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The Correlations between Hirsutism Disease and Body Dysmorphic Disorder, Psychological Distress, and Defense Mechanisms

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Quantitative Study

Abstract

Background: Hirsutism in many cases is a beauty problem in women, which is due to hormonal disorders such as malfunctioning of the ovaries, adrenal glands, pituitary gland, and non-endocrine hereditary characteristics or drug use.
Methods: This cross-sectional correlation study was done on 76 women aged 18 to 40 suffering from hirsutism who referred to laser therapy. The instrument prepared for the evaluation in this research was Yale-Brown Obsessive-Compulsive Scale Modified for Body Dysmorphic Disorder (BDD-YBOCS). Depression Anxiety Stress Scale (DASS) and defense mechanisms were studied through the Defense Style Questionnaire (DSQ). In the descriptive statistics section, mean, frequency, and standard deviation (SD) indices were used, and multiple regression tests were used in the inferential statistical section. For statistical analysis, data were analyzed using SPSS statistical analysis software.
Results: The results of the multiple regression showed that there was a positive and significant relationship ($P < 0.05$) between the investigated characteristics of body dysmorphic disorder (BDD) ($r = 0.46$), psychological distresses ($r = 0.33$), and defense mechanisms ($r = 0.46$), with hirsutism and based on the results of the studied components, stress with 11%, BDD with 21%, and mature defense mechanisms with 17% were able to explain the changes related to hirsutism disease in this research samples.
Conclusion: The present study showed that there was a significant relationship between hirsutism and BDD, stress, and mature defense mechanisms, which directly and indirectly indicates the importance of two-way communication between specialists in other fields and mental health specialists to improve the quality of life (QOL) as much as possible, and also to diagnose and treat the disorders associated with hirsutism.

Keywords: Hirsutism; Body dysmorphic; Psychological distresses; Defense mechanisms

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Introduction

Over the years, many hereditary factors have been known concerning the increase or decrease in the tendency toward some diseases. Hirsutism in many cases is a beauty problem in women, which is due to hormonal disorders such as malfunctioning of the ovaries, adrenal glands, pituitary gland, and non-endocrine hereditary characteristics or drug use (Noorbala & Kafaie, 2010). In medical terms, it refers to a condition in women that results in excessive growth of dark or coarse hair in a male-like pattern (Rosenfield, 2005). Such a pattern in the scoring system (Ferriman-Gallwey score) for hirsutism obtains a minimum score of ≥ 8 points (Matheson & Bain, 2019). Hirsutism should be distinguished from hypertrichosis, which means increased hair growth all over the body and is related to sex hormones. It does not exist, although the increase of androgens can aggravate it (Sadeghi et al., 2013) but it is observed in hirsutism in the chin, upper lip, cheeks, the central part of the chest, the lower part of the abdomen, and inner thighs (Mahmoudieh et al., 2022). Many expert dermatologists believe that stress can cause skin diseases such as acne and other skin disorders, and it can be a factor in the continuation of skin disorders and acne (Orion & Wolf, 2014).

It is activated in response to disturbing or obsessive thoughts. Worry is defined as one of the important components of anxiety (Rabiei, Rahnejat, Nikfarjam, & Najafipoor, 2015). Worrying about the disease can potentially make a person more sensitive about her physical condition and appearance. Recent research has shown the role of depression in different physical diseases that leads to the occurrence of different severity of symptoms in physical diseases and different responses to treatment. In addition to depression as a primary disorder, it has been found along with other types of chronic medical diseases and often remains undiagnosed due to the focus of doctors and patients on the primary disease or the difficulty of diagnosing accompanying depression in some physical diseases (Schlosser, Gage, Kohli, & Soler, 2016). Hirsutism is more prevalent in women with polycystic ovary syndrome and is associated with a significant psychological and emotional burden on them so that they experience it as a cause of sadness which distorts their feminine identity (Ekback, Wijma, & Benzein, 2009). The results showed that there was a significant relationship between marital satisfaction and the severity of anxiety and depression, which increases with a decrease in marital satisfaction in an infertile person (Peyvandi, Hosseini, Daneshpour, Mohammadpour, & Qolami, 2011). Illness-related depression can cause high levels of suffering in a patient and can interfere with existing physical symptoms and acceptance of treatment (Zheng, Abraham, Bruzzese, & Smaldone, 2020). We have all experienced suffering when it comes to being diagnosed. It can be due to illness and it can create a feeling of hopelessness in us; despair harms people's health and psychological dimensions (Yirmiya, 2000), and it is one of the main characteristics and manifestations of depression (Garnefski, Kraaij, & Spinhoven, 2001). Feelings of inferiority can be caused by a psychological or social weakness that is felt mentally and also arises from the real defects of the body (Hatch, Rosenfield, Kim, & Tredway, 1981).

