Original Research Article

Prevalence of PCOS with associated symptoms and complications at a Tertiary care Hospital of Karachi.

ABSTRACT:

Aim: The aim of this study is to find the prevalence of different gynecological disorder and to establish the frequency of associated symptoms, related complications and the obesity amongst PCOS patients.

Study Design: Single-centered cross-sectional study.

Place and duration of study: Gynecological clinic of Karachi at a Tertiary care Hospital during 3rd December 2018 to 29th March 2019.

Methodology: 335 premenopausal women approached the clinic with different gynecological disorders. Out of which 305 agreed to participate and then those were evaluated through clinical interviews, questionnaire, and anthropometric measurements after taking the informed consent. The diagnosis of PCOS was made using Rotterdam criteria 2003. Menstrual irregularities were assessed via history. Clinical hyperandrogenism was evaluated by using modified Ferriman–Gallwey scale for hirsutism and Acne Global Grading System for acne. Obesity was calculated through BMI. The Hamilton scale was used to appraise associated psychological disturbances.

Results: Amongst all, PCOS came out to be the most common gynecological disorder (55.41%).In general, the most frequent presenting complain among PCOS patients was infertility whereas age related variation showed that young adolescent and adulthood had menstruation irregularities however in late adolescent, the topmost complain was infertility. Furthermost and importantly, PCOS female were either overweight 32% or obese 46.2%. Other associated problems such as anxiety and migraine were found to be more frequent in young adults and juveniles respectively.

Conclusion: PCOS is the most common gynecological problem in our region. These women usually presents with altered complains that influence their physiological and psychological health which in turn effects the quality of life.

1. INTRODUCTION

Polycystic ovary syndrome (PCOS) is a frequently occurring gynecological disorder globally among women of the child bearing age, characterized by chronic anovulation, hyperandrogenism and numerous small fluid filled follicles like cysts in one or both ovaries. It occur mainly due to the imbalance of endocrine hormones in premenopausal women (1).

PCOS has a variable prevalence of 4%–21% around the globe, might be owing to different diagnostic criteria or because of diverse environmental and genetic factors (2). Currently Rotterdam Criteria ESHRE/ASRM 2003 is preferred for diagnosing PCOS over NIH 1990 criteria and AE-PCOS 2006 criteria (3).According to the which diagnosis of PCOS is established only if any two of the following features are present in female of reproductive age which includes anovulation/ oligo-anovulation, hyperandrogenemia or appearance of Polycystic ovaries on ultrasound.

In these patients normal physiological functions of the body is disrupted that become evident by acne, hirsutism, altered BMI and sleep disturbances (4). Women with PCOS have been observed to have hyperinsulinemia and metabolic syndrome too (5). Data from different studies revealed that that there is significant non homogeneity amongst PCOS symptoms (6). However, most commonly normal menstrual cycle is disturbed that makes it harder to get pregnant. About 70 to 80 percent of the women presents with infertility (7).

Furthermore, multiple researches documented the mental and emotional divergence like depression and anxiety are accompanied in such female that affects the quality of life (8).

Very little is known about the prevalence and frequency of PCOS in Pakistani females attending gynecological clinics along with foremost presenting complain. Moreover, data regarding the PCOS related complication in this region is also scarce.

Therefore, the current study is conducted to investigate the frequency of PCOS amongst gynecological disorders; its relation with BMI and to highlight the age related variations in its chief presenting complain and associated problems.

2. MATERIAL AND METHODS:

This was a single centered cross sectional study that was conducted on the women who attended gynecological OPD at a Tertiary care hospital of Karachi from December 2018 to March 2019. The study was approved by Ethical Review Committee of Ziauddin University and U.S National Library of Medicine.

It was carried out in female of reproductive age between 15 to 40 years. Total 305 women were recruited in this study from 335 during the period of 4 months via consecutive sampling technique. After informed consent they were interviewed on individual basis and their privacy was highly maintained. They were questioned about the pattern of menstrual cycle, hirsutism, acne, weight issue, infertility and information about past diagnosis or treatment of PCOS or any other illnesses.

