



Study of Subtypes of Non-Delusional Jealousy and its Association with Personality Aspects and Psychopathological Dimensions in a Young Adult Sample in Iran

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Abstract

Background: Jealousy is a complaint that can be related to a variety of psychopathologies. It is important to diagnose and distinguish the types of jealousy.

Objectives: This study aimed to develop an Iranian version of the Jealousy questionnaire (JQ) and determine the relationship of jealousy subtypes with personality traits and psychopathological dimensions.

Methods: This cross-sectional study was performed in 2019. The study population consisted of the students of Mazandaran University of Medical Sciences. A convenience sampling method was used. The inclusion criteria were the people's consent and marriage. The jealousy, personality, and psychopathological aspects were evaluated by JQ and NEO Five-Factor inventory (NEO-FFI), and Symptom Checklist-90-Revised inventory (SCL-90R), respectively.

Results: Finally, 358 students of Mazandaran University of Medical Sciences answered the study questionnaires. An Iranian version of JQ was developed. Confirmatory factor analysis provided a four-factor model for JQ, including self-esteem, paranoia, fear of being abandoned, and obsessive dimensions. According to the results of NEO-FFI, neuroticism was significantly associated with all types of jealousy. The Iranian version of JQ had enough internal consistency. Cronbach's alpha coefficient was 0.77 for the total instrument and 0.72 - 0.78 for jealousy dimensions/subtypes.

Conclusions: In this study, the validity and reliability of the Persian version of the jealousy questionnaire were assessed and confirmed. The jealousy subtypes were correlated with different psychopathologies, age, gender, marriage duration, and history of infidelity or betrayal in first-degree relatives.

Keywords: Jealousy, Personality, Psychopathology, Questionnaire

1. Background

Jealousy is a complaint that can be related to a variety of psychopathologies (1). It is important to diagnose and distinguish the types of jealousy since, based on the underlying psychopathology, there is a risk of emotional, physical, and sexual abuse, or homicide and suicide (2, 3). Jealousy arises from the threat of losing an important relationship due to a rival that can be real or imagined. Therefore, jealousy is a heterogeneous spectrum ranging from a normal to a pathological sense that varies in intensity, persistence, and insight in different parts of the spectrum (4).

Jealousy can be a kind of delusion, obsession, or overvalued idea. Sometimes, it is difficult to differentiate; how-

ever, it is important to identify the difference between them for effective treatment management (5). In a study, a relationship was found between jealousy and neurosis, social anxiety, inflexibility, and hostility, and in romantic relationships, people with borderline personality disorder are more likely to develop interpersonal problems and violent events (6). Another study showed that the dimensions of personality traits could influence the propensity to experience different types of jealousy (7).

One of the important words in Iranian culture is "Gheyrat". This word is very similar to jealousy and causes similar behaviors. "Gheyrat" is a sign of honor that a man must show towards his female family members. In Ira-

nian culture, a man has to be extremely “Gheytrat” to preserve his family’s reputation. If an Iranian girl does not comply with the rules set by the community or the family and causes disgrace and shame to her family, an Iranian man may become angry and punish the girl. People believe that if they have more “Gheytrat” to their family members, they show more respect for Islamic values, a problem that does not exist in western or even eastern cultures. In western cultures, unlike Iranian culture, people do not care about people talk. However, “Gheytrat” does not seem to be a perfect equivalent to jealousy, but they are similar in some behavioral manifestations. Culture plays a very important role in the manifestation of jealousy (8). A study in Iran showed that jealousy of the husband was one of the strongest predictors of suicide attempts in Iranian women (9).

2. Objectives

Since studies of normal and pathological jealousy have so far been more relevant to western societies, which are culturally and emotionally very different from Iranian culture, we decided to design a study, first, to develop an Iranian version of the Jealousy questionnaire (JQ) and then to determine the relationship of different aspects of jealousy with personality traits and psychopathological dimensions. Since most of the western studies in this field were on university students, we also selected the study population from students to compare our results with similar studies in different western cultures.

3. Methods

3.1. Sample Selection

In this cross-sectional study, the population consisted of students of Mazandaran University of Medical Sciences (located in the north of Iran) in all medical disciplines such as medicine, dentistry, pharmacy, paramedicine, health sciences, nursing, and midwifery. The study was performed in 2019. A convenience sampling method was used. The inclusion criteria included consent and married people. Marriage was considered as an inclusion criterion because, according to Iranian society, relations between men and women without marriage are not acceptable, and it was necessary to set this entry criterion to get the ethical code.

