**Prevalence of anxiety and depression among hirsutism patients in Herat city**

**Abstract**

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**Background/Aim:** Hirsutism induces mental illnesses such as depression and anxiety, so it is important to know the prevalence of these diseases in societies. The aim of this study was to determine the prevalence of anxiety and depression in patients with hirsutism in Herat city.

**Material and methods:** One hundred and thirty-eight patients with hirsutism were participated in the study. This study was conducted over one year (from August 1, 2018, to the end of July 2019) in Herat city of Afghanistan. The Ferriman-Gallwey scale is used for diagnosis and determining the severity of hirsutism, the Hospital Anxiety and Depression Scale (HADS) for diagnosis and severity assessment of depression and anxiety, a questionnaire for patients sociodemographic study, and the IBM program SPSS Statistics for analyzing the data.

**Results:** Anxiety (85 cases (61.5%)) was more prevalent among the study population than depression (73 cases (52.8%)). Anxiety was present in 7 cases (5.0%) of illiterate patients, 41 cases (29.7%) of school level, and 37 cases (26.8%) with higher education levels. Depression was present in 5.0% of illiterate, 23.9% of patients with the school level, and 23.9% of patients with a high level of education.

**Conclusion:** Despite the high prevalence of depression and anxiety in patients with hirsutism, there was no evidence to suggest a relationship between hirsutism and the high prevalence of depression and anxiety. We recommend further studies on the prevalence of depression and anxiety among the general population in Herat city.

**Keywords:** Anxiety, Depression, Ferriman-Gallwey scale, Hirsutism, Prevalence

**Introduction**

The word hirsutism is derived from the Latin word (hirsutus), which in English means “hairy”. Hirsutism is the overgrowth of thick, long, dark, and terminal hair in women that grows in androgen-sensitive areas of the body, such as the beard, groin, upper chest, buttocks, pubic, and abdominal areas (Christopher et al., 2016). Hirsutism affects women between the age of 18 – 45years and usually appears after the onset of puberty, but in the existence of ectopic androgens, it can appear at any age. The precise prevalence of the disease is not clear, but estimates suggest that 5-10% of women are likely to be involved (Christopher et al., 2016; Bolognia et al., 2008; Tabinda et al., 2014).

A study in Turkey indicated that there is no association between the degree of hirsutism and the development of anxiety and depression. Depression, Anxiety, and Combined Depression and Anxiety (68%, 45.2%, and 40.1%, respectively) have been reported in patients with hirsutism and the severity of depression symptoms is positively related to DHEA-S levels. Other studies in the United States have shown that obese women with hirsutism are more likely to have depressive disorders, but no such an association has been found between patients' BMI and the presence of depressive symptoms (Irak et al., 2016). In a study in Poland, Hirsute women were more obese than the control group and had significantly more anxiety (26% vs. 10%) and depression (16% vs. 6%) than the control group (Drosdzol et al., 2010). Another study at the University of Padua in Italy found that most patients had social phobia (Nicoletta et al., 1993). Studies show that patients with hirsutism have significantly more anxiety, fear of community, and neurological symptoms than the control group (Yahya et al., 2015; Tabinda et al. 2014). However, in a study at the University of Bologna in Italy, the majority of patients showed a good psychological adaptation to the disease and did not show any significant increase in anxiety, depression, and abnormal habits compared to the control group (Giovanni et al., 1989). In some studies in Iran, the effect of disease on students' mood and self-confidence was confirmed, but in some others, the association between neurological disorders and hirsutism was not found (Taheri et al., 2016; Hajbeydari et al., 2007).

Overall, many studies have shown that the presence of hirsutism has a significant effect on patients' mental state and causes anxiety and depression (Khomami et al., 2015; Ekback et al., 2013; Kiran et al., 2018). About 30% of women have a high rate of major depression, while 75% show clinical levels of anxiety and 29% show both illnesses together (Lepton et al., 2006; Irak et al., 2016), and patients had a higher prevalence of anxiety disorders and low self-esteem (Sonino et al., 1993).

In Afghanistan, especially in Herat city, no study has been conducted on the prevalence of anxiety and depression in patients with hirsutism. This study aimed to evaluate the prevalence of anxiety and depression in patients with hirsutism and identify its related factors.

**Method**

This study was a prospective cross-sectional study, which was conducted over one year (from August 1, 2018, to the end of July 2019) in the Rose hospital of dermatology and cosmetics and in the dermatology department of the medical faculty of Herat University.