Weight and height were measured by standard protocol and calibrated instruments. Body mass index (BMI) was calculated as weight (kg) divided by height squared (m^2). Menstrual irregularity was assessed on the basis of presence of chronic amenorrhea / Oligo-menorrhea, a menstrual cycle length of less than 21 days or more than 35 days, or more than four days variation between cycles. Clinical hyperandrogenism was assessed via hirsutism using the modified Ferriman Gallwey (mF-G) scoring method (Ybarra et al., 2016) and acne via Global Acne grading system (9). The Hamilton rating scales was used for anxiety and depression (10).

Ultrasound scan of the abdomen and pelvis was carried out by a single certified postgraduate medical ultrasonologist. Polycystic ovaries were identified on ultrasonography by either 12 or more follicles with a 2–9 mm diameter, or increased ovarian volume (> 10 cm) in at least one of the ovaries

3. RESULTS:

Total 305 women were included who meet the inclusion criteria i.e. premenopausal women (aged between 15-40 years) came with gynecological disorder at a Tertiary care hospital of Karachi.

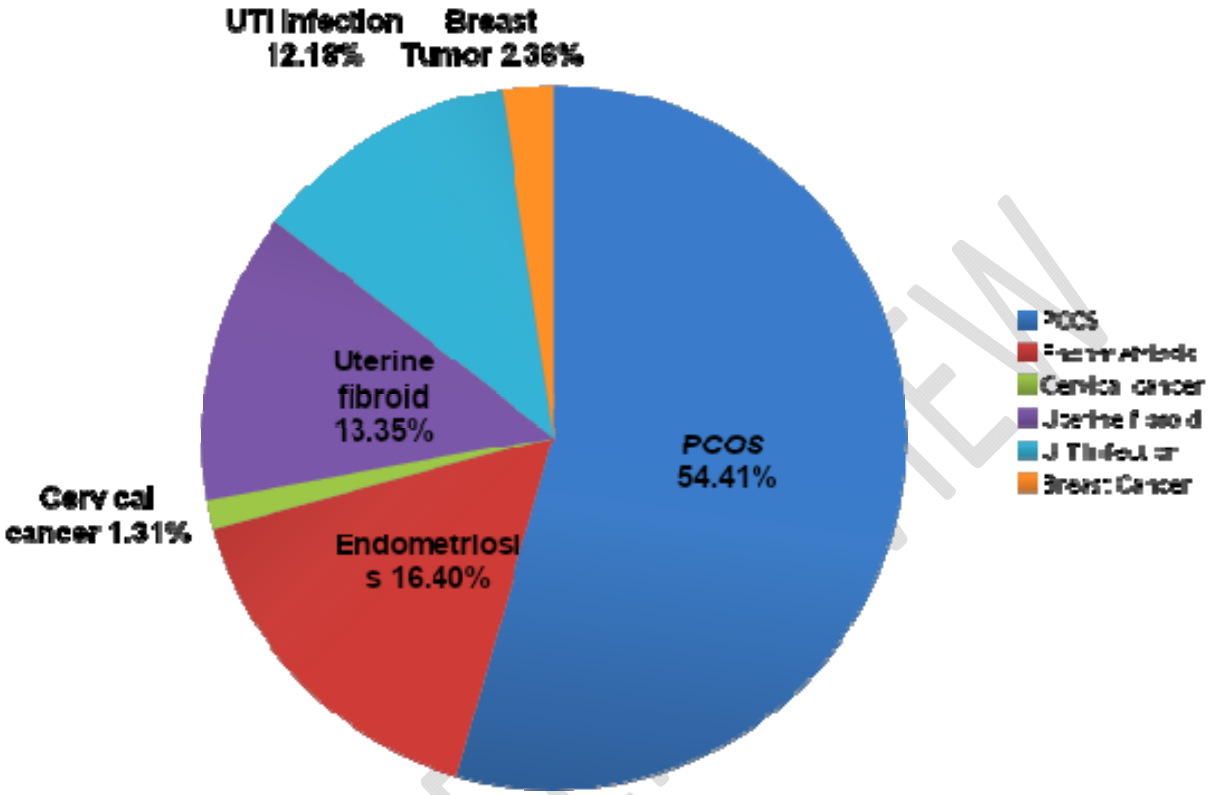

Fig. 1. Graphical representation of gynecological disorder at a Tertiary care hospital of Karachi.

Our results shows that out of 305, 169 women were suffering from PCOS as depicted in Figure 1 which signifies that PCOS is the topmost gynecological condition (54.41%), occurring in more than half of the participants.

