



Generalized Anxiety Disorder, Alexithymia, and Defense Mechanisms Among Medical Students of Northeastern Iran

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Abstract

Background: Defense mechanisms are essential to personality and behavior that help individuals deal with stress. These mechanisms might act in different ways, rendering medical students caring physicians or egoistic individuals, and thus, a good understanding of defense mechanisms can contribute to the efforts made to improve the psychological well-being of medical students.

Objectives: We studied the prevalence of generalized anxiety disorder (GAD) and alexithymia as determinants of psychological well-being and the mechanisms by which medical students might cope with stress and anxiety.

Methods: The present cross-sectional study was conducted on 232 medical students, 126 (60%) females and 96 (40%) males, in north-east Iran. Data were collected through GAD-7, the Farsi version of the Toronto Alexithymia Scale (FIAS-20), and the Defense Styles Questionnaire (DSQ-40). Statistical analysis was performed with IBM SPSS 22.0. Pearson's chi-square test, bivariate correlations, and multiple linear regression analysis were used to identify associations between GAD, alexithymia, and defense mechanisms.

Results: A total of 87 (37.5%) participants showed moderate to severe anxiety. Alexithymia was detected in 49 (21%) participants. Mature defense mechanisms had the highest prevalence among participants (56.5%), while immature mechanisms had the least (23.3%). A significant positive correlation was noted between GAD and alexithymia. Also, GAD was positively correlated with immature and neurotic defense mechanisms ($P < 0.05$). A negative correlation was found between mature defense mechanisms and GAD ($P < 0.001$). Suppression and humor (mature mechanisms) were the negative predictors of GAD. Reaction formation, somatization, autistic fantasy, splitting, passive aggression, displacement, and pseudo-altruism (an immature and neurotic mechanism) were the positive predictors of GAD.

Conclusions: The statistically significant correlations found among GAD, alexithymia, and defense mechanisms suggest that a good understanding of these conditions and mechanisms can contribute to alleviating anxiety among medical students and improving their psychological well-being.

Keywords: Alexithymia, Defense Mechanisms, Generalized Anxiety Disorder, Immature, Mature

1. Background

Throughout their educational years, medical students are subjected to increasing levels of external and internal stress, as they should develop their characters in both personal and professional aspects, which are influenced by their presence at institutional clinics and hospitals and interactions with patients and fellow students (1). Nonetheless, many universities have only focused on raising professional aptitude without investing in the education of psychosocial skills and raising self-awareness in students that would substantially aid them with better management of

stress and anxiety (2). The method by which medical students might approach stress is determined by several factors, including, but not limited to, psychological health (3).

Anxiety is a physiologic/psychologic process characterized by various cognitive, physical, emotional, and behavioral manifestations. Anxiety is, in fact, the collection of symptoms that might arise due to inappropriate adaptation of individuals to stress. These symptoms might include fear of losing control and instability, fear of death, inability to remain calm, shortness of breath, palpitations, sweating, flushing, numbness, restlessness, dizziness, chills, tremors, and dyspepsia. Fear of malevolent oc-

currences or anticipatory anxiety is perhaps the most common (4).

According to both the International Classification of Diseases, Tenth Revision (ICD-10) and the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), there are specific differences between generalized anxiety disorder (GAD) and other types of anxiety, and even depression, as GAD, compared with depression, leaves a more profound negative impact on an individual's quality of life (2). With annual incidence rates of 12% and 2% in Europe and the world, respectively, anxiety disorders are adults' most common psychological disorders (5). A meta-analysis by Dyrbye et al. on the prevalence of psychological disorders among American and Canadian students indicated an overall higher prevalence of anxiety and depression among medical students (6). A more recent investigation on medical students reported a prevalence of 14.3% for moderate to severe depression and a higher prevalence of suicidal ideation among senior students than in juniors (7).

There is no precedent that certain psychosocial traits, such as alexithymia, might affect how students interact with their perceived stress. Alexithymia, or "no words for emotion," is a condition in which individuals cannot describe their mood with words. The term was coined in 1973 to describe a series of emotional and cognitive traits among patients with psychosomatic disorders (8). In 2017, Messedi et al. reported a prevalence of 16.5% for alexithymia in American medical students at the University of Michigan (9). Another investigation on French medical students in 2018 suggested that alexithymia might negatively affect empathy and resilience (10).