This study was used from a non-probability sampling method or convenience sampling method. The study population consisted of all 16-45year old women with hirsutism who had not been treated for hirsutism in the last 6 months. Women with chronic and debilitating diseases such as cardiovascular, thyroid, mental illness, pregnant and lactating women, and women with hypertrichosis due to known local or systemic diseases were not included in this study.

The sample size was determined by using the Raosoft sample size calculator website (http://www.raosoft.com/samplesize.html). The General Statistics Presidency of the Islamic Republic of Afghanistan has reported the female population of Herat city in 2019 as 316,845 (Central statistics organization, 2019). According to estimates by the World Health Organization, hirsutism affects up to 10% of women in all regions, so the study population was estimated at 31,685 women. By taking into account this population, a margin of error of 5%, and a confidence level of 95% in the Raosoft sample size calculator, the study population was calculated 138 women with hirsutism (Figure 1).

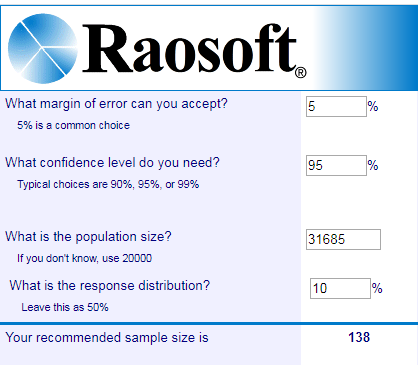


Figure 1. Calculation of the study sample size by using the Raosoft sample size calculator

At first, the study protocol was reviewed and approved by the scientific studies committee of Herat University school of medicine. Informed consent was obtained from all patients before inclusion in the study process.

This study was used from the Ferriman-Gallwey scoring system to determine the severity of hirsutism in 9 androgen-sensitive areas of skin (upper lip, groin, chest, upper back, lower back, upper abdomen, lower abdomen, arm, and thigh) (Lumezi et al. 2018; Zaidi et al. 2015). According to this system, Scoring ranged from a minimum of 0 to a maximum of 36, 8-10=mild, 11-14=moderate, and scores ≥15 were considered severe hirsutism (Kiran et al. 2018). The Hospital Anxiety and Depression Scale (HADS), which was first developed by Zigmond & Snaith in 1983, was used to assess patients' depression and anxiety. In addition, the author built a sociodemographic questionnaire consisted of the patient’s age, marital status, associated diseases, occupation, level of education, economic status, and duration of hirsutism.

The obtained data were analyzed and evaluated in the IBM SPSS Statistics program (version 25). The chi-square test was used to compare the difference between groups of categorical variables. when the P-value was less than 0.05, the difference between the two groups was considered acceptable and significant. Descriptive statistics are presented in the form of mean and standard deviation, quantitative variables are presented in the form of the range including minimum and maximum, and categorical variables are presented in the form of figures and percentages.

**Results**

In this study, 138 women with hirsutism between the ages of 16 and 45 were included. The mean age of patients was 24.6 ± 5.0 years. The mean weight of patients was 12.6 ± 65.8 kg (range 40 - 112kg). The mean duration of the disease was 6.2 ± 8.6 years (range 1 to 31 years) (Table 1).

Table 1- Disease duration, age, and weight of patients with hirsutism

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variables | Minimum | Maximum | Mean | Standard deviation |
| Age | 16 | 43 | 24.6 | 5.0 |
| Weight | 40 | 112 | 65.8 | 12.6 |
| Duration/ year | 1 | 31 | 8.6 | 6.2 |

Out of 138 patients with hirsutism, 33 cases (23.9%) had mild hirsutism, 40 cases (28.9%) moderate hirsutism, and 65 cases (47.1%) had severe hirsutism. According to figure 2, the prevalence of severe hirsutism is almost twice that of mild hirsutism.

Figure 2. Prevalence of hirsutism according to disease severity

Of all the cases included in this study, 65 (47.1%) had no depression, 39 (28.2%) had mild to moderate depression, and 34 (24.6%) had severe depression. 53 patients (38.4%) had not anxiety, 33 cases (23.9%) had mild to moderate and 52 cases (37.6%) had severe anxiety. According to table 2, the prevalence of anxiety (85 cases (61.5%)) was higher than the prevalence of depression (73 cases (52.8%)).