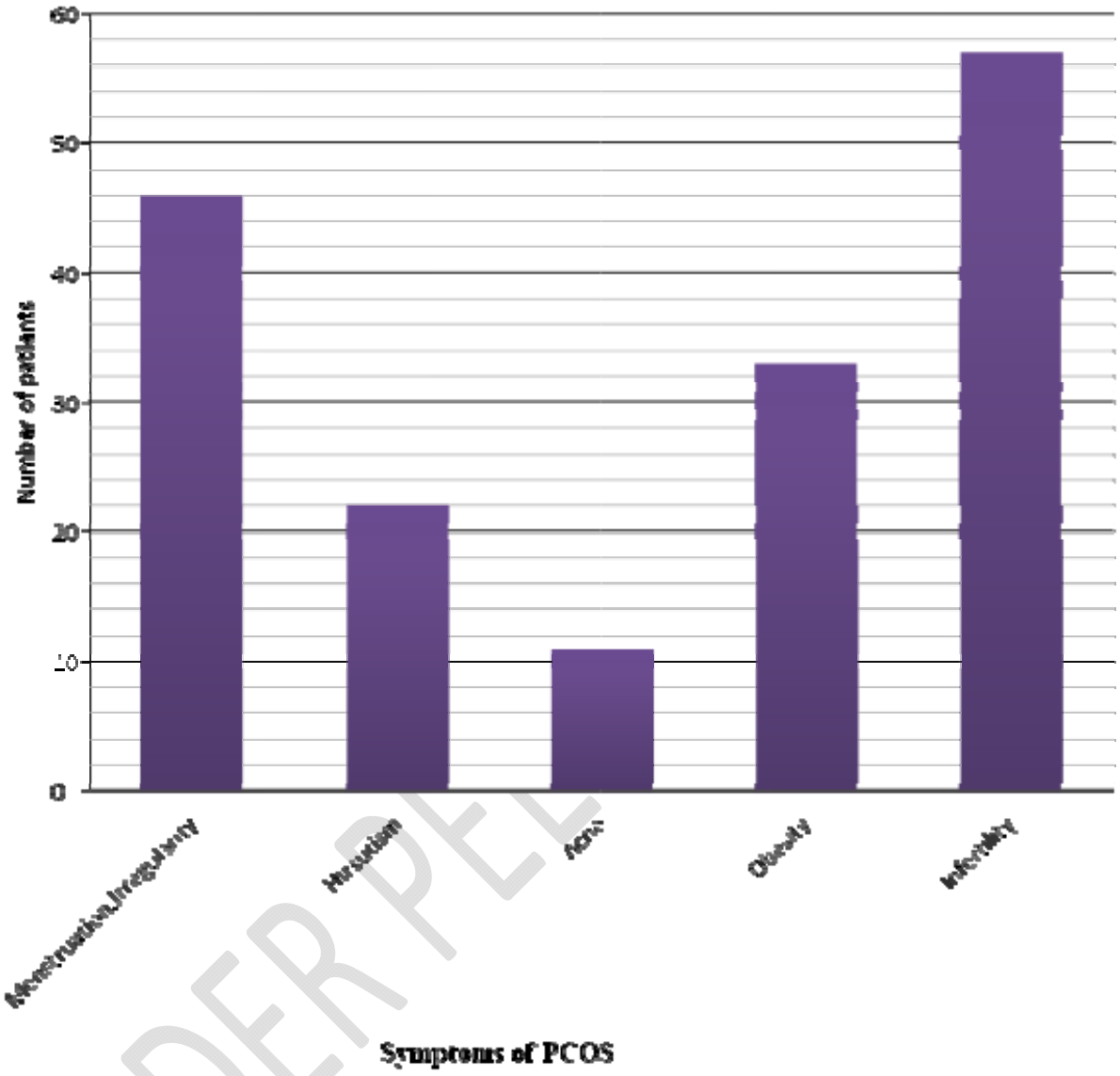

Fig. 2. Frequency of primary complain among PCOS patients

The Figure 2 illustration shows the frequency of primary complain among PCOS patients which revealed the topmost reason for attending the clinic was infertility