Defense mechanisms constitute another critical aspect of personality and behavior that help individuals deal with their stress. These mechanisms are subconsciously mediated to minimize the negative effect of potentially threatening environmental alterations (11). Defense mechanisms can be categorized into three major classes: Mature, neurotic, and immature. The mature mechanism aids individuals with adapting to external stressors (12) and is associated with better grades in students (13). These mechanisms might act in different ways, rendering medical students caring physicians or egoistic individuals (11), and thus, a good understanding of defense mechanisms can contribute to the efforts made to improve the psychological well-being of medical students (14).

2. Objectives

Since there is little information on the epidemiology of GAD among medical students in northeastern Iran, the present study aimed to study the prevalence of GAD, alexithymia, and types of defense mechanisms among medical students.

3. Methods

The present investigation was a cross-sectional study on a population consisting of 14 groups of medical students at a major university in northeastern Iran in 2020. Our sampling method was a census of all medical students at Mashhad University of Medical Sciences, who were 1,800 people. The sample size for the study was calculated using the test of two means related to a quantitative variable in two communities and values provided in the "Ego defense mechanisms in Pakistani medical students: A cross-sectional analysis" study (15). The sample size obtained a total of 193 ($\beta = 0.2$, $\alpha = 0.05$, mean (SD) = 5.62(3.01) and 4.78(2.7), respectively). Considering 20% dropout, the sample size in the present study was considered 231.

Information was collected from the participants using online questionnaires on Telegram, a popular messenger among students in Iran, through automated bots specific to this platform. The idea of using automated Telegram bots was adopted to reduce expenditures. Demographic information of the subjects, including age, sex, and the number of years spent as a medical student, was also recorded.

We used three questionnaires to collect information from the participants:

3.1. Generalized Anxiety Disorder-7 (GAD-7)

It is a self-reporting questionnaire consisting of seven items, each with a minimum and maximum score of 0 and 3, respectively. Based on GAD-7, a cumulative score of 0 - 4 indicates negligible anxiety. Accordingly, scores falling within the 5 - 9, 10 - 14, and 15 - 21 ranges denote mild, moderate, and severe anxiety, respectively. The reliability and validity of this questionnaire were conducted in the original (16) and Persian versions (17). This study determined internal consistency by Cronbach's alpha of 0.876. Also, construct validity was evaluated via confirmatory factor analysis (CFA). The results obtained by the unidimensionality test were: CFI = 0.99, GFI = 0.97, RMSEA = 0.068, and SRMR = 0.031. All seven standardized factors were in the expected direction (with factor loading from 0.58 to 0.80), and loadings were statistically significant (17).

3.2. Toronto Alexithymia Scale-20 (TAS-20, Farsi Version)

It is a 20-item self-reporting questionnaire in three categories: (1) difficulty identifying feelings, (2) difficulty describing feelings, and (3) externally oriented thinking. Participants can select their answers from five choices ranging from strongly disagree (1 point) to strongly agree (5 points) (18). The cumulative sum of points is then calculated as an indicator of alexithymia. The validity and reliability of Toronto Alexithymia Scale-20 (TAS-20) of the Farsi version have also been confirmed (19). In the Besharat study, the three-factor structure met the criteria for adequate fit

to the data (GFI = 0.91, AGFI = 39, NNFI = 0.93, CFI = 0.92, and RMSEA = 0.05) for construct validity. All parameter estimates met the criteria for "goodness-of-fit." The correlations were 0.76 between factors 1 and 2 ($P < 0.05$), 0.44 between factors 1 and 3 ($P < 0.05$), and 0.55 between factors 2 and 3 ($P < 0.05$). Its Cronbach's alpha coefficient was 0.85 for internal consistency. Test-retest was conducted for the reliability of the questionnaire. Subscale coefficients of the test-retest ranged from 0.80 to 37 (19).