People suffering from body dysmorphic disorder (BDD) have a mental preoccupation with imaginary defects in their appearance, and this mental preoccupation is extreme regarding their defects; such concerns include specific parts of the body such as hair, breasts, and genitals (Prochaska & Norcross, 2018). This is a cross-sectional correlation study. The primary goal is to determine the relationship between hirsutism score and BDD, psychological distresses, and defense mechanisms

in these patients in Isfahan City, Iran. The secondary goal is to estimate the association of potential factors that can alert mental health professionals to the presence of undiagnosed disorders, and also highlight the importance of two-way communication between other fields specialists and mental health specialists, to improve the quality of life (QOL) of patients with hirsutism by diagnosing and treating its accompanying disorders.

Methods

This cross-sectional correlation type study was done on the patients with hirsutism as the sample. In this study, there were 76 patients with hirsutism who referred to Isfahan Laser Treatment Center with the age range of 18 to 40 years selected through access to their files in the spring and summer of 2021. Among them, people with a master's level of education had the highest frequency.

The tools used in the research were as follows: to measure the degree of hirsutism, the Ferriman-Gallwey scoring system for hirsutism was used, in which a score from 0 (no hair) to 4 (completely masculine) is considered for each of the 9 androgens sensitive areas in the body. The sum of these 9 points is calculated as the total score of hirsutisms (Sadock, Kaplan, & Sadock, 2022).

Revised Yale-Brown Obsessive Compulsive Scale Modified for Body Dysmorphic Disorder (BDD-YBOCS) (Phillips et al., 1997): This scale is a 12-item self-report instrument that measures the severity of dysmorphic disorder symptoms. This scale gives experts a score that indicates the severity of BDD, and the obtained score also shows the degree of interference with the person's performance. As in the adult version, items 1-5 assess the extent of the preoccupations about physical appearance, items 6-10 assess appearance-related compulsive behaviors, item 11 assesses insight into appearance beliefs, and item 12 assesses avoidance due to BDD symptoms. Each item is rated on a 4-point Likert scale. The total BDD severity score, therefore, ranges from 0 to 48, with higher scores reflecting higher symptom severity. The adult version of the scale showed sensitivity to change, with treatment response defined as a BDD-YBOCS reduction of ≥ 30%, and a BDD-YBOCS score ≤ 16 corresponding to full or partial symptom remission.

Depression Anxiety Stress Scale (DASS) (Lovibond & Lovibond, 1995): This scale is used to measure the severity of the main symptoms of depression, anxiety, and stress. To complete the questionnaire, the person must specify the status of a symptom during the last week. Internal consistency for each of the subscales of the 42-item and the 21-item versions of the questionnaire is typically high (e.g., Cronbach's α of 0.96 to 0.97 for DASS-depression, 0.84 to 0.92 for DASS-anxiety, and 0.90 to 0.95 for DASS-stress) (Lovibond 1995; Brown et al., 1997; Antony et al., 1998; Clara, 2001; Page, et al., 2007). There is good evidence that the scales are stable over time (Brown et al 1997) and responsive to treatment directed at mood problems (Ng, 2007).