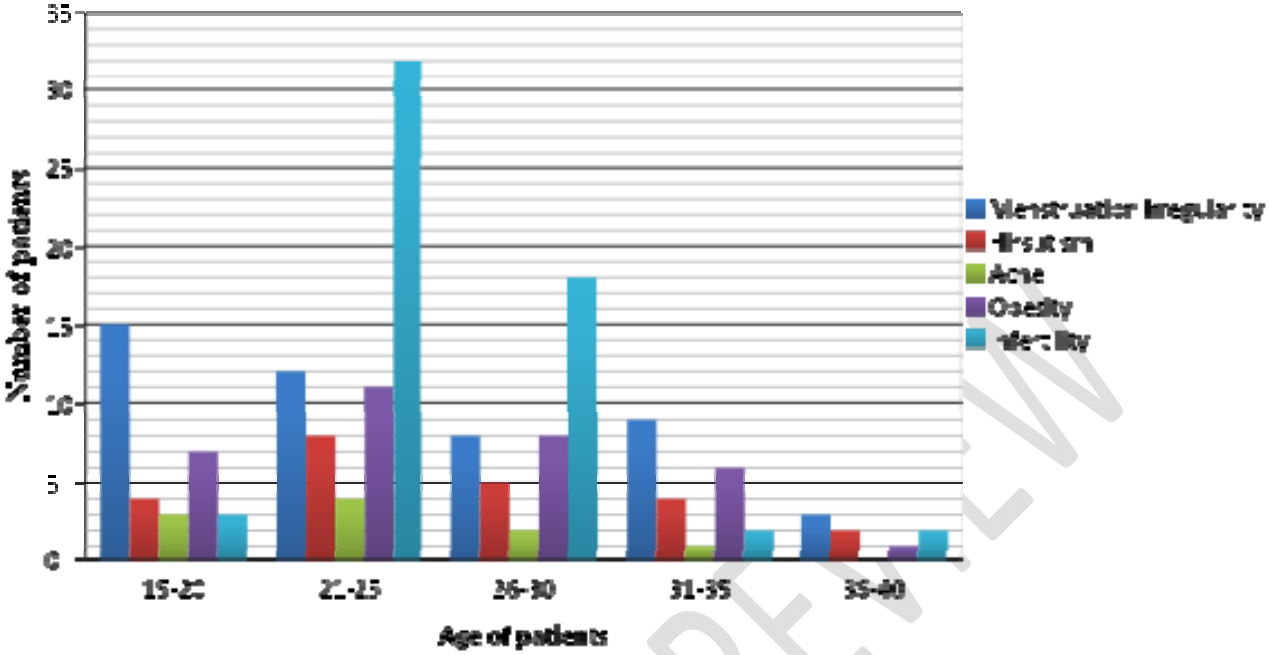

Fig. 3. Variation in symptomologies amongst PCOS patients

The age related variation in symptomologies amongst PCOS patients is shown in Figure 3 with infertility and menstruational irregularities to be the most common complain.