Questionnaires were distributed in written, anonymous forms by a psychiatric resident among married students of Mazandaran University of Medical Sciences. After completing the questionnaires, the students were asked to put the papers in a folder placed in the educational office

of each college, and information was collected following confidentiality principles.

3.2. Questionnaires

3.2.1. Demographic Questionnaire

In this questionnaire, questions were asked about age, gender, marriage duration, and history of infidelity or unfaithfulness in first-degree relatives.

3.2.2. Jealousy Questionnaire

Marazziti developed the “Questionnaire Della Gelosia” (10), referred to as the Jealousy questionnaire (JQ). In a study, the exploratory factor analysis of JQ with a sample of 500 Italian university students exhibited five subtypes/dimensions of jealousy: self-esteem, paranoia, interpersonal sensitivity, fear of being abandoned, and obsessiveness (11). The JQ has 30 questions that measure the frequency, duration, and feelings or behaviors related to jealousy on a four-point Likert scale from one (no) up to four (maximal frequency or duration). This questionnaire examines five dimensions of jealousy-related psychopathology.

An Iranian version of the JQ was developed in the following steps. First, the English version of JQ was translated to Persian by a bilingual mental health expert. Second, the JQ was back-translated into English by another bilingual mental health expert, and then, the equivalent meaning of the two versions was assessed by five psychiatrists. The author accepted the new version and then tested it again for transcultural adaptation in a sample ($n = 32$). This pilot study was conducted on married students of Mazandaran University of Medical Sciences, and people who participated in the pilot study were excluded from the main study.

3.2.3. Symptom Checklist-90-Revised Inventory

To evaluate the psychopathological dimensions, we used the Iranian version of the Symptom Checklist-90-Revised inventory (SCL-90R) (12). The SCL-90R is an inventory that has 90 five-point Likert-type items that evaluate several psychopathological dimensions, specifically somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. Internal consistency (α -coefficient) for the subscales was 0.75.

3.2.4. NEO Five-Factor Inventory

The 60-item version of the questionnaire, the NEO Five-Factor inventory (NEO-FFI), measures five domains: Neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness (13). The validity and reliabil-

ity of this questionnaire have been demonstrated in Iranian studies. Cronbach's alpha coefficients for the five traits were 0.74, 0.55, 0.27, 0.38, and 0.77 for neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness, respectively. The response to this questionnaire is based on a Likert scale from zero to four (14).

3.3. Statistical Analysis

The analysis of the data was performed by SPSS22, AMOS22, and S-PLUS8. Continuous variables are defined as mean \pm standard deviations (SD). Categorical variables are described as frequencies (%). To evaluate the JQ structure, exploratory factor analysis was performed. The results of the Kolmogorov-Smirnov test showed that the JQ scores were not distributed normally. To extract the factors, principal component analysis (PCA) with oblimin oblique rotation was used. In each factor, the items with factor loadings ≥ 0.3 were included. The factorability of the correlation matrix was assessed with the Kaiser-Meyer-Olkin (KMO) statistic and Bartlett's test for sphericity.

We did factor analyses extracting one, two, three, four, or five factors, and chose the dimension according to the highest factor loading. The goodness-of-fit of each model was estimated by the root mean square error of approximation (RMSEA) (chi-square) and the Comparative Fit Index (CFI). By using the robust regression model, we evaluated the relationship between psychopathological dimensions and the types of jealousy, as well as the relationship between personality traits and types of jealousy, and controlled them for marriage duration, age, and gender. The statistically significant level was set at $P \leq 0.05$.

4. Results

Table 1 provides information on the demographic characteristics of the population under study.

Table 1. Sociodemographic Characteristics of the Sample (N = 358)^a

	Values
Age, y (n = 358)	30.48 \pm 6.843
Marriage duration, mo (n = 358)	6.19 \pm 5.88
Gender	
Male	122 (65.90)
Female	236 (34.10)
Family history of infidelity	
Yes	39 (10.90)
No	319 (89.10)

^aValues are expressed as mean \pm SD or No. (%).