Defense Style Questionnaire (DSQ) (Andrews et al., 1993): This questionnaire includes 20 defense mechanisms that are divided into 3 defense styles: underdeveloped, developed, and psychotic. If a person scores more than 10 in each of these mechanisms, it means that she has an active mechanism. Cronbach's alpha was used to calculate the internal consistency of the instrument and was found to be in the moderate range for the image-distorting style (α = 0.64) and the adaptive style (α = 0.61), while the affect-regulating style (α = 0.72) was shown to be slightly more consistent.

For statistical analysis, the information was analyzed using SPSS statistical

analysis software (version 23, IBM Corporation, Armonk, NY, USA). In the descriptive statistics section, mean, frequency, and standard deviation (SD) indicators, and in the inferential statistics section, multiple regression tests were used.

Ethical considerations: This research is taken from the research project of the Behavioral Sciences Research Center with the number 2400121 and the ethical code of IR.MUI.MED.REC.1400.519 approved by Isfahan University of Medical Sciences.

Results

The characteristics of patients with hirsutism in this study were such that patients with any degree of the disease were included in the study.

Table 1 presents the frequency and percentage of blood groups among the subjects.The mean and SD of DASS scale dimensions, defense mechanisms, and BDD of the subjects have been presented in table 2. As it can be seen, based on the scoring method of the questionnaires, the subjects had anxiety symptoms with a mean of 10.6, depression symptoms with a mean of 15.7, and stress with a mean of 9.6, and in the dimensions of defense mechanisms, the immature component had a mean of 108.8, neurotic 45.3, and mature had a mean of 47.3; BDD had the mean score of 17.1 and the mean score of hirsutisms according to the Ferriman-Gallwey score was 17.

According to the Kolmogorov-Smirnov statistics (Table 3), the variables of the research indicated the normality of DASS scale variables, defense mechanisms, and body deformity, and this indicated that the significant values of obtained z of the research variables were higher than 0.05 ($P > 0.05$), which indicates that the scores of these variables have a normal distribution and it is possible to use parametric tests to check the research hypotheses.

The correlation matrix between research variables (Table 4) showed a positive and significant relationship between stress, mature defense mechanism, and body ugliness with hirsutism disease; however, the two dimensions of depression and anxiety symptoms did not have a significant relationship with hirsutism, and there was a negative and non-significant relationship with hirsutism. Stepwise regression analysis was used to investigate the relationship between hirsutism by the dimensions of the DASS scale, defense mechanisms, and BDD and to investigate the multiple correlation coefficient between these variables.

The results of table 5 showed that among the studied components, the DASS scale, defense mechanisms, and BDD were able to predict hirsutism disease in three stages and the F value observed for the mentioned dimensions was significant ($P < 0.05$). The results of psychological distresses (0.11), defense mechanisms (17.0), and BDD (0.21) can be considered to explain the hirsutism-related changes in this research sample.

Table 1. Frequency and percentage of blood group in the subjects

Blood group	n (%)
A+	22 (26.8)
A-	2 (2.4)
B+	13 (15.9)
B-	1 (1.2)
O+	28 (34.1)
O-	4 (4.9)
AB+	8 (9.8)
AB-	1 (1.2)
No answer	3 (3.7)

Table 2. Descriptive characteristics of research variables

Variables		Mean ± SD
DASS scale	Anxiety symptoms	10.6 ± 7.7
	Depression	15.7 ± 8.7
	Stress	9.6 ± 7.3
	Immature	108.8 ± 24.5
	Neurotic	45.3 ± 9.7
	Mature	47.3 ± 8.2
BDD		17.1 ± 4.9
Hirsutism		17.0 ± 6.0

DASS: Depression Anxiety Stress Scale; BDD: Body dysmorphic disorder; SD: Standard deviation

Regression analysis of variance (ANOVA) was used to check the certainty of the relationship between independent and dependent variables, as shown in table 6. A significance level equal to or less than 0.05 confirms the appropriateness and correctness of the regression fit. In this model, the significance level of the regression coefficients' equality and constant value with zero was less than 0.05 for all variables. Therefore, the assumption of equality of regression coefficients and constant value with zero was rejected, and there was no need to remove them from the regression equation. In other words, these independent variables and constant value significantly affected the dependent variable (hirsutism).

