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A Prospective Observational Study on Polycystic Ovarian Syndrome and its Impact on Quality of Life in Women in Correlation to Age, BMI and Various Factors.

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KEYWORDS

Oligomenorrhoea, Hyperandrogenism, Metabolic Modifiers Luteinizing Harmone, Follicular Stimulating Harmone, Anti - Mullerian Hormone

ABSTRACT:

Polycystic ovary syndrome (PCOS) is a hormonal disorder characterized by oligomenorrhoea, anovulation and hyperandrogenism. PCOS mainly occurs at the age of puberty. Symptoms mainly include irregular menstrual cycles, anovulation, and acne. The pathophysiology of PCOS involves the primary ovarian abnormalities, endocrine alterations, and metabolic modifiers such as anti-Mullerian hormone, insulin resistance. Diagnosis criteria includes mainly menstrual irregularities, ultrasound scanning and LH and FSH ratio .Treatment includes oral contraceptive pills, metformin ,local treatments for hirsutism and acne . Non-pharmacological treatment includes diet changes, regular exercises, and weight loss. Early diagnosis of PCOS can improve the quality of life.

Introduction:

POLY CYSTIC OVARIAN SYNDROME [PCOS] is one of the most common female endocrine disorders, It impacts6-15% of the female population. It is primarily distinguished by an extremely irregular menstrual cycle with no ovulation. The major endocrine glands involved in PCOS are the hypothalamus, pituitary gland, ovaries, adrenal gland, and peripheral adipose tissue, all of which contribute to a general imbalance. The majority of symptoms appear in adolescence, around the start of menstruation. However some women do not have symptoms until their early to mid-twenties. It's also referred to as Stein-Leventhal syndrome or hyper androgenic anovulation (HA). It is also known as syndrome "O," which stands for over nutrition, insulin overproduction, ovarian confusion, and ovulatory disruption. It has been linked to the development of type 2 diabetes and recurrent miscarriage. [1]

Sometimes symptoms are clear, and sometimes they're less obvious [2]. Eight to twenty Per cent of women experience PCOS, one of the most prevalent hormonal endocrine diseases, and the majority of them go undiagnosed. Other medical problems such as insulin resistance, type 2 diabetes, elevated cholesterol, high blood pressure, and heart disease have been related to PCOS. More than half of PCOS women acquire type 2 diabetes prior the age of 40.PCOS is responsible for approximately 70% of ovulatory reproductive problems [4]. PCOS is the most prevalent cause of female infertility because it can block ovulation. Women with PCOS who are able to get pregnant have

Journal of Chemical Health Risks

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a greater risk of miscarriage, gestational diabetes, pregnancy-induced hypertension, preeclampsia, and preterm birth.

These signs and symptoms may significantly affect a woman with PCOS's quality of life (QoL).According to studies; women with PCOS have poorer quality of life than women without the disease, especially when it comes to mental wellbeing, body image, and fertility issues. Depression and anxiety may also be more common among women with PCOS. [4][5][6]

PCOS is a common cause of female infertility, and it can have a major effect on a woman's quality of life. PCOS can have a number of effects on reproduction. Women with PCOS frequently have irregular menstruation or do not ovulate at all, making it impossible to become pregnant. Moreover, the elevated amounts of androgens in PCOS can interfere with the development of follicles, which are required for ovulation... Women with PCOS may experience symptoms of sickness such as weight increase, acne, and excessive hair development in addition to the mental stress of being unable to conceive. These indications can have a negative effect on a woman's self-esteem and quality of life. [7][8][9]

Sugar is the body's main energy source, and it is controlled by insulin, which is produced by the pancreas. Insulin resistance is the inability to use insulin effectively. The pancreas goes into overdrive, secreting more insulin to satisfy the body's glucose requirements. Because of its impact on androgen secretion, excess insulin is believed to impair a woman's ability to ovulate. According to Research, Women with PCOS have low-grade inflammation, which triggers polycystic ovaries to create androgen. [10]

Definition:

PCOS is a disorder in which the ovaries generate enormous amounts of androgens, male sex hormones that are typically found small quantities in women. The term polycystic ovary syndrome refers to the multiple tiny cysts (fluid filled sacs) develop in the ovaries. . While some women without the disorder do produce cysts, some women with this illness do not. [11]

Epidemiology:

