

## Epidemiological study on hirsutism in a tertiary care hospital

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### Abstract

**Introduction:** Hirsutism is a condition of unwanted, male-pattern hair growth in women.

**Aims:** The objective of this study is to assess the severity of hirsutism in the patients attending a tertiary care hospital. It also aims to find out the relation between the grades of hirsutism and the various demographic variables.

**Materials and Methods:** 100 adult females were recruited. Hirsutism was measured quantitatively by modified Ferriman-Gallwey scoring. Other demographic variables like age, religion, education, occupation, family income, family history, marital status were assessed

**Results:** The mean modified Ferriman-Gallwey scoring was 13.86±4.12. Severe hirsutism (modified Ferriman-Gallwey score ≥15) was seen in 38% of the cases. Severe grade of hirsutism was seen to be higher in females aged greater than 25 than younger women (p=0.009). 23 women were suffering from polycystic ovarian syndrome (PCOS). Graduates had exceedingly high degree of hirsutism compared to females who had received primary education (p=0.006). In our study, married women had tremendous amount of hairiness compared to unmarried women (p=0.03). There was also a significant association between the educational status and the hirsutism severity. Working women had a serious amount of hirsutism in contrast to students (p=0.001).

**Conclusion:** Severe hirsutism was found in 38% of the cases in our study. And an association was seen between hirsutism severity and demographic variables like age, marital status, educational and occupational status.

**Keywords:** Hirsutism, Modified Ferriman-Gallwey scoring, Polycystic ovarian syndrome, Hypothyroidism, Demographic variables.

### Introduction

Hirsutism is the medical term that refers to the presence of excessive terminal coarse hair in androgen dependent areas of the female body.<sup>1</sup> Hirsutism approximately affects 10% of women. There is a subjective perception of hair excess, and women present with a wide variation in severity. The severity of hirsutism as well as its degree of acceptance are dependent on racial, cultural and social factors.<sup>2</sup>

Hirsutism can be caused by unusually high androgen levels released from ovaries/adrenal gland or because of increased sensitivity of hair follicles to normal androgen levels.<sup>3</sup> Ovarian hyperandrogenism is caused by PCOS and ovarian neoplasms while androgenic causes of hyperandrogenism are congenital adrenal hyperplasia, late onset adrenal hyperplasia, Cushing's syndrome, pituitary adenoma and acromegaly.<sup>4</sup> When there is increased responsiveness of the hair follicles to normal circulating levels of androgens or ovarian hormones, hirsutism is termed as idiopathic.<sup>5</sup>

Hirsutism is a frequent reason of cosmetic embarrassment, poor self esteem, and psychological distress for women world over.<sup>6</sup> Although hirsutism is not a serious or life threatening disease, it produces social, psychological and emotional disability, it is more appropriate to offer effective medical treatment for hirsutism plus psychotherapy.<sup>7</sup>

In the scientific literature till date, there were not many studies conducted in India on the various aspects of epidemiology of hirsutism and demographic

variables. One of the Indian study which focused on epidemiological aspects of hirsutism was held in a medical college in Kashmir by Ahmad et al.<sup>5</sup> In their study, the commonest cause of hirsutism was idiopathic (80%) followed by PCOS (11.43%). Another such study was performed by Sharma et al,<sup>6</sup> in which the mean F-G (Ferriman-Gallwey) score was 10.3±2.46.

In this communication, we report an observational cross-sectional study on 100 patients of hirsutism diagnosed in the Dermatology Outpatient Department during June-July 2017.

### Materials and Methods

A cross sectional study was conducted on 100 females aged 18 years and above in the outpatient department of Dermatology in the months of June and July 2017. Informed consent was taken from all 100 participants.

Patients who were pregnant or lactating and who were on medications known to cause hair growth were not included in the study. Also patients diagnosed with hypertrichosis due to local diseases, systemic illnesses like adrenal tumor, late onset congenital adrenal hyperplasia, Cushing's syndrome were excluded.

