



Clinical Manifestation of Polycystic Ovarian syndrome & it's relationship with Psychological Distress Levels among the Concerned Subjects in Allahabad City

Richa Srivastava^{1*}, Neeru Bala², Anisha Verma³

^{1*}Research Scholar, Department of Food, Nutrition & Public Health, ECHS, Sam Higginbottom University of Agriculture, Technology & Sciences, Allahabad, India (richa.dolly86@gmail.com)

²Associate Professor, Department of Food, Nutrition & Public Health, ECHS, Sam Higginbottom University of Agriculture, Technology & Sciences, Allahabad, India (neerubala50@gmail.com)

³Assistant Professor, Department of Food, Nutrition & Public Health, ECHS, Sam Higginbottom University of Agriculture, Technology & Sciences, Allahabad, India (aniom30@gmail.com)

ABSTRACT

Polycystic Ovarian Syndrome is a complex endocrinopathy affecting women of reproductive age affecting 5 to 10 % population worldwide. In India, it has been reported that 9.13 to 22.5 % population are suffering from this syndrome, but prevalence rate varies with different regions of the country. It is increasingly recognised that ethnic differences are likely contributors to the differing manifestations of PCOS. It is now accepted that this problem is arising from persistent anovulation with a spectrum of etiologies and clinical manifestations. It has also been reported in previous studies that PCOS affects quality of life and can worsen existing anxiety and depression either due to the features of PCOS or associated comorbidities. To find out the pattern of clinical manifestation of PCOS and it's relationship with Psychological Distress levels among PCOS subjects. In this cross-sectional, age matched case-control study, 150 PCOS patients were recruited from various Hospitals & Nursing Homes of Allahabad city and 150 controls were recruited from general population on the basis of rotterdam criteria. A self made questionnaire with items related to pieces of information about clinical symptoms was used for data collection. Psychological Distress levels were assessed using the P.G.I Health Questionnaire N1. Statistical analyses were performed using SPSS Ver. 20.0. Chi Square test was used to test the association between variables. A p-value less than 0.05 was considered as statistically significant. The most common phenotypic expression found to be was Androgenic Alopecia followed by Hirsutism, Menstrual Irregularity, Acne, Acanthosis Nigricans, Infertility, Insomnia, Sleep Apnea in a sequence. Infertility present in most of the married subjects. The findings of the study revealed that PCOS subjects having more clinical manifestation were moderate to severe neurotic.

Keywords: Endocrinopathy, Anovulation, Hirsutism, Acanthosis Nigricans, Androgenic alopecia

Received 30.08.2018

Revised 01.09.2018

Accepted 23.10.2018

INTRODUCTION

Polycystic Ovarian Syndrome is a complex endocrinopathy affecting women of reproductive age affecting 5 to 10 % population worldwide.[1] In India, it has been reported that 9.13 to 22.5 % population are suffering from this syndrome, but prevalence rate varies with different regions of the country.[2] It is increasingly recognized that ethnic differences are likely contributors to the differing manifestations of PCOS. It is now accepted that this problem is arising from persistent anovulation with a spectrum of etiologies and clinical manifestations.(3) It has also been reported in previous studies that PCOS affects quality of life and can worsen existing anxiety and depression either due to the features of PCOS or associated comorbidities.[4] Polycystic Ovarian Syndrome is characterized by multiple phenotypes i.e clinical symptoms which varies with ethnic origin. Globally, prevalence estimates of PCOS are highly variable, ranging from 2.2% to as high as 26%.[5] The differences in phenotype and clinical symptoms of PCOS related to the clinical, hormonal, and metabolic characteristics among various ethnic backgrounds, including Hispanics, African Americans, Asians, and Indians, need to be considered when assessing and treating these individuals. [6] According to Times of India survey (15 May, 2017) it was found that

eastern part of India showed a higher percentage of women (25.88 per cent) affected by PCOS. The figure was 18.62 per cent in north India and 18 per cent in south India.[7]

1. To find out the Most Common Phenotypic Expression & Pattern of Clinical Manifestation among population having Polycystic Ovarian Syndrome in Allahabad City.
2. To find out the relationship between Groups (Cases & Control) & their Clinical Manifestation.
3. To find out the relationship between Clinical Manifestation of Polycystic Ovarian Syndrome and Psychological Distress levels of Concerned Population.