Table 2. Prevalence of depression and anxiety in patients with hirsutism

|  |  |  |  |
| --- | --- | --- | --- |
| Mental disorder | No | Mild and moderate | Severe |
| Depression | 65 (47.1%) | 39 (28.2%) | 34 (24.6%) |
| Anxiety | 53 (38.4%) | 33 (23.9%) | 52 (37.6%) |

Among the study population, severe acne manifestations were observed in 85 cases (61.6%), mild acne in 23 cases (16.7%), and 30 cases (21.7%) did not have acne. As figure 3 shows the acne had an association with hirsutism in almost 4 out of 5 cases.

Figure 3. Prevalence of acne among hirsutism patients according to disease severity

As table 3 shows that in cases with PCOS, depression was present in 52 cases (51.0%), anxiety in 63 cases (61.8%) and a combination of depression and anxiety in 44 cases (31.8%). In comparison with cases without PCOS, depression was present in 21 cases (58.3%), anxiety in 22 cases (61.1%), and a combination of depression and anxiety in 17 cases (12.3%), but these differences were not statistically significant (P> 0.05). In cases associated with acne, depression was present in 61 cases (56.4%), anxiety in 70 cases (64.8%), and the combination of depression and anxiety in 51 cases (36.9%). In comparison, in cases without acne, depression was present in 12 cases (40.0%), anxiety in 15 cases (50.0%), and the combination of depression and anxiety in 10 cases (33.3%), but these differences were also not statistically significant (P> 0.05). Out of 138 cases included in this study, 36 cases (26.1%) had only hirsutism; Of these, 11 cases (30.6%) had mild to moderate depression, 10 cases (27.8%) had severe depression, while 15 cases (41.7%) did not have depression. Also, 7 cases (19.4%) had mild to moderate anxiety and 15 cases (41.7%) had severe anxiety, while 14 cases (38.9%) did not have anxiety.

Table 3. Relationship between hirsutism associated with depression or anxiety and other diseases

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | Depression | | | Anxiety | | | Both | | |
| No | Yes | P-value | No | Yes | P-value | No | Yes | P-value |
| With PCOS | 50 (49.0%) | 52 (51%) | 0.744 | 39 (38.2%) | 63 (61.8%) | 0.735 | 31 (22.4%) | 44 (31.8%) | 0.768 |
| Without PCOS | 15 (41.7%) | 21 (58.3%) | 14 (38.9%) | 22 (61.1%) | 10 (33.3%) | 17 (12.3%) |
| With Acne | 47 (43.5%) | 61 (56.4%) | 0.325 | 38 (35.1%) | 70 (64.8%) | 0.320 | 28 (20.2%) | 51 (36.9%) | 0.161 |
| Without Acne | 18  (60.0%) | 12 (40.0%) | 15  (50.0%) | 15  (50.0%) | 13  (43.3%) | 10  (33.3%) |

According to table 4, only 3.6% of the patients with mild hirsutism had severe depression, in comparison to 16.6% of the patients with severe hirsutism that had severe depression. The same, only 8.6% of the patients with mild hirsutism in contrast to the patients with severe hirsutism (18.8%) had severe anxiety, and also few patients with mild hirsutism (8.6%) in comparison of severe hirsutism (21.0%) had both anxiety and depression. Despite this, these differences were not statistically significant (P>0.05).

More than half of our patients (71 cases (51.4%)) were in the higher education category, 52 cases (37.7%) were at the school level, and only 15 cases (10.9%) were illiterate. The patients with the higher education level in comparison to the illiterate patients had more severe anxiety (16.6% vs. 3.6%), mild and moderate anxiety (10.1% vs. 1.4%), and also had more anxiety and depression together (18.1% vs. 4.3). These differences were statistically significant and acceptable (P <0.05).

In this study, economic state were divided into 3 categories, low (18 (13.0%)), middle (98 (71.0%)) and high (22 (15.9%)). Despite that the more patients with high category of economic state, in comparison of the low category were in no depression (10.8% vs. 3.6%) and no anxiety categories (8.6% vs. 3.6%) of hirsutism patients and fewer of the patients were in severe depression (2.1% vs. 3.6%), and severe anxiety categories (2.8% vs. 6.5%) of hirsutism patients, these differences were not statistically significant.