Modified Ferriman and Gallwey score (mF-G score)<sup>8</sup> was used as a method of evaluating and quantifying hirsutism in women. Nine androgenic areas (upper lip, chin, chest, upper back, lower back, upper abdomen, lower abdomen, upper arms, thighs) were taken into consideration. Scoring ranges from a

minimum of 0 to a maximum of 36, wherein 8-10=mild, 11-14=moderate,  $\geq 15$ =severe.

Demographic variables such as age, marital status, religion, duration of hirsutism, family history, comorbidities were recorded. Also characteristics like education, occupation and family income per month were recorded for socio-economic status by Modified Kuppuswamy's scale.<sup>9</sup>

Data were coded manually and analysis was conducted through SPSS program, version 21. The results were presented in tables and figures. Descriptive and analytical statistical analysis was done. Qualitative data: number and percentage were used. Chi square ( $\chi^2$ ) test was used for comparison of qualitative data. The level of significance was taken at  $p < 0.05$ .

**Table 1: Severity of hirsutism according to different age groups**

Hirsutism Severity	Age Group (18-24 Years) (%)	Age Group ( $\geq 25$ Years) (%)
Mild	16(24.2%)	5(14.7%)
Moderate	32(48.5%)	9(26.5%)
Severe	18(27.3%)	20(58.8%)
Total	66(100%)	34(100%)

Chi square test: P value: 0.009 – significant

**Table 2: Severity of hirsutism according to different causes**

Hirsutism Severity	PCOS (%)	Hypothyroidism (%)	Idiopathic (%)
Mild	4(17.4%)	1(14.3%)	16(22.9%)
Moderate	7(30.4%)	4(57.1%)	30(42.9%)
Severe	12(52.2%)	2(28.6%)	24(34.3%)
Total	23(100%)	7(100%)	70(100%)

Chi square test: P value: 0.530- insignificant

PCOS= Polycystic ovarian syndrome

**Table 3: Severity of hirsutism according to educational status**

Hirsutism Severity	Illiterate (%)	Primary (%)	Graduate (%)
Mild	0(0%)	17(23%)	4(16%)
Moderate	1(100%)	36(48.6%)	4(16%)
Severe	0(0%)	21(28.4%)	17(68%)
Total	1(100%)	74(100%)	25(100%)

Chi square test: P value: 0.006 – significant

**Table 4: Severity of hirsutism according to occupational status**

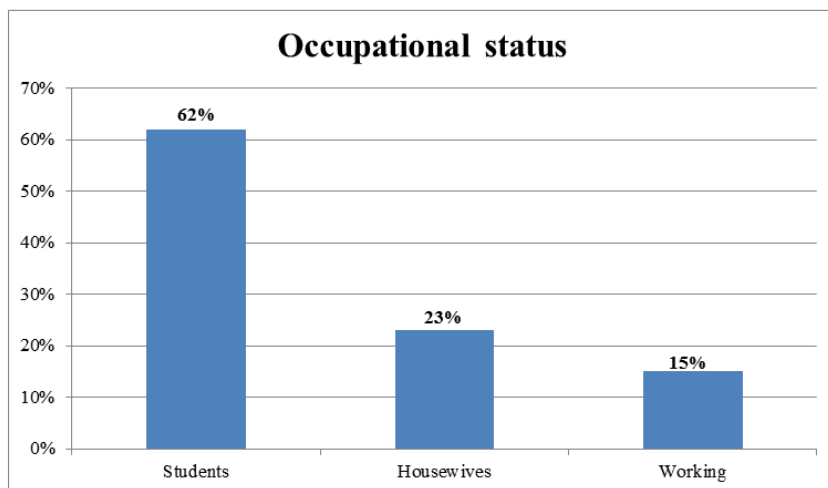
Hirsutism Severity	Student (%)	Housewives (%)	Working (%)
Mild	14(22.6%)	6(26.1%)	1(6.7%)
Moderate	31(50%)	9(39.1%)	1(6.7%)
Severe	17(27.4%)	8(34.8%)	13(86.7%)
Total	62(100%)	23(100%)	15(100%)

