



A study to find out the prevalence and associated risk factors of Hirsutism in poly cystic ovarian syndrome and non-polycystic ovarian syndrome individuals

Harish.N	II year M.B.B.S Under graduate Student Sri Ramachandra medical College & RI Chennai
Kannan.L*	Associate Professor, Department of Community Medicine.,Sri Ramachandra Medical college & RI.,Porur.,Chennai. *Corresponding Author
Ganesh Balaji.R	II year M.B.B.S Under graduate Student Sri Ramachandra medical College & RI Chennai
Jeyraveena.N.M	II year M.B.B.S Under graduate Student Sri Ramachandra medical College & RI Chennai
Harshitha Thanigaivel	II year M.B.B.S Under graduate Student Sri Ramachandra medical College & RI Chennai
Jayashree Boochandran	II year M.B.B.S Under graduate Student Sri Ramachandra medical College & RI Chennai
Varun Prakash.V.A.	II year M.B.B.S Under graduate Student Sri Ramachandra medical College & RI Chennai
Vishnu Karthikeyan.L.E	II year M.B.B.S Under graduate Student Sri Ramachandra medical College & RI Chennai
Harshath Khan.S	II year M.B.B.S Under graduate Student Sri Ramachandra medical College & RI Chennai
Nivedha.	II year M.B.B.S Under graduate Student Sri Ramachandra medical College & RI Chennai
Vikram Swamy.T	II year M.B.B.S Under graduate Student Sri Ramachandra medical College & RI Chennai
Nanda.K.Samy	II year M.B.B.S Under graduate Student Sri Ramachandra medical College & RI Chennai
Kavin Rathinam	II year M.B.B.S Under graduate Student Sri Ramachandra medical College & RI Chennai
Muthukumar. R	II year M.B.B.S Under graduate Student Sri Ramachandra medical College & RI Chennai
Vidhya.R	Lecturer Ragas Dental college. Chennai.

ABSTRACT **Background:** Excessive growth of hair in men and women on parts of the body is denoted as Hirsutism. (1) The growth of hair predominantly occurs after puberty in both sexes. This presence of evidence can be identified by ferriman gallwey score. There are various factors contributing for the hair growth in females after puberty, one such factor is hormonal imbalance, diabetes and polycystic ovarian syndrome. Hence the objective of this study to find out the prevalence of hirsutism and its associated risk factors among polycystic ovarian syndrome and nonpolycystic ovarian syndrome individuals.

Methods: Cross sectional study designs were done among 143 individuals, the study subjects were selected randomly from outpatient and inpatient department of Obstetrics and gynecology, Reproductive Medicine and Endocrinology of Sri Ramachandra University. The tools of measurement were taken with a validated questionnaire of back ground characteristics and questions pertaining to hirsutism among PCOS and Non PCOS individuals.

Results: Among 143 individuals the overall prevalence of Hirsutism was 21.7% in PCOS and NonPCOS individuals. The prevalence of hirsutism among PCOS and Non PCOS individuals were 37.7 and 12.2 percentages. This difference of observation was found to have statistically significant $p < 0.0001$. The result was compared with other risk factors like Diabetes, Obesity, Intake of Junk food was found to have statistically significant $p < 0.0001$.

Conclusion: This study proved a strong association of increased prevalence of hirsutism in polycystic ovarian syndrome individuals compared to other individuals.

KEYWORDS :

Introduction:

Hirsutism is defined as excessive hair growth of terminal hair in women in a male pattern of distribution. It is the resultant of various endocrine disorders such as PCOS (Poly Cystic Ovarian Syndrome), Insulin

resistant diabetes, Cushing's syndrome, acromegaly, congenital adrenal hyperplasia, ovarian tumours, stromal hyperthecosis, adrenal gland cancer etc and sometimes idiopathic, that result in excessive androgen levels manifesting as male pattern hair growth. Of all the above causes