3.3. Defense Style Questionnaire-40 (DSQ-40, Farsi Version)

This 40-item self-reporting questionnaire was introduced in 1993 to evaluate defense mechanisms in three major categories, including mature, neurotic, and immature. Each question has a maximum score of 9. Mature defense mechanisms include sublimation, humor, anticipation, and suppression. Neurotic defense mechanisms include undoing, pseudo-altruism, idealization, and reaction formation. Immature defense mechanisms comprise projection, passive aggression, acting out, isolation, devaluation, autistic fantasy, denial, displacement, dissociation, splitting, rationalization, and somatization (20). An iteration of the Farsi language was developed in 2001 (21). Cronbach's alpha for all items of Defense Style Questionnaire-40 (DSQ-40) was calculated as 0.716 for reliability. Item defense correlations for mature, neurotic, and immature factors were 0.614 to 0.863, 0.773 to 0.849, and 0.709 to 0.901, respectively. Item defense correlations for mature, neurotic, and immature factors included 0.220 to 0.645, 0.189 to 0.642, and 0.097 to 0.601, respectively (21).

The participants provided their information anonymously via specific bots on Telegram. The only exclusion criterion was the incomplete answers to the three questionnaires initially, 300 subjects were enrolled but and filled out questionnaires however 20% of them, were filled out incomplete and excluded from our study. The final study population size was $N = 232$.

The collected information was then imported into a spreadsheet in Microsoft Excel. Statistical analyses were conducted with IBM SPSS 22.0. Correlations between variables were evaluated with a bivariate correlation test. The chi-square test was used to analyze the differences between the groups. Linear regression was used for the analysis of estimated effects. A P -value of < 0.05 was considered statistically significant.

The study was conducted following the STROBE checklist (EQUATOR guidelines). The strengthening the reporting of observational studies in epidemiology (STROBE) was used to ascertain high-quality reporting of this observational study.

4. Results

Three hundred students answered the questionnaires on social media, giving an approximate response rate of 17%. Among them, 232 questionnaires were completed and included in our study, representing approximately 12% of all medical students of Mashhad University of Medical Sciences. Occupation with work and study, lack of internet access, or dissatisfaction with answering were the reasons for not filling out the questionnaires.

A total of 232 medical students studying at a major university in northeastern Iran were enrolled in the present investigation, which aimed to evaluate the prevalence of GAD, alexithymia, and adaptation of defense mechanisms. Among them, 136 (60%) participants were female, and the remaining 96 (40%) were male. Moderate and severe anxieties were reported by 87 (37.5%) participants, who were suggested to be further followed up by specialists. A total of 38 (16.3%) subjects reported negligible levels of anxiety. Alexithymia was detected in 49 (21.1%) subjects, and the most frequent complaints were difficulty identifying and describing feelings. Of the three significant categories of defense mechanisms, mature mechanisms had the highest prevalence among students, as 121 (52.1%) participants confirmed to have adopted these mechanisms. From the mature defense mechanisms, anticipation was the most commonly used, with a prevalence of 85.3% (Table 1).

Concerning individual defense mechanisms, the mean scores of sublimations, devaluation, displacement, splitting, and somatization were found to be statistically significantly different between the two genders (P -value: 0.008, < 0.001 , 0.04, 0.03, and 0.01, respectively) (Figure 1).

There was no statistically significant difference in the mean scores of neurotics, mature, and immature mechanisms, GAD, and alexithymia between the two genders. However, the mean scores of neurotic mechanism GAD and alexithymia were higher in females than males (Table 2).

We classified the students based on medical education training years into two groups: Pre-clinical (years 1 and 2 and 3) and clinical (years 4, 5, 6, and 7) levels. Mature, immature, and neurotic mechanisms were more prevalent in the clinical-level students than in pre-clinical students, but there were no statistically significant differences in those mechanisms between the two groups. Concerning individual defense mechanisms, only the splitting mechanism was statistically different between the two groups of students (Table 3).