The majority of our patients (65.9%) were housewives or unemployed, and 47 patients (34.1%) were employed. Although, unemployed patients in comparison of employed patients were more in the severe depression category (19.5% vs. 5.0%), severe anxiety category (26.0% vs. 11.5%), and both anxiety and depression category (31.1% vs. 13.0%) of hirsutism patients, these differences were not statistically significant.

In this study, 63 patients (45.7%) were single, 74 patients (53.6%) were married and one case (0.7%) was a widow, and there was no a statistically significant relationship between marital status and mental disorders (P>0.05).

Table 4. Patients mental disorders (depression and anxiety) Relationship with the severity of Hirsutism and the hirsutism patients sociodemographic factors

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| variables | Depression | | | | Anxiety | | | | Both | | | | |
| Mild and moderate (n= 39) | Severe (N= 34) | No (N= 65) | P-value | Mild and moderate (n= 33) | Severe (N= 52) | No (N= 53) | P-value | Yes (N=61) | No (N=41 | | | P-value |
| Ferryman-Gallway score (hirsutism severity) | | | | | | | | | | | | | |
| Mild | 7.2% | 3.6% | 13.0% | 0.070 | 4.3% | 8.6% | 10.8% | 0.589 | 8.6% | | 8.6% | 0.578 | |
| Moderae | 10.8% | 4.3% | 13.7% | 9.4% | 10.1% | 9.4% | 14.4% | | 8.6% |
| Severe | 10.1% | 16.6% | 20.2% | 10.1% | 18.8% | 18.1% | 21.0% | | 12.3% |
| Education level | | | | | | | | | | | | | |
| No | 2.8% | 2.1% | 5.7% | 0.141 | 1.4% | 3.6% | 5.7% | 0.026 | 4.3% | | 5.0% | 0.012 | |
| School level | 10.1% | 13.7% | 13.7% | 12.3% | 17.3% | 7.9% | 21.7% | | 5.7% |
| High level | 15.2% | 8.6% | 27.5% | 10.1% | 16.6% | 24.6% | 18.1% | | 18.8% |
| Economic state | | | | | | | | | | | | | |
| Low | 5.7% | 3.6% | 3.6% | 0.074 | 2.8% | 6.5% | 3.6% | 0.259 | 8.6% | | 2.8% | 0.393 | |
| Middle | 21.7% | 16.6% | 32.6% | 16.6% | 28.2% | 26.0% | 32.6% | | 20.2% |
| High | 2.8% | 2.1% | 10.8% | 4.3% | 2.8% | 8.6% | 2.8% | | 6.5% |
| Occupation | | | | | | | | | | | | | |
| Housewife | 16.6% | 19.5% | 29.7% | 0.148 | 17.3% | 26.0% | 22.4% | 0.327 | 31.1% | | 17.3% | 0.233 | |
| Employed | 11.5% | 5.0% | 17.3% | 6.5% | 11.5% | 15.9% | 13.0% | | 12.3% |
| Marital status | | | | | | | | | | | | | |
| Single | 11.5% | 11.5% | 22.4% | 0.579 | 10.1% | 15.9% | 19.5% | 0.592 | 20.2% | | 16.6% | 0.241 | |
| Married | 15.9% | 13.0% | 24.6% | 13.7% | 21.7% | 18.1% | 23.9% | | 13.0% |
| Widow | 0.7% | 0 | 0 | 0 | 0 | 0.7% |  | |  |

**Discussion**

Although the role of genetic factors and other environmental factors in the mental health of patients can not be denied, studies have shown that the presence of chronic and progressive diseases such as hirsutism can cause mental illnesses such as depression and anxiety (Khomami et al., 2015; Yahya et al., 2015; Ekback et al., 2013; Kiran et al., 2018).