Chi square test: P value: - 0.001–significant

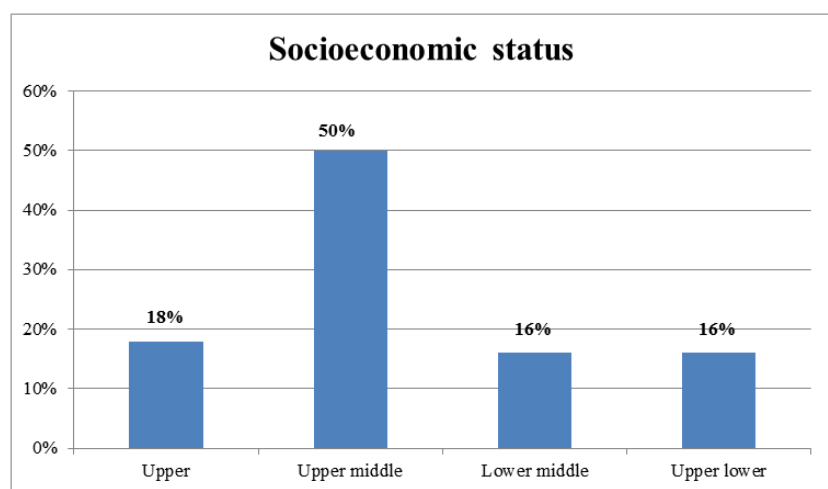
**Table 5: Severity of hirsutism according to marital status**

Hirsutism Severity	Married (%)	Unmarried (%)
Mild	6(17.1%)	15(23.1%)
Moderate	8(22.9%)	33(50.8%)
Severe	21(60%)	17(26.2%)
Total	35(100%)	65(100%)

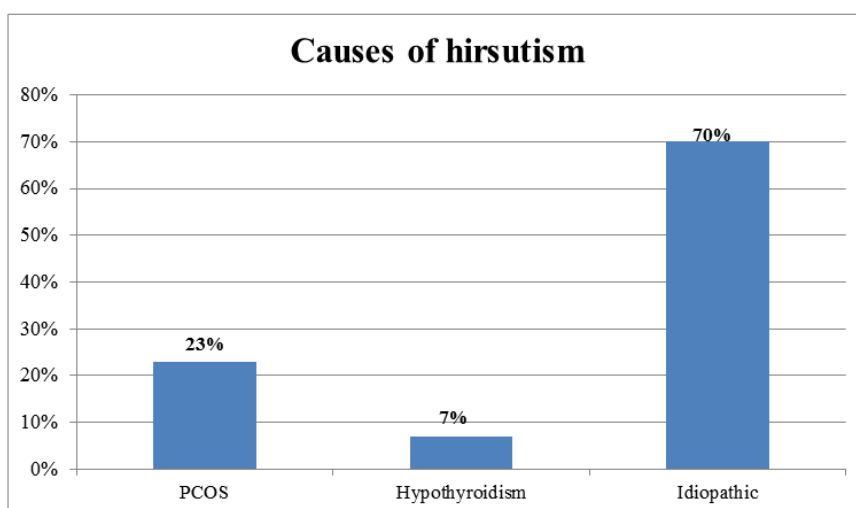
Chi square test: P value:- 0.03–significant



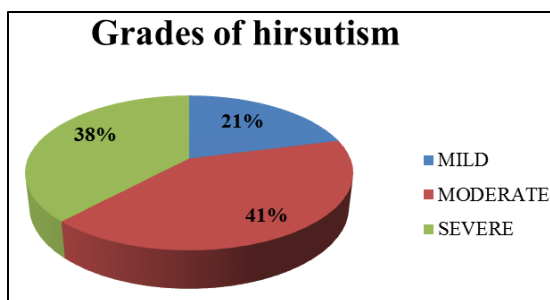
**Fig. 1: Occupational status in the study group**



