.498	1.65	1,725	**Mucosal muscle channels**
0.982	0.285	0.211	0.459	1,677	1,790	**Smooth muscle channel**
0.268	0.235	0.255	0.5047	1,500	1,672	**Cognitive turmoil**
1,287	-0.875	0.179	0.422	4.06	4.03	**Sympathy**

According to Table 4, among the research variables, empathy variable (4.03) had the highest mean and chaotic anxiety discharge channel variable (1.672) had the lowest mean. Also, the developed defense mechanism variable showed the highest standard deviation (1.418) (least unanimity) and the empathy variable (0.422) showed the lowest standard deviation (most unanimity). In general, the distribution of responses was above average.

Inferential Statistics

Data Normality Test

To perform statistical methods and calculate appropriate test statistics and logical inferences about research hypotheses, the most important thing before any action is to choose the appropriate statistical method for research. For this purpose, knowledge of data distribution is a top priority. For this purpose, in this study, the valid Kolmogorov-Smirnov test was used to test the hypothesis of normality of research data. This test examines the normality of the data.

The method of judging according to the Kolmogorov-Smirnov test table is that if the significance level (sig) for all variables is greater than the test level (0.05), the data distribution is normal. The result of this test is shown in Table 6.

Table 6 Results of Kolmogorov-Smirnov test

Test result	Significance level	Kolmogorov statistics	Variables
normal	0.33	0.059	Developed defense mechanism
normal	0.200	0.60	Undeveloped defense mechanism
normal	0.200	0.721	Neurotic defense mechanism
normal	0.81	0.101	Mucosal muscle channels
normal	0.154	0.119	Smooth muscle channel
normal	0.25	0.136	Cognitive turmoil
normal	0.68	0.84	Sympathy

Examining the Hypotheses

Hypothesis 1: Defense mechanisms (developed, immature, psychotic) have a significant effect on empathy.

Table 7 Summary of the results of multiple regression of the first hypothesis

The dependent variable	Independent variables	R	R^2	Modified R^2	Estimated benchmark error	Watson Camera
Sympathy	Grown, immature, mentally disturbed	0.442	0.195	0.192	0.41416	**1,982**

Based on the results of multiple regression, the multiple correlation coefficient for empathy is R = 0.442. This means that the above variables are 44.2% correlated with empathy. Explanation coefficient (explained variance) is R^2 = 0.195 and its adjusted coefficient is R2adj = 0.192. Thus, the above variables explain 19.2% of the total variance of the dependent variable.

Table 8 Anova Hypothesis 1

Model	sum of squares	Degrees of freedom	Average square	F	Significance level
regression	1,733	3	0.578	3,367	**0.02**
left over	27,960	163	0.172		
Total	29,693	163			

The ANOVA table shows the regression analysis of variance. In this table, the value of F is 3.367 and its significance probability is equal to 0.02. Therefore, the regression model is significant. This means that the explanatory power of the independent variable is statistically significant.

Table 9 Standardized beta coefficient of the first hypothesis

Independent variables	Non-standardized coefficient		Standardized coefficient	T	Significance level
	B	estimation error	Beta		
	3,811	0.169		22,488	**0.000**
Grown	0.023	0.024	0.481	6,987	**vvv0.005**
Undeveloped	-0.074	0.035	-0.297	2.1114	**0.003**
Psychedelic	0.141	0050	-0.364	2,793	**0.005**

Based on Table 9 above, among the studied variables, the variable of the developed defense mechanism with a beta value of 0.481 has more explanatory power than the other variables. The immature and neurotic variables have a negative beta coefficient, i.e. they are inversely related to empathy, and the more the immature and psychosocial mechanism in a person, the less empathy decreases.

Hypothesis 2: Defense mechanisms (developed, immature, psychotic) have a significant effect on the discharge channel of striatal anxiety.