The mature mechanism significantly correlated positively with neurotic and alexithymia, and negatively correlated with GAD. The immature mechanism positively correlated with neurotic mechanism, alexithymia, and GAD. The neurotic mechanism positively correlated with immature mechanism, mature mechanism, and GAD. Alexithymia had significant positive correlations with the im-

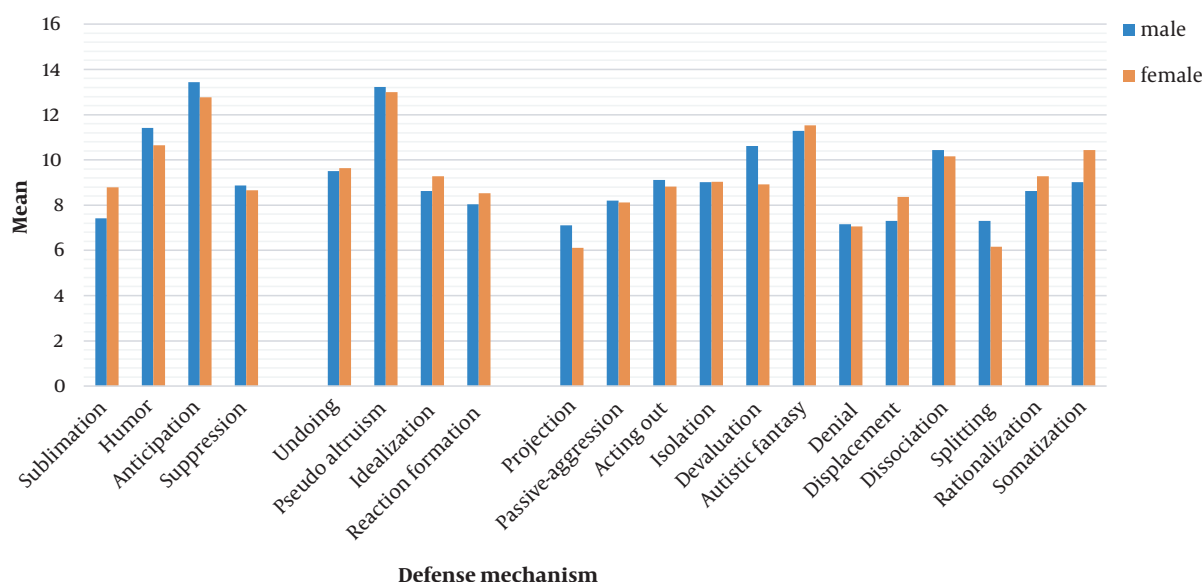


Figure 1. Gender differences in defense mechanism mean scores (using independent sample *t*-test)

mature mechanism and GAD, and a negative correlation with the mature mechanism. Also, GAD was positively correlated with immature and neurotic defense mechanisms and alexithymia. On the contrary, a negative correlation was noted between alexithymia and mature defense mechanisms (Table 4).

In linear regression analysis, GAD and alexithymia were dependent, and defense mechanisms were independent variables. Linear regression assumptions were a linear relationship between variables, independency between samples, homogeneity of variances, and normality of dependent variables.

Linear regression analysis revealed a statistically significant negative association between some defense mechanisms (Table 5). Mature defense mechanisms (suppression and humor) had a negative correlation with GAD (P -value < 0.05). On the other hand, none of the neurotic mechanisms had a statistical correlation with alexithymia. Humor and rationalization were the negative predictors of alexithymia (Table 5).

5. Discussion

A total of 232 medical students participated in this investigation. Of them, 87 (37.5%) participants passed the threshold score for GAD and, thus, were more extensively assayed. An investigation by Ahmed et al. on anxiety in 2009 indicated a prevalence of 28% for GAD among medical students studying in Dubai (5), confirming the theory that anxiety is not a rare condition in medical stu-

dents. Consistent with our findings, the Labbafinejad and Bossaghzade study of Iranian medical students reported prevalence rates of 36.2% and 4.3% for moderate and severe anxiety, respectively (3).

5.1. Gender Differences

We found that neurotic mechanisms were more commonly employed by females, similar to the Parekh et al. study (15). Also, male students employed projection and passive aggression more (but not statistically significant). The ascertain of gender differences in defense mechanisms based on classical psychoanalytic theory (22) has generally been confirmed, which declares that women tend to employ internalizing defenses such as introversion, and men are more likely to use externalizing ones (23) such as projection and aggression (24-26).