4.1. Psychometric Properties of the JQ

Four factors were extracted by PCA. The JQ factorability in our study was confirmed by the KMO statistics (0.93) and Bartlett's sphericity test ($P < 0.001$). Factor loading after the oblimin rotation of each item is shown in Table 2. The first factor included eight items (11, 13, 25, 26, 27, 28, 29, and 30) and was known as the paranoid jealousy dimension. The second factor consisted of eight JQ items (1, 2, 3, 4, 5, 6, 7, and 24) and was considered to be the obsessive jealousy dimension. The third factor included seven JQ items (12, 14, 15, 16, 18, 20, and 22) and was regarded as the fear of being abandoned/separation anxiety jealousy dimension. The fourth factor applied to the dimension of self-esteem and consisted of six items (17, 19, 21, 8, 9, and 10). Item 13 of the JQ did not load on any factor.

4.2. Confirmatory Factor Analysis

A four-factor structure that excluded items with factor loads < 0.3 in PCA was the best model to fit our data. This model had the lowest AIC and the most consistent fit indices (Table 3).

4.3. Internal Consistency Reliability

The Iranian version of JQ had enough internal consistency. Cronbach's alpha coefficient was 0.77 for the total instrument and 0.72 - 0.78 for jealousy dimensions/subtypes.

4.4. Associations Between Jealousy Dimensions and Personality Aspects

The results are presented in Table 4. According to the results, only neuroticism was significantly associated with all types of jealousy.

4.5. Relationship Between Demographic Characteristics and Types of Jealousy

Table 5 provides information on the demographic characteristics of the population under study.

The results of the Mann-Whitney test showed a statistically significant difference in the mean score of paranoid jealousy between men and women. The mean score of paranoid jealousy was significantly higher in men than in women. In other subtypes, there was no significant difference.

4.6. Association Between Jealousy Subtypes and Psychopathological Dimension

Table 5 shows the relationship between the domains of psychopathology and types of jealousy. According to this table, paranoid jealousy and jealousy related to fear of being abandoned were associated with all aspects of psychopathology.

Table 2. Factor Loadings After Oblimin Rotation for Five Extracted Components^a

Item	Factors				
	1	2	3	4	5
Q29	721.0				
Q30	718.0				
Q13	686.0				
Q27	670.0				
Q28	646.0				
Q26	642.0				
Q25	583.0				
Q11	504.0				
Q1		758.0			
Q2		753.0			
Q3		729.0			
Q5		708.0			
Q6		655.0			
Q4		613.0			
Q7		510.0			471.0
Q24		430.0			
Q22			668.0		
Q20			638.0		
Q14	474.0		553.0		
Q16			533.0		
Q18			532.0	529.0	
Q12	434.0		493.0		
Q15			447.0		
Q23					
Q17				719.0	
Q19				625.0	
Q21				604.0	
Q9					846.0
Q8					653.0
Q10					463.0

^aOnly factor loadings with absolute values of ≥ 0.40 were retained.

The results showed that jealousy related to fear of being abandoned had the highest correlation with interpersonal sensitivity, anxiety, and psychoticism. In this study, obsessive jealousy was less associated with psychopathology than were other aspects of jealousy. Nevertheless, our findings showed that obsessive jealousy was significantly associated with obsessive-compulsive symptoms, anxiety, and depression. Self-esteem-related jealousy was most strongly correlated with paranoid beliefs.

5. Discussion

The main purpose of this study was, first, to develop an Iranian version of the Jealousy questionnaire (JQ) and then to determine the relationship between different aspects of jealousy and personality traits and psychopathological dimensions. Factor analysis of the Persian version of the jealousy questionnaire was also evaluated. Exploratory factor analysis confirmed the five-factor structure of the Italian and Brazilian versions (10, 11), but in the present study, con-

Table 3. Goodness-of-fit Statistics for Four-factor Model Fitted to Sample Data

Indices	Acceptable Value	Sample Data
Chi-square, χ^2	-	981.287
P-Value	-	0.000
Df	$df \geq 0$	367
χ^2/df	$\chi^2/df < 3$	2.674
RMSEA	RMSEA < 0.1	0.068
GFI	GFI > 0.8	0.842
CFI	CFI > 0.8	0.875
SRMR	Closer to zero	0.0601
AIC	-	1117.287

Abbreviations: AIC, Akaike information criterion; CFI, confirmatory factor index; df, degree of freedom; GFI, goodness-of-fit index; RMSEA, root mean square error of approximation; RMR, standardized root mean square residual.

confirmatory factor analysis of the four-factor structure was confirmed for the Persian version of the JQ. There were differences in the questions in each dimension of jealousy and the number of questions between the three versions of Brazilian, Italian, and Persian. In the Brazilian version, five questions 13, 16, 23, 24, and 25 were omitted in the first step of exploratory factor analysis, and in the Persian version, a question (23) was deleted. It seems that these inconsistent findings are related to cultural differences.