Table 10 Summary of the results of multiple regression of the second hypothesis

The dependent variable	Independent variables	R	R^2	Modified R^2	Estimated benchmark error	Watson Camera
Striped Anxiety Discharge Channel	Grown, immature, mentally disturbed	0.476	0.226	0.202	0.44250	**2,026**

Based on the results of multiple regression, the multiple correlation coefficient for the striatal discharge channel is R = 0.476. This means that the variables of the developed, undeveloped, and disturbed defense mechanism are 47.6% correlated with the striatal discharge channel. The coefficient of determination (explained variance) is R2 = 0.226 and its adjusted coefficient is R2adj = 0.202. Thus, the above variables account for 20.2% of the total variance of the dependent variable.

Table 11 ANOVA Hypothesis II

Model	sum of squares	Degrees of freedom	Average square	F	Significance level
regression	9,343	3	3,114	15,905	**0.000**
left over	31,917	163	0.196		
Total	41,259	163			

The ANOVA table shows the regression analysis of variance. In this table, the value of F is 15.905 and its probability is equal to 0.000, i.e. 99%. Therefore, the regression model is significant. This means that the explanatory power of the independent variable is statistically significant.

Table 12 Standardized beta coefficient of the second hypothesis

Independent variables	Non-standardized coefficient		Standardized coefficient Beta	T	Significance level
	B	estimation error			
	1,246	0.181			**0.000**
Grown	-0.79	0.25	-0.426		**0.002**
Undeveloped	0.203	0.37	0.460		**0.000**
Psychedelic	0.013	0.54	0.020		**0.81**

Based on the results of the above table, among the studied variables, the immature defense mechanism variable with a beta value of 0.460 has more explanatory power than the other variables. The developed variable has a negative beta coefficient, i.e. it is inversely related to the striatal discharge channel, and the more the mechanism is developed in the individual, the less the anxiety discharge through the striated muscles decreases. The variable of the psychiatric defense mechanism is not significantly related to the striatal discharge channel.

Hypothesis 3: Defense mechanisms (developed, immature, psychotic) have a significant effect on the smooth anxiety discharge channel.

Table 13 Summary of the results of multiple regression of the third hypothesis

The dependent variable	Independent variables	R	R^2	Modified R^2	Estimated benchmark error	Watson Camera
Smooth Anxiety Discharge Channel	Grown, immature, mentally disturbed	0.480	0.230	0.216	0.40670	**2,320**

Based on the results of multiple regression, the multiple correlation coefficient for the smooth anxiety discharge channel is R = 0.476. This means that the variables of the developed, undeveloped, and disturbed defense mechanism are 47.6% correlated with the smooth anxiety discharge channel. The coefficient of determination (explained

variance) is R2 = 0.226 and its adjusted coefficient is R2adj = 0.202. Thus, the above variables account for 20.2% of the total variance of the dependent variable.

Table 14 ANOVA Hypothesis III

Model	sum of squares	Degrees of freedom	Average square	F	Significance level
Regression	8,071	3	2,690	16,266	**0.000**
left over	26,961	163	0.165		
Total	35,032	163			

The ANOVA table shows the regression analysis of variance. In this table, the value of F is 16,266 and its probability of significance is equal to 0.000, 99%. Therefore, the regression model is significant. This means that the explanatory power of the independent variable is statistically significant.

Table 15 Standardized beta coefficient of the third hypothesis

Independent variables	Non-standardized coefficient		Standardized coefficient	T	Significance level
	B	estimation error	Beta		
	1,320	0.166		7,935	**0.000**
Grown	-0.68	0.023		-2.942	**0.004**
Undeveloped	0.196	0.034	-0.210	5,680	**0.000**
Psychedelic	-0.01	0.049	0.480	-0.011	**0.991**

Based on the results of the above table, among the studied variables, the immature defense mechanism variable with a beta value of 0.480 has more explanatory power than the other variables. The developed variable has a negative beta coefficient, i.e. it is inversely related to the smooth anxiety discharge channel, and the more the mechanism is developed in the individual, the less anxiety is discharged through the smooth muscles. The variable of the psychoactive defense mechanism has no significant relationship with the smooth anxiety discharge channel.

Hypothesis 4: Defense mechanisms (developed, immature, psychotic) have a significant effect on the discharge channel of chaotic anxiety.