We observed that female students employed somatization more commonly than male students, similar to the La Cour study (27). Women's greater psychological awareness of their bodily functions and reactions may explain these higher prevalence rates. Gender variations were also found in sublimation, pseudo-altruism, reaction formation, isolation, autistic fantasy, displacement, and rationalization defense mechanisms; however, these differences were inconsistent with those reported in prior investigations (15). There were no differences in the defense mechanisms employed by the two genders in Andrews et al. study (20). These findings may suggest that specific norms of the DSQ-40 need to be revised about gender.

Table 1. Demographic Information of Participants and Prevalence of Anxiety, Alexithymia, and Defense Mechanisms

Variables	Patients (No = 232; No. (%))
Sex	232 (100)
Male	96 (60)
Female	136 (40)
Educational level (years of training)	232 (100)
Basic medical sciences (2)	80 (34.5)
Pre-clerkship (1)	24 (10.3)
Clerkship (2)	63 (27.2)
Internship (2)	65 (28)
Anxiety	232 (100)
None	38 (16.4)
Mild	107 (46.1)
Moderate	58 (25)
Severe	29 (12.5)
Alexithymia	49 (21.1)
Difficulty identifying feelings	70 (30.2)
Difficulty describing feelings	108 (46.6)
Externally oriented thinking	23 (9.9)
Defense mechanisms	
Mature	131 (56.5)
Neurotic	121 (52.2)
Immature	54 (23.3)
Mature defense mechanisms	
Anticipation	198 (85.3)
Humor	151 (65.1)
Suppression	100 (43.1)
Sublimation	84 (36.2)
Neurotic defense mechanisms	
Pseudo-altruism	204 (87.9)
Undoing	126 (54.3)
Idealization	105 (45.3)
Reaction formation	83 (35.8)
Immature defense mechanisms	
Rationalization	178 (76.7)
Autistic fantasy	152 (65.5)
Dissociation	140 (60.3)
Devaluation	128 (55.2)
Somatization	112 (48.3)
Isolation	107 (46.1)
Acting out	97 (41.8)
Displacement	84 (36.2)
Passive aggression	80 (34.5)
Denial	62 (26.7)
Splitting	53 (22.8)
Projection	52 (22.4)

5.2. Level of Students

Only was splitting statistically significant between the two clinical-level groups, consistent with the findings of Parekh et al. (15). The mature mechanism was more preva-

Table 2. Relationship Between Gender and Defense Mechanisms

Variables	Male (N = 90); Mean \pm SD	Female (N = 130); Mean \pm SD	P-Value ^a
Neurotic	39.4 (8.83)	40.42 (10.19)	0.44
Mature	41.14 (9.33)	40.85 (10.19)	0.83
Immature	108.3 (20.83)	106.25 (21.16)	0.47
GAD	8.29 (4.2)	9.3 (4.54)	0.09
Alexithymia	50.22 (9.36)	51.02 (11.06)	0.57

Abbreviation: GAD, generalized anxiety disorder.

^a Independent sample *t*-test.

lent in the clinical-level students than in pre-clinical students. Increased levels of stress and the overall psychological maturity mechanisms utility (because of high levels of chronic stress) in senior medical students may be explained by these differences in prevalence.

Among individual neurotic ego defense mechanisms, undoing and pseudo-altruism were more prevalent among pre-clinical years students in our study. In Parekh et al. study, the mean scores of undoing, reaction formation, and idealization were significantly higher in pre-clinical students (15).

In our study, autistic fantasy and rationalization were the most prevalent immature defenses in the pre-clinical group, whereas splitting and rationalization were the most prevalent immature defenses in this group in the Parekh et al. study (15). These findings may be explained by the fact that early-year medical students are teenagers whose personalities are being formed, and various life events strongly influence their personalities.