MATERIAL AND METHODS

The present research study was approved by Department of Food, Nutrition & Public Health, Ethelind College of Home Science, SHUATS, Allahabad, U.P, India. It was a Cross-Sectional, Descriptive, Age & Gender Matched Case-Control Study. The survey was started in January 2016 and completed in January 2018. The study was carried out in Private Clinics, Hospitals, University Campus, Girls Hostel, Girls College at Allahabad city, U.P, India. Purposive Sampling has been used as a sampling technique to get female population having Polycystic Ovarian Syndrome on the basis of Rotterdam criteria, after that age based stratification was done to get 150 subjects as Cases and 150 general population as Control, who belongs to 18-48 years of age group. Patients suffering from serious metabolic & psychological disease had been excluded from the study. All participants were enrolled after obtaining informed consent or assent to participate in the study. A self made questionnaire with items related to pieces of information about clinical symptoms was used for data collection. Psychological Distress levels were assessed using the **P.G.I Health Questionnaire N1**. Statistical analyses were performed using **SPSS Ver. 20.0**. Chi Square test was used to test the association between variables. A p-value less than 0.05 was considered as statistically significant.

RESULT AND DISCUSSION

TABLE 1 : MOST COMMON CLINICAL MANIFESTATION OF THE RESPONDENTS

| CLINICAL SYMPTOMS | PARAMETERS | FREQUENCY (N) | | P VALUE |
|------------------------|---------------------|---------------|---------|------------|
| | | CASE | CONTROL | |
| Androgenic Alopecia | Present | 115 | 74 | P <.05 (S) |
| | Absent | 34 | 76 | |
| Hirsutism | Mild | 64 | 35 | P <.05 (S) |
| | Moderate | 23 | 0 | |
| | Severe | 8 | 0 | |
| | Absent | 54 | 115 | |
| Menstrual Irregularity | <21 Days | 21 | 4 | P <.05 (S) |
| | 21-34 Days (Normal) | 70 | 138 | |
| | 35-60 Days | 26 | 8 | |
| | >199 Days | 32 | 0 | |
| Acne Vulgaris | Present | 64 | 47 | P <.05 (S) |
| | Absent | 85 | 103 | |
| Acanthosis Nigricans | Present | 61 | 15 | P <.05 (S) |
| | Absent | 88 | 135 | |
| Infertility | Unmarried | 65 | 54 | P <.05 (S) |
| | Having Children | 38 | 94 | |
| | 1-5 Years | 38 | 2 | |
| | 6-11 Years | 7 | 0 | |
| | 12-17 Years | 1 | 0 | |
| Insomnia | 18 Years & Above | 1 | 0 | P <.05 (S) |
| | <7 hours sleep | 45 | 12 | |
| | >7 hours sleep | 104 | 138 | |
| Sleep Apnea | Present | 42 | 19 | P <.05 (S) |
| | Absent | 107 | 131 | |

RESULT 1 : Most Common Phenotypic Expression & Pattern of Clinical Manifestation in Allahabad City : Androgenic Alopecia > Hirsutism > Menstrual Irregularity > Acne Vulgaris > Acanthosis Nigricans > Infertility > Insomnia > Sleep Apnea

RESULT 2 : There is a significant association has been found between Groups and their Clinical Symptoms. On the basis of results, lots of variation in clinical manifestation among the respondents has been reported. Cases had more clinical symptoms rather than controls. Clinical Symptoms reported among PCOS Sufferers are as follows :