Table 16 Summary of the results of multiple regression of the fourth hypothesis

The dependent variable	Independent variables	R	R^2	Modified R^2	Estimated benchmark error	Watson Camera
Chaotic cessation anxiety discharge channel	Grown, immature, mentally disturbed	0.516	0.266	0.253	0.43632	**2.155**

Based on the results of multiple regression, the multiple correlation coefficient for the chaotic anxiety discharge channel is R = 0.516. This means that the variables of the developed, undeveloped, and disturbed defense mechanisms are 51.6% correlated with the

chaotic anxiety discharge channel. The coefficient of determination (explained variance) is 0.226R2 and its adjusted coefficient is 0.225 = R2adj. Thus, the above variables account for 25.3% of the total variance of the dependent variable.

Table 17 ANOVA Fourth Hypothesis

Model	sum of squares	Degrees of freedom	Average square	F	Significance level
regression	11,262	3	3,754	19,718	**0.000**
left over	31.232	163	0.190		
Total	42,294	163			

The ANOVA table shows the regression analysis of variance. In this table, the value of F is 19.718 and its probability is equal to 0.000, 99%. Therefore, the regression model is significant. This means that the explanatory power of the independent variable is statistically significant.

Table 18 Standardized beta coefficient of the fourth hypothesis

Independent variables	Non-standardized coefficient		Standardized coefficient	T	Significance level
	B	estimation error	Beta		
	1,110	0.179		6,215	**0.000**
Grown	-0.86	0.025		-3.488	**0.001**
Undeveloped	0.213	0.037	-0.243	5,775	**0.000**
Psychedelic	0.039	0.053	0.476	0.744	**0.458**

Based on the results of the above table, among the studied variables, the immature defense mechanism variable with a beta value of 0.476 has more explanatory power than the other variables. The developed variable has a negative beta coefficient, i.e. it is inversely related to the chaotic anxiety discharge channel, and the more the mechanism is developed in the individual, the less the anxiety discharge through the cognitive disorder. The variable of the psychoactive defense mechanism has no significant relationship with the smooth anxiety discharge channel.

Hypothesis 5: Empathy has a significant effect on striatal discharge channel.

Table 19 Summary of the results of multiple regression of the fifth hypothesis

The dependent variable	Independent variables	R	R^2	Modified R^2	Estimated benchmark error	Watson Camera
Striped Anxiety Discharge Channel	Sympathy	0.048	0.002	0.004	0.49947	**1,944**

According to the obtained results and correlation less than one percent and significance higher than 0.05, the research hypothesis is rejected. That is, there is no connection between empathy and the canal anxiety discharge channel.

Hypothesis 6: Empathy has a significant effect on the smooth anxiety discharge channel.

Table 20 Summary of the results of multiple regression of the sixth hypothesis

The dependent variable	Independent variables	R	R^2	Modified R^2	Estimated benchmark error	Watson Camera
Smooth Anxiety Discharge Channel	Sympathy	0.095	0.009	0.003	0.45871	**2,187**

According to the obtained results and correlation less than one percent and significance higher than 0.05, the research hypothesis is rejected. That is, there is no connection between empathy and the smooth anxiety discharge channel.

Hypothesis 7: Empathy has a significant effect on the drainage channel of cognitive anxiety.

Table 21 Summary of the results of multiple regression of the seventh hypothesis

The dependent variable	Independent variables	R	R^2	Modified R^2	Estimated benchmark error	Watson Camera
Chaotic cessation anxiety discharge channel	Sympathy	0.013	0.000	-0.006	0.50625	**1,929**

According to the obtained results and correlation less than one percent and significance higher than 0.05, the research hypothesis is rejected. That is, there is no connection between empathy and the chaotic anxiety discharge channel.