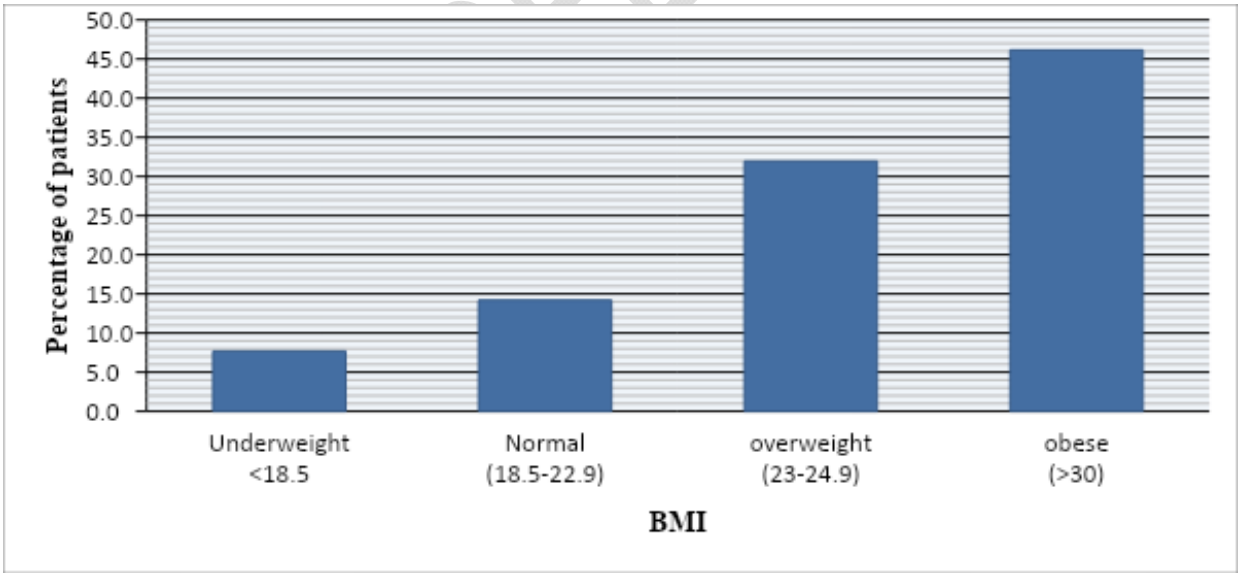

Figure 4: Pattern of BMI in PCOS Patients

The demonstration in Figure 4 revealed that the patients who presented to the gynecological clinic with PCOS were mostly either obese or overweight.