Table 7 displays the regression coefficients of the model variables. As shown in the table, the constant term (29.230) is statistically significant (P = 0.001). Among the predictors, stress shows a positive and significant relationship with hirsutism (β = 0.280, P = 0.030), indicating that higher levels of stress are associated with increased hirsutism severity. The neurotic defense mechanism (β = -0.220, P = 0.040) and the developed defense mechanism (β = -0.240, P = 0.030) both demonstrate significant negative relationships with hirsutism, suggesting that higher scores in these defense mechanisms are associated with lower hirsutism severity. Interestingly, BDD, depression, anxiety symptoms, and the immature defense mechanism did not show statistically significant relationships with hirsutism in this model (all P > 0.05).

Discussion

This research aims to evaluate the relationship between hirsutism disease and BDD, psychological distress, and defense mechanisms. The results showed that there was a significant relationship between hirsutism and BDD, stress, and mature defense mechanisms in patients. Currently, research has shown that anxiety, depression, and stress are important topics in psychological pathology, and their importance is twofold among vulnerable groups such as patients (Ghanbari & Narimani, 2020).

Table 3. The results of Kolmogorov-Smirnov test for the normality of research variables

Variables		Statistic Z	P-value
DASS scale	Anxiety symptoms	0.809	0.52
	Depression	1.966	0.21
	Stress	1.671	0.07
	Immature	0.976	0.26
	Neurotic	1.592	0.06
	Mature	0.981	0.29
BDD		0.491	0.96
Hirsutism		0.498	0.96

DASS: Depression Anxiety Stress Scale; BDD: Body dysmorphic disorder

Table 4. Correlation matrix between Depression Anxiety Stress Scale (DASS), defense mechanisms, and body dysmorphic disorder (BDD)

Variables		1	2	3	4	5	6	7	8
DASS scale	Anxiety symptoms		0.040	0.300*	0.050	-0.120	-0.300*	0.330*	0.082
	Depression		1	0.180	0.150	0.060	0.230*	0.100	0.070
	Stress			1	0.540*	0.550*	0.520*	-0.080	-0.070
	Immature				1	0.430*	0.280*	-0.180	-0.200
	Neurotic					1	0.460*	-0.020	0.002
	Mature						1	0.180	0.190
BDD								1	0.100
Hirsutism									1

*P < 0.001
DASS: Depression Anxiety Stress Scale; BDD: Body dysmorphic disorder

Anxiety causes stress, which in some way, interferes with the treatment process, prolongs the recovery period of patients, and causes exorbitant costs for both the individuals and the healthcare services (Nazari, Vanani, Rahimi Madiseh, & Deris, 2014). Mental preoccupation or imaginary defect in the physical appearance causes clinical distress and personal functional destruction, and it can cause the perception of threat, which according to Arnold Lazarus is the main cause of stress (Cullman, 2024). The explanation that can be given for these findings, aligned with the current research, is that a person suffering from hirsutism who is under treatment may be affected by stressful factors such as mental preoccupation with her hairy appearance and it prolongs the treatment period which causes more financial costs and leads to the experience of more features of mental disorders, which are in line with the findings of this research.

The relationship between mental and physical processes has been emphasized in many types of research, and psychophysical medicine, which emphasizes the unity and interaction between body and mind, covers a wide range of diseases, which is one of the important psychological variables affecting diseases. The physical process of self-knowledge, which is a collection of a person's perceptions of himself, and the role they play in the formation of Mature defense mechanisms, is effective in physical and mental health (Shah Mohammadi, Ghorbani, & Besharat, 2007). In another study on the relationship between psychological defenses and health, the body was studied and a significant relationship was found between blood pressure disease and all dimensions of psychological defenses (Sadeghian, Behrang, Gerdab, Khademion, & Rostaie, 2019).