The findings of this study showed an inverse linear relationship between age and all dimensions of jealousy; that is, younger people were more jealous, and jealousy decreased in all dimensions as age increased. A study showed that younger age was associated with lower self-esteem and higher levels of obsessive and paranoid jealousy (10). Thus, the findings of our study on the relationship between age and jealousy are generally consistent with previous studies, and it may be argued that the effect of age and jealousy has no relationship with cultural differences.

The higher rates of jealousy in women or men have been controversial in various studies (15, 16). Men and women differ in jealousy. Studies have shown that women are more concerned about emotional unfaithfulness, and men are more concerned about sexual unfaithfulness (17, 18). Our study showed that the mean score of paranoid jealousy was higher in men than in women, whereas in another study, women had higher levels of obsessive and self-esteem-related jealousy (10). However, other studies showed that gender did not affect the dimensions and scores of jealousy (6, 11). The prevalence of paranoid jealousy among men in this study is justified by the culture and religious beliefs and the concept of "Gheyrat" in Iranian society.

Our study showed that with increasing marital life, all

dimensions of jealousy, especially obsessive jealousy, will decrease. The probable cause may be the increased commitment of two partners to each other and their increased tolerance for different circumstances. This finding contradicts studies reporting that jealousy increases with fear of being abandoned as the duration of the relationship increases (10). In some research, no relationship was found between marriage duration and jealousy (6, 19). Previous studies have examined the types of relationships between men and women, including romance, dating, and even relationships in the past. While our study sample included married people at the time of the study and the existence of a formal relationship could be a reason for the differences between the results of our study and others.

In this study, we investigated the relationship between the history of betrayal or unfaithfulness in first-degree relatives and the dimensions of jealousy. Statistical analysis showed that the mean score of jealousy related to fear of being abandoned was higher among those who had a history of disloyalty in first-degree relatives. Although no similar study was found, in some studies that examined the experience of infidelity in the previous relationship, the results have been inconsistent (20, 21).

The findings of this study showed that different types of jealousy are associated with psychopathology. In our study, obsessive jealousy was less associated with psychopathology than were other subtypes of jealousy, which is in line with research by Lima et al. (11). However, our findings showed that obsessive jealousy was significantly associated with obsessive-compulsive symptoms, anxiety, and depression. The present study also showed that paranoid jealousy and jealousy related to fear of being abandoned were associated with all aspects of psychopathology, which corroborates the study by Lima et al. about jealousy related to fear of being abandoned (11). In the present study, jealousy related to fear of being abandoned had the highest correlation with interpersonal sensitivity, anxiety, and psychoticism, which is in line with the study by Lima et al. (11).

Lima et al. (11) study showed that paranoid jealousy had the most relationship with the dimensions of psychoticism and paranoid beliefs. According to the findings of this study, paranoid jealousy was associated with all psychopathologies; but, the dimensions of somatization, psychoticism, and hostility were most associated with this type of jealousy. In this study, only the relationship of neuroticism with different dimensions of jealousy was significant, which is in line with the Buunk study (21). Since neurotic individuals have negative emotions such as fear, sadness, arousal, anger, and guilt, they are less likely to adapt to the environment and are more vulnerable to psychological stress. As expected, these individuals are more susceptible to jealousy, and this was confirmed in our study, as well.

Table 4. Associations Between Personality Traits and Jealousy Dimensions

Variable	Jealousy Dimensions			
	Paranoid, C (P)	Obsessive, C (P)	Fear of Being Abandoned, C (P)	Self-Esteem, C (P)
Age, y	-0.001 (0.439)	-0.017 (0.002)	-0.013 (0.100)	-0.023 (0.000)
Gender (male/female)	0.006 (0.838)	-0.109 (0.174)	-0.164 (0.091)	-0.164 (0.052)
Neuroticism	0.008 (0.000)	0.017 (0.007)	0.016 (0.040)	0.021 (0.002)
Extroversion	-0.0004 (0.881)	-0.0025 (0.772)	0.01 (0.329)	0.007 (0.473)
Openness	0.004 (0.217)	-0.0019 (0.816)	-0.012 (0.221)	0.005 (0.548)
Agreeableness	0.002 (0.431)	-0.0103 (0.225)	-0.014 (0.176)	-0.01 (0.287)
Conscientiousness	0.0003 (0.869)	-0.0101 (0.084)	-0.013 (0.071)	0.005 (0.431)