Table 22 Indirect coefficients

Result	Indirect coefficients	Direct coefficients	The dependent variable	Mediator	independent variable
-	0.04 = 0.103 × 0.48	0.122	Mucosal muscle channels	Sympathy	**Developed defense mechanism**
Weak	0.13 = 0.29 × 0.48	0.423	Mucosal muscle channels	Sympathy	**Undeveloped defense mechanism**
-	0.08 = 0.170 × 0.48	0.227	Mucosal muscle channels	Sympathy	**Neurotic defense mechanism**
-	0.09 = 0.103 × 0.95	0.107	Smooth muscle channel	Sympathy	**Developed defense mechanism**
medium	0.275 = 0.29 × 0.95	0.434	Smooth muscle channel	Sympathy	**Undeveloped defense mechanism**
Weak	0.16 = 0.170 × 0.95	0.222	Smooth muscle channel	Sympathy	**Neurotic defense mechanism**
-	0.013 = 0.103 × 0.131	0.125	Cognitive turmoil	Sympathy	**Developed defense mechanism**
-	0.03 = 0.29 × 0.131	0.460	Cognitive turmoil	Sympathy	**Undeveloped defense mechanism**
-	0.023 = 0.170 × 0.131	0.275	Cognitive turmoil	Sympathy	**Neurotic defense mechanism**

As can be seen in indirect coefficients, empathy can mediate the effect of an underdeveloped defense mechanism on the mucosal muscle canal. Also, the empathy between the underdeveloped defense mechanism and the smooth muscle channel has a moderate effect, and this effect increases with the presence of empathy. Empathy also plays a mediating role between the effect of the neuroprotective defense mechanism on the smooth muscle channel. The model obtained from the research results is as follows:

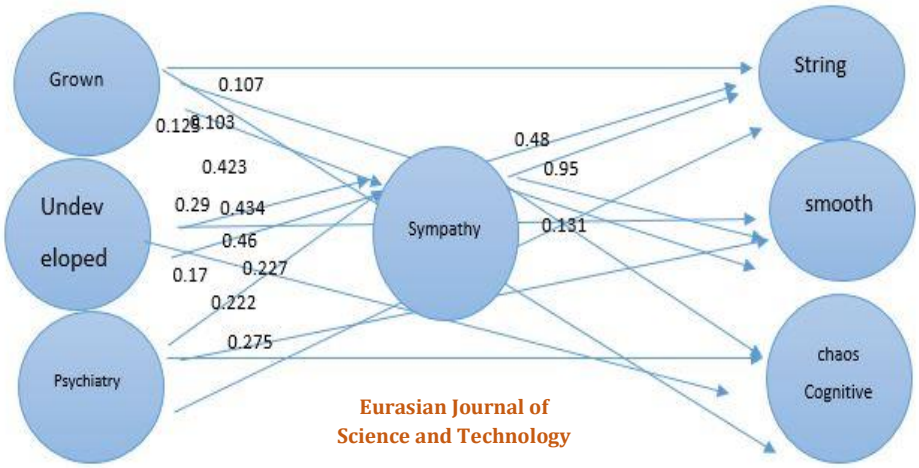

Figure 1 The final graph obtained from the research results

Discussion and Conclusion

Results of the First Hypothesis

Hypothesis 1: Defense mechanisms (developed, immature, psychotic) have a significant effect on empathy.

The multiple correlation coefficient for empathy is R = 0.442, meaning that the above variables are 44.2% correlated with each other and its significance is equal to 0.02.

Also, among the studied variables, the developed defense mechanism has more explanatory power than other variables and has a direct relationship with empathy. The immature and neurotic defense mechanism has an inverse relationship with empathy. The more immature the defense mechanism and the more disturbed the person is, the less empathy there is.

The results of this study are consistent with those of Yaghini (2015). According to this study, among the subscales of defense styles, the subscales of immature defense style were significantly different in the group of nurses and assistant nurses, and according to the mean difference, between the two groups of immature defense style in the group of nurses. Also, the results of this study showed that there was a significant difference between the subscales of empathy, the subscales of expressive empathy and participatory empathy in the group of nurses and assistant nurses, and the difference between the mean of the groups of empathy and expressive empathy in the group of assistant nurses is higher.