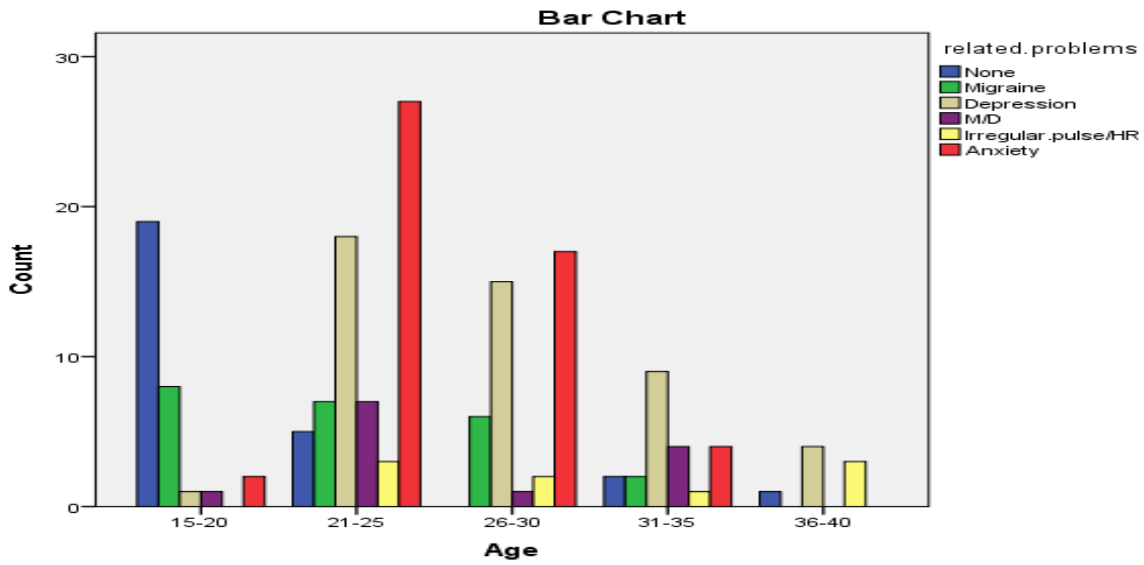

Figure 5: Age Related Variation in Associated Problems amongst PCOS Patients

The exhibition mentioned that the pattern of different problem amongst PCOS patient of different age group.

4. DISCUSSION:

Polycystic ovarian syndrome also known as Stein Leventhal syndrome is a polygenic most common gynecological disorder involving various organs caused by the imbalance of biochemical and reproductive hormones in the body (11). According to Charalamkis et al. PCOS is the most common endocrine disorder in women of the fertility age and is associated with several components of the metabolic syndrome such as obesity, insulin resistance, hyperlipidemia, hyperpiesia, sleep apnea and menstruation irregularity(12).

The incidence of PCOS is rapidly increasing these days that might be due to changes in lifestyle, dietary pattern and associated hormonal disturbances (13).

To the best our knowledge this is the first study that evaluated the prevalence of PCOS among reproductive disorder in this region of world however huge data is available regarding its prevalence amongst general population, acne, hirsutism and infertile patient(14-17). In the present study PCOS stands out with 54.41% comprising of more than half of the patients which is an agreement with a study done by Zandi et al in Iran who documented nearly similar results with 60.2% PCOS cases based on the NIH criteria (14). However in a survey based study on Iranian women the prevalence of PCOS was 14.6% showing inconsistent results when compare it to our study(18) and this difference might be due to the fact that they involve common women of reproductive age. Similarly a study conducted on female working in government institute of Turkey had PCOS, around 19.9% in premenopausal age which is quite a large number (19). Subsequent to PCOS endometriosis was the second most prevalent gynecological disorder with 16.4% followed by Uterine fibroid and UTI i.e. 13.35% and 12.18% respectively. The very low frequency of cervical and breast cancer may be due to the fact that these are mainly diseases of post-menopausal age (20, 21). In US endometriosis was exhibited as third major cause of gynecologic hospitalizations after pelvic inflammatory disease and benign ovarian cyst (22).

In this study the major concern for visiting the clinic was infertility that was present in 33.7% of the females involving 57 women out 169 PCOS which is concordant to the study by George et al who declared that out of 500

infertile women 168 patients presented in clinic with PCOS which is also around 33%.The current result also mentioned the next prevalent but chief complaint was irregular menses present in 27.2% .Similar to this, a study led in Tibian females documented the similar data with infertility and menstrual irregularities as two foremost complaints(23).The reason of similar data is due to the fact that both aforementioned studies have similar climatic and environmental conditions.

Misso et al. conducted a systemic analysis and concluded that PCOS is not only the major cause of female infertility (90%) but when such patient conceive they were more prone to develop pregnancy related complication like diabetes and still birth etc. (24). Another study by Joham et al reported that infertility was found to be 72% in women with PCOS which is about 15-times higher than normal females (25).