This study was conducted to determine the prevalence of depression and anxiety among patients with hirsutism in Herat city. We found that more than half of the study population had depression and anxiety (depression in 52.8% and anxiety in 61.5%). We also found that there was not an association between acne, PCOS as well as the economic state, occupation, and marital status of the hirsutism patients and the prevalence of depression and anxiety (P> 0.05). In addition, Niazi et al. reported that the prevalence of depression and anxiety among pregnant women in Herat city was 46.1% and 67.8% respectively (Niazi et al.لطفا آدرس را در لست نیز علاوه کنید). These findings suggest that depression and anxiety by themselves are very common among women in Herat city, and it may not be related to the presence or absence of hirsutism (and possibly other diseases such as acne, PCOS, or other physiological conditions such as pregnancy). The reason, by considering of our country Afghanistan situation, it is thought that may be the women are in a severe stress condition and are surrounded by lots of cultural, social, and environmental problems that make the cosmetic issues less important. Some other studies also were consistent with the findings of our study and didn’t find a significant difference between the prevalence of depression and anxiety in hirsute patients and the control group (Giovanni et al., 1989; Hajbeydari et al., 2007). Meanwhile, Yahya et al. Found that depression and anxiety were more common among Hirsute patients than in the control group. Numerous studies show that hirsutism causes depression and anxiety (Khomami et al., 2015; Ekback et al., 2013; Kiran et al., 2018). Another study in Poland (Drosdzol et al., 2010) reported that the prevalence of anxiety and depression among hirsute girls and the control group was 26% vs. 10% and 16% vs. 6% respectively. These findings unlike our study, suggest that hirsutism has an effect on the prevalence of depression and anxiety.

In this study, anxiety was more common (61.5%) in patients with hirsutism than depression (52.8%). An increase in the prevalence of anxiety over depression has been reported in some other studies also. Lepton et al. reported a high prevalence of depression (30.2%), anxiety (75%), and anxiety and depression together (29%) among hirsute patients in London city in 2006, and only 24.4% of patients had no evidence of these diseases. In Italy, the patients with hirsutism showed higher levels of social fear, anxiety, and neurological disorders than those in the control group, but no significant difference in the rate of depression was seen in the patients compared to the control group (Nicoletta et al., 2003). These findings are consistent with the findings of this study. Though, the patients with hirsutism in Ankara city of Turkey had lower levels of anxiety than depression, which was inconsistent with the findings of our study (Irak et al., 2016). Although the exact cause of the high prevalence of anxiety than depression, has not yet been determined, Lepton et al. mentioned that the stigma (feeling or expecting of rejection or actual rejection) may be the mean cause of anxiety among dermatology patients, and Patients with hirsutism usually think that they have a defect or a stigma. Lepton et al. by using a special questionnaire Found that the prevalence of anxiety was high among patients who complained from stigmatization. In our study, the prevalence of anxiety also was higher than depression. It is thought that feeling stigmatization may have some role in increasing the prevalence of anxiety. In addition, removing excess hair takes a lot of time and many of these methods are very expensive. Despite that, the hair may grow back. As a result, women feel that they can not control their extra hair, and all this may be involved in creating fear of society and anxiety.

In this study, in spite of that the prevalence of depression and anxiety in mild hirsutism were 10.8% and 13.0%, in moderate hirsutism were 15.2% and 19.5%, and in cases of severe hirsutism were 26.8% and 28.9% respectively, but these differences were not statistically significant, and the degree and severity of hirsutism were not associated with the prevalence of depression and anxiety (P> 0.05). In this regard, and consistent with the findings of this study, Yahya et al. Found that women with severe hirsutism were more depressed and anxious than the women with mild hirsutism, and they also reported that these differences were not statistically significant. Few studies have shown an association between the degree of hirsutism and the prevalence of depression and anxiety (ekback et al., 2013). Irak et al. also did not find an association between the degree of hirsutism and the prevalence of anxiety and depression.

In this study, anxiety was found in 5.0% of illiterate, 29.7% of school level and 26.8% of patients with higher education levels. This indicates that anxiety was more prevalent in patients with higher education (P<0.05). The prevalence of anxiety and depression together were also reported more (18.8%) among patients with higher education, in comparison of illiterate patients (5.0%), and patients with school level education (5.7% ) (P<0.05). The reason for this increase, may be the greater contact of patients with higher education with the community and the community effects on the patients. Although depression was present in 5.0% of illiterate patients and 23.9% of patients with each the school level and the high level of education, but these differences were not statistically significant (P>0.05), and the relationship between education level of patients and depression was not found. Unlike to our study, Yahya et al. Found that the lowest average HADs was present in patients with higher education and at the university level, while the highest average HADs were seen in those with primary education, although Nothing has been said about the cause of this difference.

**Conclusion**

Depression and anxiety disorders are present in more than half of the patients with hirsutism in Herat city. The level of depression and anxiety is not related to the degree and severity of hirsutism. Anxiety was more prevalent among patients with higher education than illiterate patients. Anxiety over depression was more common among the study participants. The presence or absence of acne and PCOS had no significant effect on the prevalence of depression and anxiety in patients with hirsutism.

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