From the results of this study, it is inferred that nurses use underdeveloped defense mechanisms, such as denial, reasoning, etc., due to their job rank and higher education than nurses. In comparison, the higher level of empathy of nurses and their empathetic relations with patients than nurses are quite evident. Therefore, it can be concluded that the use of underdeveloped defense mechanism has been effective in reducing empathy, which is completely consistent with the present study. Obtained from this study and similar studies, it seems that the use of adult defense mechanisms has an effect on increasing empathy and has a direct relationship with developed defense

mechanisms, coping styles are adaptive, normal, and efficient, such as exaltation, humor, foresight, and suppression.

Hypothesis 2: Defense mechanisms (developed, immature, psychotic) have a significant effect on the discharge channel of striated anxiety.

Developed, immature, and neurotic defense mechanisms are 47.6% correlated with an anxiety discharge channel (via the striated muscles). Also, the immature defense mechanism variable has more explanatory power than other variables, and the developed defense mechanism variable has an inverse relationship with the striatal discharge channel. This means that the more you use the developed mechanism in the person, the less anxiety is discharged through the striated muscles. The variable of the nervous defense mechanism has no significant relationship with the striatal discharge channel.

The results of this study are consistent with those of Babl (2019) and Hutford (2019). According to Babl (2019), during treatment, the overall defensive function (ODF) as well as adaptive defense significantly increased, while inconsistent and nervous defense had not changed. At the beginning of treatment, the ratio of adaptive defenses and ODF in patients with anxiety disorders was significantly higher than those of patients with depressive disorders. However, depressed patients showed greater improvement in their defensive function during treatment. The findings also support the view of defense mechanisms as a useful theoretical concept and emphasize that the change of defense mechanisms is effective in changing the course of psychotherapy. Recent research suggests that reducing the use of maladaptive defenses during psychotherapy reduces anxiety. It has been effective in patients with anxiety disorders.

Further, Hatford (2019) showed that the ratio of adaptive (general) and general defenses (ODF) in anxiety patients was significantly higher than depression. However, depressed patients had a greater improvement in their immune function during treatment. These results are consistent with the results of our study.

The anxiety discharge channel through the striated muscles shows the lowest level of anxiety in a person's clinical physiology. In clinical interviews, the incidence of this anxiety in all three channels of anxiety relief can be assessed through physiological symptoms and can be cited along with similar symptoms. Therefore, the use of adult defenses seems to be very effective in reducing anxiety and its physiological symptoms.

Hypothesis 3: Defense mechanisms (developed, immature, psychotic) have a significant effect on the smooth anxiety discharge channel.

The variables of the developed, immature and psychologically damaged defense mechanism are 47.6% correlated with the smooth muscle anxiety discharge channel. Also, the underdeveloped defense mechanism has more explanatory power on the smooth muscle anxiety discharge channel than other variables.

According to the results of the present study, the variable of the developed defense mechanism has an inverse relationship with the smooth muscle anxiety discharge channel and the higher the developed defense mechanism in the individual, the less the anxiety discharge through the smooth muscles decreases. The variable of the psychoactive defense mechanism has no significant relationship with the smooth anxiety discharge channel.

The results of this study are consistent with those of Farahani (2018) and Singh (2018).

According to Farahani (2018), defense mechanisms, attachment styles, and identity styles are related to students 'social anxiety, and defense mechanisms and ambivalent and secure attachment styles are able to predict students' social anxiety. The results of this study indicate that by changing the defense mechanisms of students, we are able to regulate their anxiety.

According to the study by Singh (2018), conducted on Indian and Dutch students, it was assumed that Indians were more anxious and used defense mechanisms faster, and that

Dutch people were less anxious and sometimes used defense mechanisms. It was found that anxiety has a significant effect on the population and Indians use more neurotic, adult and immature defense mechanisms than Dutch students. These results are consistent with the results of this study and it is important to confirm that more and more complex use of defense mechanisms helps to reduce their higher anxiety and greater adaptation to existing conditions. The use of defense mechanisms seems to have side effects and problems, and adult and adaptive mechanisms have negative effects on individuals in the long run.

Hypothesis 4: Defense mechanisms (developed, immature, psychologically disturbed) have a significant effect on the discharge channel of chaotic anxiety.