- **Androgenic Alopecia :** Androgenic alopecia was reported in 115 PCOS patients and it was reported to be the most common clinical symptom of PCOS which is then followed by Hirsutism, Menstrual Irregularity, Acne Vulgaris, Acanthosis Nigricans, Infertility, Insomnia, Sleep Apnea in a sequence. However, the findings is in contrast with previous research finding done in North India [8] who ranked Androgenic Alopecia in third place after Hirsutism and Acne Vulgaris.
- **Hirsutism :** Mild to Moderate level Hirsutism was reported among majority of PCOS Sufferers while severe cases of hirsutism were rare. Hirsutism being a more prevalent symptom of hyperandrogenism in women from the Indian subcontinent and from Mediterranean countries than it is in those of northern European or east Asian origin [9]. In our study, hirsutism ranked in second place after androgenic alopecia while according to previous study the prevalence of hirsutism was reported to be 78 % and he ranked it in first place to be the most common clinical symptom [8].
- **Menstrual Irregularity :** Majority of population had normal menstrual period. However, hypomenorrhea was reported in major population. In the present study all patients complained of irregular menses while menorrhagia was reported in 21% cases which is also reported by [10] who revealed that PCOS was the most common etiology seen in adolescent patients hospitalized for abnormal uterine bleeding. However in our study, it has been observed that menstrual delay among major population comes within normal range. In most of the cases, menstrual bleeding shifted from 5 days to 3 days and even less in some cases. Hence it has been revealed that although menstrual duration remains regular, hypomenorrhea comes out to be a better predictor of PCOS.
- **Acne Vulgaris :** In our study, Acne vulgaris was reported in 64 PCOS subjects (about 42 %) however, 48 % population were having this symptom after hirsutism [8].
- **Acanthosis Nigricans :** Acanthosis Nigricans was reported in 61 PCOS subjects (40 %) and got fifth place in a sequence while according to [8] it has been observed in 30 % population but he ranked it at the fourth place. The finding of study is concordant with the previous study by [11], who revealed that 44.16% patients showed presence of AN, a surrogate marker of insulin resistance.
- **Infertility :** In present study, it has been revealed that 47 PCOS subjects were suffering from Infertility at the time of survey. Although PCOS is believed to be one of the biggest cause behind Infertility but in our study, some of the population were either having children with PCOS or they were unmarried at the time of survey while about 2-17 years of infertility had been reported among married subjects. However, Other Study revealed that about 44.68% married PCOS women complained of infertility [11].
- **Insomnia :** Insomnia was reported in 45 PCOS subjects. clinically significant insomnia according to both AIS and ISI, occurred significantly more often in women with PCOS than in women without PCOS [12].
- **Sleep Apnea :** Sleep Apnea was reported in 42 PCOS subjects. The risk for Obstructive Sleep Apnea is at least 5-fold higher, and perhaps as much as thirty-fold higher in PCOS, than in similarly obese women [13].

Table:2 Relationship between Psychological Distress Level & Clinical Symptoms of Concerned Subjects

| CLINICAL SYMPTOMS | PARAMETER | MILD NEUROTIC | MODERATE NEUROTIC | SEVERE NEUROTIC | P VALUE |
|------------------------|------------|---------------|-------------------|-----------------|------------|
| Androgenic Alopecia | Present | 31 | 64 | 94 | P <.05 (S) |
| | Absent | 47 | 33 | 28 | |
| Hirsutism | Mild | 21 | 24 | 53 | P <.05 (S) |
| | Moderate | 2 | 8 | 13 | |
| | Severe | 0 | 2 | 6 | |
| | Absent | 55 | 63 | 50 | |
| Menstrual Irregularity | < 21 Days | 1 | 9 | 14 | P <.05 (S) |
| | 21-34 Days | 66 | 70 | 71 | |
| | 35-60 Days | 8 | 7 | 19 | |
| | >199 Days | 3 | 11 | 18 | |
| Acanthosis Nigricans | Present | 8 | 19 | 49 | P <.05 (S) |
| | Absent | 70 | 78 | 73 | |

| | | | | | |
|---------------|------------------|----|----|----|-------------|
| Insomnia | Present | 4 | 7 | 45 | P <.05 (S) |
| | Absent | 74 | 90 | 77 | |
| Acne Vulgaris | Present | 21 | 38 | 52 | P >.05 (NS) |
| | Absent | 57 | 59 | 70 | |
| Sleep Apnea | Present | 6 | 15 | 40 | P <.05 (S) |
| | Absent | 72 | 82 | 82 | |
| Infertility | Unmarried Girls | 27 | 42 | 50 | P <.05 (S) |
| | Having Children | 47 | 44 | 39 | |
| | 1-5 Years | 4 | 11 | 25 | |
| | 6-11 Years | 0 | 0 | 7 | |
| | 12-17 Years | 0 | 0 | 1 | |
| | 18 Years & Above | 0 | 0 | 1 | |

RESULT 3 : There has been significant association found in seven Clinical Symptoms & Psychological Distress Level while no significance has been reported in only one symptom. The Clinical signs of PCOS were most closely associated with Psychological Distress which has important implications in the diagnosis and treatment of disorders [14]. Hence, we can conclude that Subjects having more clinical manifestation were moderate to severe neurotic or Severe Neurotic patients have more clinical manifestation.