5.3. Predictors of Anxiety in Medical Students

We found that autistic fantasy and displacement somatization were positively associated with anxiety scores, whereas suppression was negatively associated, consistent with the Waqas et al. study (13). Mature defense mechanisms promote mental health since they allow an individual to view his environment positively, although slightly distorted, increasing his self-esteem and protecting him against anxiety. In contrast, adaptation with immature defense mechanisms is more likely associated with psychiatric manifestations.

5.4. Conclusions

Alexithymia was detected in 21.1% of subjects in our study, and the most frequent complaints were difficulty identifying and describing feelings. Like any other human being, medical students are susceptible to the negative impact of external stress, which could manifest as dissatisfaction and isolation. Also, our study indicated that

Table 4. Correlation Among Generalized Anxiety Disorder, Alexithymia, and Three Major Defense Mechanisms

Variables	Mature	Neurotic	Immature	GAD	Alexithymia
Mature					
Correlation coefficient	1	0.27 ^a	0.09	-0.38 ^a	0.24 ^a
P-value ^b		< 0.001	0.13	< 0.001	< 0.001
Neurotic					
Correlation coefficient	0.27	1	0.29 ^a	0.15 ^b	0.11
P-value ^b	< 0.001		< 0.001	0.01	0.07
Immature					
Correlation coefficient	0.09	0.29 ^a	1	0.39 ^a	0.42
P-value ^b	0.13	< 0.001		< 0.001	< 0.001
GAD					
Correlation coefficient	-0.38 ^a	0.15 ^b	0.39 ^a	1	0.35 ^a
P-value ^b	< 0.001	0.01	< 0.001		< 0.001
Alexithymia					
Correlation coefficient	-0.24 ^a	0.11 ^a	0.42 ^a	0.35 ^a	1
P-value ^b	< 0.001	0.07	< 0.001	< 0.001	

^a P-value < 0.01.^b Pearson correlation test, P-value < 0.05.**Table 5.** Linear Regression Analysis Results for Generalized Anxiety Disorder, Alexithymia, and Defense Mechanisms

Variables	Unstandardized B	SE	Standardized B	t	P-Value
GAD					
Suppression	-0.172	0.066	-0.156	-2.624	0.009
Sublimation	0.133	0.062	0.116	2.167	0.031
Humor	-0.315	0.06	-0.3	-5.256	< 0.001
Pseudo altruism	0.214	0.07	0.154	2.862	0.005
Acting out	0.149	0.067	0.126	2.21	0.028
Autistic fantasy	0.134	0.056	0.137	2.39	0.018
Passive-aggression	0.191	0.067	0.164	2.845	0.005
Displacement	0.154	0.059	0.138	2.624	0.009
Somatization	0.137	0.055	0.135	2.487	0.01
Alexithymia					
Humor	-0.335	0.157	-0.135	-2.132	0.034
Autistic fantasy	0.335	0.147	0.146	2.289	0.023
Splitting	0.406	0.17	0.149	2.386	0.018
Rationalization	-0.573	0.217	-0.173	-2.639	0.009

Abbreviation: GAD, generalized anxiety disorder.

37.5% of medical students in northeastern Iran had symptoms of generalized anxiety disorder, indicating the overwhelming burden that can be superimposed on their lives. The type of defense mechanism through which an individual approaches their anxiety determines the level of their anxiety, as sublimation and humor, two examples of mature defense mechanisms, can negatively regulate the level of anxiety. A good understanding of the interaction between defense mechanisms and the development of GAD and alexithymia is highly likely to help institutions develop awareness-raising programs to help students deal with their anxiety. Implementing programs in medical education to identify the defense mechanisms of medical students and promote adaptive mechanisms by strategies designed for this purpose (for instance, behavioral therapy and meditation) would improve the performance and mental health of medical students.

The lack of knowledge in this field due to the small number of studies conducted in Iran regarding the subject of study, the importance of mental health, and the high health and economic burden of these disorders in societies, including medical students, were the strengths of our study. The present investigation is limited in terms of population size and ethnicity of participants, and a more solid conclusion should be verified by prospective studies.