The variables of the developed, immature, and disturbed defense mechanisms are 51.6% correlated with the chaotic anxiety discharge channel. According to the results, among the studied variables, the immature defense amount of anxiety, which lies beneath the immature defenses and is caused by severe injuries and strong childhood traumas, causes a variety of psychosomatic illnesses, serious disorders, fainting, seizures, and so on.

According to the DISTDP therapeutic approach, by removing multiple defense barriers, regulating anxiety and controlling it in emotional expression (expression of latent emotions, Relief of emotional malaise), strengthening of the adult mechanism and regulation of neurotic and immature mechanisms in breast cancer patients. The results of this study showed that this psychological approach can be used as a non-pharmacological method to improve the mental health and quality of life of women with breast cancer.

Therefore, since the DISTDP approach, based on the person triangle and the conflict triangle, works on anxiety, defense mechanism and feeling in the present (relationship with the therapist), past and future, and the treatment is based on reducing the defense layers. Anxiety in the second and third biological channels is mechanism variable has more explanatory power than other variables. The developed variable is inversely related to the chaotic cessation anxiety discharge channel, and the greater the mechanism developed in the individual, the less the cessation of anxiety through cognitive chaos. The variable of the nervous defense mechanism does not have a significant relationship with the discharge channel of chaotic anxiety.

According to the results of this study, the use of underdeveloped defense mechanisms, such as denial, refutation and ignorance that is done in the lower and elementary levels of the ego, and occurs to suppress severe anxiety in extremely sensitive situations, by draining anxiety is directly related to the third channel of cognitive turmoil. Anxiety discharge in the third channel, which occurs through cognitive disturbances such as temporary memory loss, blurred vision, temporary hearing loss, tunnel vision, dizziness and nausea, etc. The highest rate of mental anxiety relates to physiological aspect. According to Dovanloo (2019), this the canal of a striated muscle, the root and deep roots of emotions can be achieved and multiple mental illnesses can be treated by resolving multiple internal conflicts.

The results of this study are consistent with those of Mahdavi *et al*. (2019), Besharat et al. (2014) and Haji Ghasemi (2013). According to Mahdavi, ISTDP leads to the facilitation of the discharge and control of anxiety in the canal of a striated muscle and thus access to the central emotional nucleus is possible. It can be concluded from the present study that strengthening the adult defense mechanism, facilitating emotional expression and regulating the neurotic defense mechanism and immaturity are effective in regulating and controlling anxiety in the first canal.

Also, in this approach, much emphasis has been placed on increasing the patient's empathy with himself and then with others. As a result, it can be generally concluded that increasing empathy and strengthening the adult defense mechanism, facilitating emotional expression and regulating the neurotic and immature defense mechanism are effective in

regulating and controlling anxiety in the first channel, thus accessing the individual's core and central emotions. According to Besharat (2014), the use of developed and neurotic defense styles was significantly different between the three groups tested: Physical patients, anxiety patients and normal people, and the two groups of physicalization and anxiety used more defense styles than the normal group. According to Kramer (2018), people with mental disorders such as anxiety and physical disorders experience more difficulty in regulating their impulses and emotions. Therefore, one can expect to use more immature and neurotic defense styles. The results of this study are completely consistent with the results of the present study and the discussion in the previous paragraphs. Also, according to Haji Ghasemi's (2013) research, neuroticism and responsibility with the developed defense style has a significant negative relationship with the undeveloped and neurotic people have a significant positive relationship. Also, adaptation has a positive relationship with the adult and the neurotic, and a negative relationship with the immature, extroversion has a positive relationship with the adult, and responsibility has a positive relationship with responsibility.

According to this study, normal people in the developed defense style are significantly different from depressed and anxious people. The results of this study are in line with the present study.

Hypothesis 5: Empathy has a significant effect on striatal discharge channel.

Based on the results, this hypothesis is rejected in the sense that there is no relationship between empathy and the striatal anxiety discharge channel. According to Garby (2014), there is no significant difference in levels of death or empathy anxiety. It was not found between all three groups studied. According to this study, it seems that death anxiety, empathy and humanitarian motives are not significantly related to each other. This study is consistent with the present study.