Table 5. Analysis of variance (ANOVA) of step-by-step regression model in determining the contribution of hirsutism disease by Depression Anxiety Stress Scale (DASS) dimensions, defense mechanisms, and body dysmorphic disorder (BDD)

Variables	Indicator	SS	df	MS	F	P-value	R	R^2	Adjusted R^2
DASS scale	Regression	327.44	1	327.44	9.22	0.003	0.33	0.11	0.09
	Residual	2625.50	74	35.48					
	Total	2952.94	75						
Defense mechanisms	Regression	506.95	2	253.48	7.56	0.001	0.41	0.17	0.14
	Residual	2952.94	73	33.50					
	Total	2952.94	75						
BDD	Regression	642.98	3	214.32	6.68	0.001	0.46	0.21	0.18
	Residual	2309.96	72	32.08					
	Total	2309.94	75						

DASS: Depression Anxiety Stress Scale; BDD: Body dysmorphic disorder; SS: Sum of squares; df: Degree of freedom; MS: Mean squares

Table 6. Linear regression analysis of variance (ANOVA)

Model	SS	df	MS	F	P-value	R	R^2
Regression	743.98	7	106.27	3.27	0.005	0.50	0.25
Residual	2209.05	68	32.48				
Total	2952.94	75					

SS: Sum of squares; df: Degree of freedom; MS: Mean squares

Table 7. Regression coefficients table of model variables

Model	Regression coefficient	Beta	Statistic t	P-value
Constant	29.230		5.510	0.001
BDD	0.190	0.140	1.360	0.170
Depression	0.090	-0.110	-0.760	0.440
Stress	0.200	0.280	2.150	0.030
Anxiety symptoms	0.003	0.003	0.020	0.900
Immature	-0.010	-0.060	-0.480	0.600
Neurotic	-0.140	-0.220	-1.980	0.040
Mature	-0.180	-0.240	-2.150	0.030

Considering that constant, stress, neurotic, and mature coefficients were equal to zero, 0.03, 0.05, and 0.03, respectively (less than 0.05),the fitting coefficients were significant and the model could be written a fit with these coefficients along with the constant.

In the present study, it was shown that there was a significant relationship between mature psychological defenses and hirsutism disease, which is in line with the mentioned research. This is a point that can be mentioned regarding the way of answering the questions related to psychological defenses, which may have been answered with more bias leading to a significant relationship between mature defenses and hirsutism disease. The results showed that in the face of stressful situations, the possibility of using immature defense mechanisms increased (Heidari Nasab, 2006), and also a significant difference was found between the defense mechanisms and the activity of the behavioral brain system in patients with asthma and normal people (Samadi, Ghanbarian, Hosseini, Raufi, & Panabad, 2019) which is inconsistent with the current research regarding the lack of significant relationship between neurotic and immature defense mechanisms and hirsutism disease.

In another study on the comparison of the level of anxiety of women with hirsutism, the results showed that the level of hirsutism did not create a significant difference in state or trait anxiety, in other words, no relationship was found between the level of hirsutism and state or trait anxiety (Rabinowitz, Cohen, & Le, 1983) that is consistent with the present study.

Regarding the lack of connection between the features of anxiety and depression with hirsutism disease, the present study has the following limitations. The cooperation of more people seems to add to the scientific richness of the study and increase the power of interpreting the results. Moreover, until now, no study has been conducted to investigate the relation of mental disorders with the changes resulting from this disease, as well as endocrine disorders of this disease, or polycystic ovary, which has a lot of coexistence with hirsutism. The present study is a correlational or, in other words, a pre-clinical study that can be the beginning of the way to enter laboratory and therapeutic studies.

Conclusion

The present study showed that there was a relationship between hirsutism with BDD, distress, and mature defense mechanisms in patients, and there was no relationship

in other characteristics such as anxiety, depression, and neurotic and immature defense mechanisms.

Conflict of Interests

Authors have no conflict of interests.

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