**Fig. 2: Socioeconomic status according to modified Kuppuswamy scale**



**Fig. 3: Causes of hirsutism in the study**



**Fig. 4: Grades of hirsutism according to modified Ferriman-Gallwey scoring (Mild=8-10, Moderate=11-14, Severe= $\geq$ 15)**

## Result

A total of 100 hirsute women were included in the study with a mean age of  $24.41 \pm 6.35$  years. In our study 65 women were unmarried and rest 35 were married. Of the 100 hirsute women, 46% were Hindus, 50% were Muslims and 4% were Christians. In our study, 62% were students, 23% were housewives and 15% were working women. Among all the women studied, 1% was illiterate, 74% had studied till primary and 25% had completed graduation. Socio-economic status of women in our study, 18% belonged to upper class, 50% belonged to upper middle class, 16% each belonged to lower middle and upper lower class. 23% of studied women had polycystic ovarian syndrome (PCOS) and 7% had hypothyroidism.

Of the 100 hirsute women, 21% had mild hirsutism (mF-G score: 8-10), 41% had moderate hirsutism (mF-G score: 11-14) and 38% had severe hirsutism (mF-G score:  $\geq$ 15). A positive family history of hirsutism was seen in 20% of females. In women aged 18-24 years, 24.2% had mild, 48.5% had moderate and 27.3% had severe hirsutism. While in women aged  $\geq$ 25 years, 14.7% had mild, 26.5% had moderate and 58.8% had severe hirsutism. So, it was observed that females aged  $\geq$ 25 years had a higher grade of hirsutism than those belonging to age group 18-24 years. This was statistically significant ( $p=0.009$ ) (Table 1). The modified Ferriman-Gallwey (mFG) score ranged from 9 to 32 with a mean score of  $13.86 \pm 4.12$ .

Among the 23 females suffering from PCOS, 17.4% had mild, 30.4% had moderate and 52.2% had severe hirsutism. Out of 7 females suffering from hypothyroidism, 14.3% had mild, 57.1% had moderate and 28.6% had severe hirsutism. While in other 70 females not affected by either PCOS or hypothyroidism, 22.9% had mild, 42.9% had moderate and 34.3% had severe hirsutism. So, more number of patients with PCOS had severe hirsutism compared to non-PCOS patients, but it was not statistically significant ( $p=0.16$ ) (Table 2). The hormonal imbalance in PCOS can lead to increased severity of hirsutism.

Among the 74 females who had received education till primary, 23% had mild, 48.6% had moderate and 28.4% had severe hirsutism. Out of 25 females who are

graduates, 16% had mild, 16% had moderate and 68% had severe hirsutism. There was one illiterate female in our study suffering from moderate hirsutism. So, more number of graduate females was seen to have greater severity of hirsutism compared to females who had received primary education. This was statistically significant ( $p=0.006$ ) (Table 3). In our study, out of 62 students, 22.6% had mild, 50% had moderate and 27.4% had severe hirsutism. Out of the 23 housewives, 26.1% had mild, 39.1% had moderate hirsutism and 34.8% had severe hirsutism. Among the 15 working women, 6.7% each had mild and moderate hirsutism while 86.7% had severe hirsutism. So, severity of hirsutism was highest in working women and it was lowest in students. This is statistically significant ( $p=0.001$ ) (Table 4).

In the present study, out of 46 Hindu females, 19.6% had mild, 43.5% had moderate and 37% had severe hirsutism. Out of the 50 Muslim women, 20% had mild hirsutism and 40% each had moderate and severe hirsutism. Among the 4 Christian females, 50% had mild hirsutism, 25% each had moderate and severe hirsutism. So, the severity of hirsutism was comparable in both Hindus and Muslims and it was found to be lower in Christians. This, however, is statistically insignificant ( $p=0.691$ ). Out of 35 married females, 17.1% had mild, 22.9% had moderate and 60% had severe hirsutism. While, out of 65 unmarried females, 23.1% had mild, 50.8% had moderate and 26.2% had severe hirsutism. So, married females had greater amount of hairiness compared to unmarried females. This is statistically significant ( $p=0.03$ ) (Table 5).