In a study by Stipani (2018), comparing the high and low levels of child anxiety on mothers' reports, maternal factors in the adaptive relationship and modulators of the relationship between child compromise and distress showed that children's distress plays a role in maternal anxiety. Most mothers have negative beliefs about their children's anxiety, and mothers' empathy can moderate this relationship. The mother's high empathy may be related to a greater degree of adaptability in response to the child's behaviors, while the mother's anxiety may be related to more adaptive responses to the child's behaviors. This study does not seem to be consistent with the present study.

Hypothesis 6: Empathy has a significant effect on the smooth anxiety discharge channel.

Based on the results, this hypothesis is rejected in the sense that there is no relationship between empathy and smooth muscle anxiety discharge channel. The results of Morrison's research (2016,2019) are somewhat consistent with this research and in some ways do not agree. According to a study conducted by Morrison (2019), social anxiety disorder is associated with the problem of the ability to exchange positive emotions of others (positive emotional empathy). Mixed evidence also suggests the potential recognition of impaired positive and negative emotions of others (cognitive empathy) and impaired sharing of negative emotions of others (negative emotional empathy). The results after one year of treatment and follow-up showed significant progress only in positive emotional empathy (exchange of positive emotions of others) and no change in the other two components of empathy.

Also, in a previous study conducted by the same researcher in 2016, Social Anxiety Disorder (SAD) is associated with a positive, diminished positive emotional experience. However, little is known about how people with SAD perceive and respond to negative and positive emotions that are naturally manifested by others, namely cognitive empathy and emotional empathy. The results of this study show that individuals with social anxiety disorder differed only in positive emotional empathy and were less able to consciously

share the positive emotions of others. Poor emotional clarity and negative perceptions among people with this disorder can be justifiable.

Hypothesis 7: Empathy has a significant effect on the discharge channel of cognitive anxiety.

Based on the results, this hypothesis is rejected in the sense that there is no relationship between empathy and the channel of chaotic anxiety discharge. According to a study by Auyeung *et al.* (2015), social anxiety appears to be associated with social emotions, negativity only applies to situations of social threats, and individual differences in social anxiety may affect empathy with the social suffering of others.

From this research, it is inferred that the definition of empathy in different people is different compared with the same social conditions due to individual differences, education, family upbringing, etc. The definition of experienced feelings and emotions seems to have more harmony and stability among individuals than a complex and internal concept such as empathy. This study seems to be somewhat consistent with the results of our study. But in another study conducted by Choi (2016), the results showed that verbal and tactile empathy by the bronchoscopist prior to bronchoscopy increased anxiety in patients having roots in high levels of anxiety. The inference from this study shows that empathy with others can be effective in reducing their anxiety, but that it also plays a role in reducing their own anxiety that has not been investigated.

From the results of the last three hypotheses and similar studies, it can be inferred that the increase in empathy may play a role in reducing internal anxiety, but this effect is not direct and second, and it is not enough to biologically change the channels. Empathy seems to be able to change individual defense mechanisms and use more mature and developed defenses and less use of neurotic and underdeveloped defenses by having a direct effect on defense mechanisms and a significant positive relationship with it.

On the other hand, changing defense mechanisms and removing the more rudimentary and more established layers of immature defenses can reduce anxiety, increase personal awareness, increase ego capacity, resulting in easier access to individual emotions, mental health, and increased adjustment in personal life. Empathy with others can play a direct role in reducing their anxiety, but it is inferred that this issue (empathy with others) due to positive feedback, increased realism and increased deep and correct understanding of the feelings of others, able to change defense mechanisms, and reduce the use of adult mechanisms. And this in itself can play an important role in reducing a person's neurotic anxiety, which occurs physiologically through the second and third canals, smooth muscle, and cognitive turmoil. By ourselves and then with parents and close people, and finally with others, we cause a severe reduction in neurotic anxiety, and due to the creation of more capacity in the ego, we are faced with reducing defense mechanisms and changing them from neurotic and immature to adult. This cycle of influencing the factors of empathy, defenses and anxiety continues until the person has the necessary and sufficient awareness of his inner unconscious layers and the intensity of the destructive effect of past traumas is reduced and finally the person achieves mental health and peace.

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