Table 5. Associations Between Jealousy Subtypes and Psychopathological Dimensions and Demographic Features (N = 358)

Variable	Psychopathological Dimension								
	Phobic anxiety, C (P)	Anxiety, C (P)	Depression, C (P)	Hostility, C (P)	Obsessive-Compulsive, C (P)	Paranoid Ideation, C (P)	Psychoticism, C (P)	Interpersonal Sensitivity, C (P)	Somatization, C (P)
Age, y	-0.009 (0.25)	0.01 (0.085)	0.005 (0.274)	0.006 (0.382)	0.01 (0.314)	0.002 (0.979)	-0.004 (0.538)	-0.002 (0.706)	0.001 (0.9)
Gender (male/female)	-0.098 (0.103)	0.032 (0.469)	-0.008 (0.808)	-0.078 (0.177)	0.126 (0.118)	-0.1 (0.176)	-0.092 (0.099)	0.104 (0.092)	0.008 (0.886)
Family history of infidelity	0.051 (0.523)	0.052 (0.382)	0.05 (0.266)	0.133 (0.102)	-0.081 (0.443)	0.0142 (0.145)	0.097 (0.199)	0.044 (0.491)	-0.159 (0.337)
Marriage duration, mo	0.006 (0.466)	-0.011 (0.097)	-0.004 (0.424)	-0.007 (0.406)	-0.006 (0.615)	0.007 (0.946)	0.002 (0.818)	0.001 (0.881)	-1 (0.925)
Paranoid	0.639 (0.000)	0.603 (0.000)	0.494 (0.000)	0.671 (0.000)	0.4 (0.000)	0.61 (0.000)	0.694 (0.000)	0.462 (0.000)	0.726 (0.000)
Obsessive	0.049 (0.421)	0.156 (0.002)	0.091 (0.014)	-0.018 (0.754)	0.195 (0.023)	0.026 (0.733)	0.089 (0.087)	0.047 (0.346)	0.037 (0.584)
Fear of being abandoned	0.208 (0.003)	0.518 (0.000)	0.362 (0.000)	0.251 (0.000)	0.368 (0.000)	0.273 (0.001)	0.433 (0.000)	0.522 (0.000)	0.317 (0.000)
Self-esteem	-0.112 (0.025)	-0.01 (0.791)	0.006 (0.837)	0.203 (0.000)	0.23 (0.001)	0.3 (0.000)	-0.089 (0.047)	0.142 (0.009)	0.005 (0.915)
R ²	0.169	0.461	0.429	0.523	0.563	0.561	0.267	0.601	0.436

Dijkstra and Barelds (22) also showed the relationship of neuroticism and extroversion with high and low levels of jealousy, respectively.

5.1. Conclusions

In this study, the validity and reliability of the Persian version of the jealousy questionnaire were assessed and confirmed. Exploratory factor analysis revealed four dimensions of jealousy named paranoid jealousy, obsessive jealousy, jealousy related to fear of being abandoned, and jealousy related to self-esteem. The jealousy subtypes were correlated with different psychopathologies, age, gender, marriage duration, and history of infidelity or betrayal in first-degree relatives.

5.2. Limitations

As a limitation, this study included students for the psychometric evaluation of the jealousy questionnaire, and thus, its results cannot be generalized to the general population. Most of the participants in this study were female, which may have caused bias in the results. Marriage

was considered as an inclusion criterion because, according to Iranian society, relations between men and women without marriage are not acceptable, and it was necessary to set this entry criterion to get the ethical code; this may have affected the findings of this study.

Footnotes

Authors' Contribution: Study concept and design: FSM and MZ. Analysis and interpretation of data: PIP, FSM, and AAF. Drafting of the manuscript: FSM. Critical revision of the manuscript for important intellectual content: FSM, and AAF. Statistical analysis: PIP.

Conflict of Interests: There is no conflict of interest.

Ethical Approval: The Ethics Committee of Mazandaran University of Medical Sciences approved this project (code: IR.MAZUMS.REC.1397.2964).

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Informed Consent: Informed consent was obtained from all participants. Questionnaires were distributed in written, anonymous forms by a psychiatric resident among

married students of Mazandaran University of Medical Sciences. Participating in this study was voluntary.

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