Footnotes

Authors' Contribution: Study concept and design: F. F, M. Z, and M. M. Acquisition of data: H. A. Analysis and interpretation of data: F. F and M. Z. Drafting of the manuscript: F. F, M. Z, H. A, M. M, and T. T. Critical revision of the manuscript for important intellectual content: F. F, M. Z, H. A, and M. M. Statistical analysis: M. Z. Administrative, technical, and material support: F. F. Study supervision: F. F and M. Z. All authors read and approved the final manuscript.

Conflict of Interests: Mashhad University of medical science supported our research. Two manuscript authors are employed in Mashhad, and one author is employed at Gonabad University of Medical Sciences.

Data Reproducibility: The data presented in this study are uploaded during submission as a supplementary file and are openly available for readers upon request.

Ethical Approval: IR.MUMS.FM.REC.1396.170.

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Table 3. Association Between Defense Mechanisms and Students' Levels

Defense Mechanism	Adoption, No. (%)	Non-adoption, No. (%)	P-Value ^a
Mature			0.73
Pre-clinical	60 (55.7)	44 (55.5)	
Clinical	71 (55.5)	57 (44.5)	
Sublimation			0.2
Pre-clinical	33 (31.7)	71 (68.3)	
Clinical	51 (39.8)	77 (60.2)	
Humor			0.23
Pre-clinical	72 (69.2)	32 (30.8)	
Clinical	79 (61.7)	49 (38.3)	
Anticipation			0.77
Pre-clinical	88 (84.6)	16 (15.4)	
Clinical	110 (85.9)	18 (14.1)	
Suppression			0.56
Pre-clinical	47 (45.2)	57 (54.8)	
Clinical	53 (41.4)	75 (58.6)	
Neurotic			0.46
Pre-clinical	57 (54.8)	47 (45.2)	
Clinical	64 (50)	64 (50)	
Undoing			0.89
Pre-clinical	56 (53.8)	48 (46.2)	
Clinical	70 (54.7)	58 (45.3)	
Pseudo altruism			0.55
Pre-clinical	90 (86.5)	14 (13.5)	
Clinical	114 (89.1)	14 (10.9)	
Idealization			0.06
Pre-clinical	54 (51.9)	50 (48.1)	
Clinical	51 (39.8)	77 (60.2)	
Reaction formation			0.95
Pre-clinical	37 (35.6)	67 (64.4)	
Clinical	46 (35.9)	82 (64.1)	
Immature			0.8
Pre-clinical	25 (24)	79 (76)	
Clinical	29 (22.7)	99 (77.3)	
Projection			0.82
Pre-clinical	24 (23.1)	80 (76.9)	
Clinical	28 (21.9)	100 (78.1)	
Passive-aggression			0.25
Pre-clinical	40 (38.5)	64 (61.5)	
Clinical	40 (31.3)	88 (68.8)	
Acting out			0.5

Pre-clinical	46 (44.2)	58 (55.8)	
Clinical	51 (39.8)	77 (60.2)	
Isolation			0.78
Pre-clinical	49 (47.1)	55 (52.9)	
Clinical	58 (45.3)	70 (54.7)	
Devaluation			0.86
Pre-clinical	58 (55.8)	46 (44.2)	
Clinical	70 (54.7)	58 (45.3)	
Autistic fantasy			0.81
Pre-clinical	69 (66.3)	35 (33.7)	
Clinical	83 (64.8)	45 (35.2)	
Denial			0.51
Pre-clinical	30 (28.8)	74 (71.2)	
Clinical	32 (25)	96 (75)	
Displacement			0.2
Pre-clinical	33 (31.7)	71 (68.3)	
Clinical	51 (39.8)	77 (60.2)	
Dissociation			0.31
Pre-clinical	59 (56.7)	45 (43.3)	
Clinical	81 (63.3)	47 (36.7)	
Splitting			0.02
Pre-clinical	31 (29.8)	73 (70.2)	
Clinical	22 (17.2)	106 (82.8)	
Rationalization			0.94
Pre-clinical	80 (76.9)	24 (23.1)	
Clinical	98 (76.6)	30 (23.4)	
Somatization			0.1
Pre-clinical	44 (42.3)	60 (57.7)	
Clinical	68 (53.1)	60 (46.9)	

^a Chi-square tests