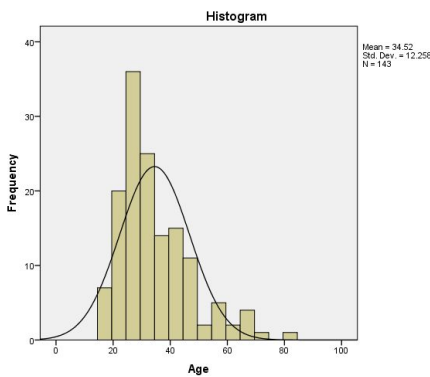
PCOS (Poly Cystic Ovarian Syndrome) is the leading cause and thus hirsutism is commonly associated with Infertility. Androgen level increase plays a crucial role in the conversion of light vellus hair into dark terminal hair in androgen sensitive areas of the body. Due to lifestyle modifications such as obesity (results in increased sex hormone binding protein), food habits there has been a further increase in the incidence of both Hirsutism and PCOS (Poly Cystic Ovarian Syndrome). Along with hirsutism the associated risk factors of increased plasma androgen are coronary artery diseases, androgenic alopecia, infertility, acne, voice change and central obesity. Of these infertility and hirsutism are the major factors for which women approach for treatment, as they may have been effective in reducing their quality of life. Most of the women with hirsutism who were investigated also suffered from increased expenditure due to both medical and cosmetic aspects.

Methods

The study was under taken after obtaining ethical clearance from institutional ethics committee of Sri Ramachandra University. Cross sectional study designs were done among 143 individuals, the study subjects were selected randomly from outpatient and inpatient department of Obstetrics and gynecology, Reproductive Medicine and Endocrinology of Sri Ramachandra University. The tools of measurement were taken with a validated questionnaire of background characteristics and questions pertaining to hirsutism among PCOS and Non PCOS individuals. Finally ferriman-gallwey score was performed to know the grade of infertility.

Results: Among 143 individuals the overall prevalence of Hirsutism was 21.7% in PCOS and NonPCOS individuals. The prevalence of hirsutism among PCOS and Non PCOS individuals were 37.7 and 12.2 percentages. This difference of observation was found to have statistically significant $p < 0.0001$. The result was compared with other risk factors like Diabetes, Obesity, Intake of Junk food was found to have statistically significant $p < 0.0001$.

The distribution of age was found to have normal curve which is given in figure 1. The mean age group was found to have 34.5 and standard deviation was 12.2.



In figure 2 the background characteristics of the study participants showed majority of the participants were married compared to unmarried and divorced individuals. In this study majority were skilled worker compared to unskilled and semiskilled workers. And in this study majority were in the education level of higher secondary and secondary level compared to other education group. In this study majority were not having any children compared to parity.

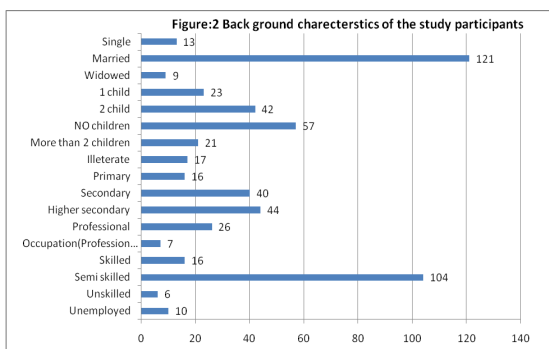


Table: 1 Shows Characteristics of different variables when compared with Poly cystic ovarian syndrome and non-polycystic ovarian syndrome

Parameters	PCOS	NPCOS	Chi-square test	P value	Significance
Progression of hirsutism					
0days	4	9	23.9	0.090	Significant
0-1 days	9	6			
1-2 days	16	26			
2-3 days	1	0			
>3 days	22	49			
Menstrual irregularity					
Present	34	28	16.2	0.000	Significant
Absent	18	51			
Alopecia					
Present	32	20	20.9	0.000	
Absent	21	70			
Infertility					
Present	21	11	14.4	0.000	Significant
Absent	32	79			
Acne					
Present	15	12	4.8	0.025	Significant
Absent	38	78			
Family history					
Infertility	2	5	5.9	.434	Not significant
Diabetes	18	32			
Complicated pregnancy	0	4			
Other disorder	33	47			
Acanthosis nigricans					
Present	8	2	10.5	.104	Not Significant
Absent	44	89			
H/O Known Diabetic					
Diabetic	1	13	5.9	0.05	Significant
Non Diabetic	52	77			
Junk food intake					
More in a week	20	50	7.3	0.061	Significant
Once a month	33	40			