Our study also revealed that infertility and other spectra of symptoms were age dependent as evident by the Figure 5.which revealed that women aged ranges between 21-30 years presented with major complain of infertility while those age range between 15-20 and 31-40 had irregular menses as their primary concern which is concordant with study done by Singh et al. in 2017 conducted in Maharashtra, India which stated that the chief complaint of the PCOS patients was infertility and it was present in 89% of the women ages between 20-30 years (Singh, et al. 2017).Furthermore, it has been documented that 40% adolescent girls represent initially as menstrual irregularities and acne while hirsutism developed gradually with time due to chronic hyperandrogenemia, however wedded female are usually more concerned about conception. (Fauser et al. 2014)(Krishnan et al. 2016).Hsu Ming studied alteration in phenotype with age in PCOS female and reported that hyperandrogenism and menstruation problems are foremost in younger women with PCOS while obesity and metabolic disturbances are chief issues of older women with PCOS (26)

Obesity is the major concern of PCOS patients as it has strong impact on physiological and psychological well-being. Our study revealed 46.2% and 32% of the PCOS patients were either obese or overweight respectively Figure 4. In 2007 a study by Haq et al showed quite similar results of women coming to infertility clinic with PCOS which showed that 39.7% of them were overweight while 28.8% were obese (27).

One more study by Imran et al. witnessed the prevalence of PCOS amongst non-obese and obese showing significant outcomes with 35.4% and 64.5% respectively (28). In United States obesity is considered as one of the leading problems distressing almost 80% of PCOS women, however outer the United States it marks merely 50% of women with PCOS (Dumesic et al., 2015).All of the above mentioned studies including our failed to explain the cause and effect relationship between altered BMI and PCOS and needs debate as PCOS patient with higher BMI are more likely to hirsute, highly prone to menstrual disturbance, altered glucose, lipid metabolism, sleep disturbance and poor responders to infertility treatment than normal weight subjects(29).

PCOS patients also suffer psychiatric disorders like depression and anxiety as compare to healthy women. Our study proposed that the overall prevalence of anxiety and depression in polycystic ovarian syndrome was 32.54% and 26.63% respectively evaluated via the Hamilton scale showing quite similar results to that of previous studies like a study completed in Mumbai India in 2018 documented that the incidence of anxiety disorder and depression was 38.6% and 25.7%, respectively. Moreover they did relate these disorders with infertility, alopecia, hirsutism and acne (30). Another study by Sayyah, reported the prevalence of anxiety disorders to be 35.7% and depressive disorders to be 18.9% in which women were assessed by a psychiatrist(31).

We also demonstrated the frequency of psychiatric problem among different age groups. Anxiety was more common amongst the age ranges 21-25 and 26-30 years following depression while in young adolescence, migraine was the frequent one. Finally age ranges 35-40 years depression was more common with increase in irregular pulse and heart rate.

Multiple factors are responsible for psychological disturbance firstly androgen and insulin may cause anxiety disorders if increase beyond normal levels(32). Secondly infertility in married female is definitely associated with psychological strains and social pressure which lead then towards withdrawal and loneliness. Finally obesity, hirsutism and acne often demarcated them as unfeminine and unpleasing personalities that affect their societal image and ultimately depression and seclusion.(33).

5. CONCLUSION AND FUTURE RECOMMENDATION:

PCOS is common in our region of world involving greater than half of the Gynecological disorders. Patients presented with spectrum of phenotypes like menstruational abnormality, hirsutism and acne. Infertility was the chief concern of wedded female. Raised BMI was distressing nearly two third of the patients. All these above stated issues have depraved impact on physiological and psychological health of women thus quality of life. Multi centered studies are required to second these results and this stressful syndrome should be reported and treated on priority basis. Moreover, underlying root cause of altered BMI must be evaluated for satisfactory achievement of treatment outcomes.

CONSENT: A written and well informed consent was taken from the patients and preserved by the authors**.**

ETHICAL APPROVAL: Ethical clearance was obtained from Ethics Review Committee of Ziauddin University**.**

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