According to the data, most of the severe neurotic population were found sufferers of Androgenic alopecia too, while majority of severe neurotic patients were found sufferers of mild to moderate level hirsutism. However, severe level of hirsutism was reported in only 6 severe neurotic patients. Most of the severe neurotic population were suffering from Oligomenorrhea, menorrhagia while majority of the subjects having almost normal menses comes under severe neurosis. Acanthosis Nigricans, Insomnia, Acne and Sleep Apnea has been reported more in moderate to severe neurotic patients. Although, PCOS is believed to be one of the biggest cause of infertility, but in our study, some of the population were reported to have children prior to manifestation of PCOS or they were unmarried at the time of survey. Infertility was reported among 34 severe neurotic subjects while absent in 39 severe neurotic subjects. Majority of the severe neurotic subjects were unmarried at the time of survey. However, about 1-5 years Infertility was reported in 25 severe neurotic subjects, 6-11 years of infertility was reported in 7 severe neurotic subjects, while 1 patient had 12-17 years infertility and 1 patient had infertility of 18 years & above. Thus, we can conclude that major population comes under moderate to severe neuroticism, although they were having wide variation in clinical manifestation or we can say that there is a significant association has been found between Clinical Manifestation and Psychological Distress levels of concerned subjects as far as present study is concerned.

CONCLUSION

India is a country of cultural variation and diversities which leads to proliferation of different ethnic groups across the country. On the basis of previous studies, it has been found that ethnic factors like dietary pattern, lifestyle pattern, race, socio-demographic factors has strong association with clinical manifestation of PCOS. The present study was carried out in Allahabad city where most of the population belongs to North India and having similar Eating and Lifestyle pattern. In our study, clinical manifestation of PCOS was found to be much varied than previous studies. Alongwith it, relationship between psychological distress level & clinical symptoms of the concerned subjects has been revealed. However, larger studies may have the power to detect the variation in pattern of clinical manifestation and relationship between the variables.

REFERENCES

- https://www.researchgate.net/publication/5370125_Present_status_of_understanding_on_the_genetic_etiology_of_polycystic_ovary_syndrome
- <https://www.dailyo.in/variety/polycystic-ovary-syndrome-womens-health/story/1/16785.html>
- <http://medind.nic.in/iaa/t14/i11/iaat14i11p561.pdf>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3719335/>
- <https://www.sciencedirect.com/science/article/pii/S1110569016301510>
- <https://www.ncbi.nlm.nih.gov/pubmed/23934697>
- <https://www.thehindu.com/sci-tech/health/about-18-per-cent-women-in-india-affected-by-pcos-says-study/article7603149.ece>
- <http://www.idoj.in/article.asp?issn=22295178;year=2017;volume=8;issue=2;spage=104;epage=110;aulast=Keen>
- <https://books.google.co.in/books?id=tZE->
- [https://www.jpagonline.org/article/S1083-3188\(16\)30284-4/abstract](https://www.jpagonline.org/article/S1083-3188(16)30284-4/abstract)

11. <http://www.ijem.in/article.asp?issn=2230-8210;year=2013;volume=17;issue=1;spage=138;epage=145;aulast=Ramanand>
12. <https://www.ncbi.nlm.nih.gov/pubmed/27348625>
13. <https://www.ncbi.nlm.nih.gov/pubmed/11158002>
14. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3719335/>

CITATION OF THIS ARTICLE

Richa Srivastava, Neeru Bala , Anisha Verma- Clinical Manifestation of Polycystic Ovarian syndrome & it's relationship with Psychological Distress Levels among the concerned subjects in Allahabad City. Bull. Env. Pharmacol. Life Sci., Vol 7 [12] November 2018 : 119-122