In table 1. shows the parameters of progression of hirsutism, menstrual irregularity, alopecia, infertility acne and known diabetic and intake of junk food had a significant differences when compared with hirsutism and non hirsutism individuals of those who were having poly cystic ovarian syndrome and non polycystic ovarian syndrome individuals. The similar finding was observed among hirsutism and non hirsutism individuals and on both the parameters it was found a nonsignificant difference in family history and history of acanthosis nigricans. Ferriman- Galleway score is given below, a sum of score more than 8 is taken in to account as hirsutism. The description of the score is given below.

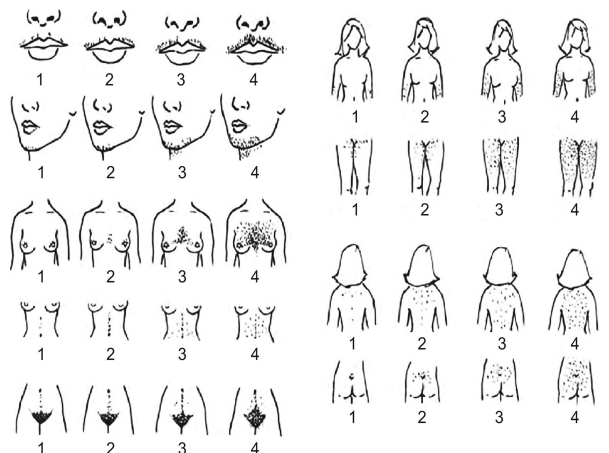


Table 2: Shows Characteristics of different variables when compared with Hirsutism and Non Hirsutism individuals

Parameters	Hirsuti sm	NonHir sutism	Chi- square test	P value	Signific ance
Progression of hirsutism					
0days	2	11	48.7	0.090	Signific ant
0-1days	12	3			
1-2 days	12	30			
2-3days	1	0			
>3days	3	6			
Menstrual irregularity					
Present	22	52	13.3	0.000	Signific ant
Absent	9	60			
Alopecia					
Present	23	29	20.9	0.000	
Absent	2	83			
Infertility					
Present	11	20	13.9	0.000	Signific ant
Absent	20	91			
Acne					
Present	15	12	24.8	0.025	Signific ant
Absent	19	97			
Family history					
Infertility	2	5	5.9	.344	Not signific ant
Diabetes	18	32			
Complicated pregnancy	0	4			
Other disorder	333	47			
Acanthosis nigricans					
Present	8	2	10.5	.104	Not Signific ant
Absent	44	89			
H/O Known Diabetic					
Diabetic	1	13	5.9	0.05	Signific ant
Non Diabetic	52	77			
Junk food intake					
More in a week	20	50	7.3	0.061	Signific ant
Once a month	33	40			

Discussion:

The prevalence of hirsutism was 21.7 % in the study population. This study was taken more than 18 years of age group individuals. Similarly a study done by greek et al (1) showed a similar results from 24.7%. It is expected to have double the prevalence among PCOS individuals compared to NonPCOS individuals, and lower prevalence is found in Australia 8.7%, Spain, 6.5%, Greek Island of Lesbos 6.7%, the southeastern United States 4%, and Sweden 4.8% [1,2]. When we explored other PCOS group were found to have acne, and having acne was found to increase risk to develop PCOS by eight times

History of high socio economic conditions in hirsutism and history of irregular menses in mothers were found to be insignificantly related to the presence of PCOS. Of those who had menstrual abnormalities there was no statistical biochemical difference between those who met the definition of PCOS or not. These findings are shared by some studies [3] but not by others differences in population characteristics, methodology and sample size might explain these finding differences. The main strength of this study is that being the first PCOS prevalence study in Palestine, and it touches very important women health issue. With the international criteria of diagnosis used in this study, very good results about prevalence and risk factors were drawn that further studies can be built on.

Conclusion:

This study proved a strong association of increased prevalence of hirsutism in polycystic ovarian syndrome individuals compared to other individuals.

References:

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