Of the 18 females belonging to upper class, 27.8% had mild, 38.9% had moderate and 33.3% had severe hirsutism. Out of 50 females belonging to upper middle class, 20% had mild and 40% each had moderate and severe hirsutism. Out of 16 females belonging to lower middle class, 18.8% had mild, 43.8% had moderate and 37.5% had severe hirsutism. Among the 16 females belonging to upper lower class, 18.8% had mild, 43.8% had moderate and 37.5% had severe hirsutism. The severity of hirsutism mentioned in the above classes was found to be comparable. This is not statistically significant ( $p=0.994$ ). The above classes were categorized according to Modified Kuppaswamy's scale.<sup>9</sup>

## Discussion

Hirsutism is excessive growth of terminal hairs in androgen dependent areas in a female over face, chest, abdomen, upper thigh and areola.<sup>10</sup> Hirsutism affects 5-10% of women of reproductive age.<sup>6</sup> Its spectrum varies from mild to severe; the severity being assessed by a semi-objective scoring system-the modified Ferriman and Gallwey score.<sup>8</sup>

The mean modified Ferriman Gallwey score of entire sample in our study was  $13.86 \pm 4.117$  which was similar to a score of  $13.5 \pm 4.6$  in a study on Kashmiri

women.<sup>11</sup> While a much lower score of  $5.5 \pm 2.1$  was found to be true in a study held by Aswini et al<sup>12</sup> as their inclusion criteria definition of hirsutism was different than that of our study.

The severity of hirsutism was seen to be greater in females aged  $\geq 25$  years than that aged  $< 25$  years. The reason could be younger woman are more conscious about their appearance and they approach medical care earlier than older women who don't bother unless it's too severe.

In our study, 38% cases had severe hirsutism which was comparable to 40.6% severe cases in a study conducted by Hodeeb et al<sup>7</sup> whereas it was only 8% in the study carried out by Rahnama et al.<sup>2</sup>

Most of the patients who presented to the dermatology department were unmarried (65%) and such predominance of unmarried hirsute females was also found in studies conducted by Sharma et al<sup>13</sup> and Baig et al<sup>14</sup> which was 80% and 51.5% respectively. Married females were seen to have greater degree of hirsutism which might be because of hormonal changes in such females.

In our study, the mean age of presentation was  $24.41 \pm 6.347$  years which was consistent with the mean age of  $26.2 \pm 5.83$  years and  $24.18 \pm 5.61$  in the studies by Baig et al<sup>14</sup> and Chhabra et al<sup>10</sup> respectively.

A positive family history was seen in 20% of the patients while in study by Aswini et al,<sup>12</sup> 27% of cases had hirsutism running in families. Familial hirsutism can be androgen induced or non-androgen induced.

According to our study, PCOS was the root cause of hirsutism in 23% of cases while in study conducted by Ahmad et al,<sup>5</sup> only 11.43% cases reported were suffering with PCOS. Clinically, hirsutism is the most common sign of hyperandrogenism in PCOS and the prevalence of hirsutism ranges between 17 and 83% in PCOS patients.<sup>6</sup>

Since hirsutism can adversely affect a woman's life, the dermatologists should consult such patients with care and not treat such cases like any other disease. The clinicians should answer the doubts regarding long duration of treatment and motivate them. Hirsutism requires simultaneous involvement of dermatologists, psychologists, endocrinologists, gynaecologists.

## Conclusion

Finally, we would like to highlights the importance of demographic variables like age, marital status, educational status, occupational status which affected the severity of hirsutism and also the association of hirsutism with polycystic ovarian syndrome. With the growing prevalence, this disease needs to be addressed. Patients must be made aware of the various modalities of treatment and the lifestyle modifications.

**Conflict of Interest:** Nil

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