Only a few researchers have examined the prevalence of PCOS in India, and of those, the majority of the samples used were those chosen at random, which may not accurately

reflect the true level of PCOS prevalence in the population. Young adolescent females were evaluated for a pilot cross-sectional research in Tamil Nadu, which discovered a prevalence of PCOS 14 of 18%. Also, they came to the conclusion that urban women had a larger percentage of PCOS than rural women did. An urban community-based study identical to this one carried out in Mumbai discovered that the prevalence of PCOS was 10.7% by the Androgen Excess Society criteria and 22.5% by the Rotterdam criteria. PCOS was identified as a prevalent condition and a high frequency of mood disorders among the participants in a study done among medical students at a private medical institution in south India using the modified Cronin questionnaire16, which had ten items. In a study from Luck now that looked at college-going women with menstrual irregularities and hirsutism in the age range of 18 to 25 years, it was revealed that the participants' estimated prevalence using the NIH criteria was just 3.7%.Another study from Andhra Pradesh looked at young women from a residential college and discovered that 9.13% of them met the Rotterdam criteria for PCOS. VidyaBharathi et al 19 discovered that 6% of community-dwelling women in Chennai's rural and urban districts had PCOS diagnosed using the Rotterdam criteria. According to international surveys, the prevalence of PCOS ranges between 4 and 10% of women of reproductive age20.It is difficult to make a definite conclusion because the prevalence of PCOS has been found to be higher or lower depending on the criteria utilised in these research, which may be the obvious reason for the disparity in prevalence rates among the studies from India. As a result of the inadequate data available, the prevalence of PCOS in India ranges from 3.7 to 22.5 per cent. [12]

Etiology:

PCOS is an oligo genic condition in which a multitude of genetic and environmental variables combine to define the diverse, clinical, and biochemical

Journal of Chemical Health Risks

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JCHR (2023) 13(5), 1015-1036 | ISSN:2251-6727

phenotype.7 although the genetic aetiology of PCOS is unknown, a PCOS family history is rather prevalent; nevertheless, familial ties to PCOS

are uncertain. A formal segregation study is impossible due to a lack of phenotypic information. Nonetheless, current research reveals that PCOS clustering in families is similar to an autosomal dominant pattern. Poor food choices and physical inactivity might increase environmental factors linked in PCOS (e.g., obesity); pathogenic agents and chemicals may also play a role.8 PCOS's reproductive and metabolic characteristics can occasionally be reversed with lifestyle changes such as weight loss and exercise. [13]

TYPES OF PCOS: [14]

1. Insulin resistant PCOS:

About 70% of people have this kind of PCOS, making it the most widespread. What constitutes insulin resistance, sometimes referred to as hyperinsulinemia, is basically when the body has greater than normal levels of insulin. This occurs when our cells become somewhat "numb" to the effects of insulin, which prompts the pancreas to secrete increasing amounts of the hormone until the cells receive the message. You may struggle with your weight, carry extra weight around your abdomen and/or hips, want sugar, and have symptoms like weariness or mental fog if you have this type of PCOS. Acne, excess hair, and male pattern hair loss are all problems brought on by high levels of androgen, which are increased by high insulin levels.

2. Post pill PCOS :

Some people develop post-pill PCOS after discontinuing the oral contraceptive pill. Acne, irregular periods, and excessive hair growth were not present prior to starting the pill in this case. Because of the type of synthetic progestin used, oral contraceptives such as Ginet, Yasmin, and Yaz are frequently involved in this type of PCOS. When you stop taking the pill, your ovaries literally throw a party and there is a natural rise in androgens, which might create normal PCOS symptoms, but there is no insulin resistance in this variety. This is something I usually notice in clients 3-6 months after they stop using the drug. Keep in mind that this type of infection can take a long time to heal on its own, but it can be treated more rapidly with the correct nutrition, lifestyle modifications, supplementation, or herbal medicine support.

3. Adrenal PCOS:

This kind of PCOS is caused by an aberrant stress reaction and affects approximately 10% of individuals who are diagnosed. DHEA-S (another kind of androgen produced by the adrenal glands) is typically raised alone,with no evidence of high levels of testosterone or androstenedione. Unfortunately, unless you go through an endocrinologist or another professional, this type of androgen is rarely checked.

4. Inflammatory PCOS:

Chronic inflammation causes the ovaries to produce extra testosterone in inflammatory PCOS, leading in somatic discomfort and ovulation problems. Headaches, joint discomfort, unexplained lethargy, skin problems like dermatitis, and digestive problems like IBS are all signs of inflammation in this variety of PCOS. A blood test will typically reveal elevated inflammatory markers, such as a CRP (C reactive protein) level more than 5. Other tests, such as fasting glucose and insulin, are within normal limits, but can occasionally be impacted by inflammation

Pathophysiology

1. When one or more of the following factors (almost probably associated with genetic vulnerability) stimulate the ovaries to produce an excessive number of androgenic hormones, particularly testosterone, polycystic ovaries result.

2. Hyper-insulinemia, which occurs in women whose ovaries are sensitive to this stimulus and causes the anterior pituitary gland to release excessive luteinizing hormone (LH).

3. Although insulin resistance is a common finding among PCOS patients, it is also common in normal-weight PCOS patients. The majority of women with PCOS have insulin resistance and/or are obese, which is a significant risk factor for insulin resistance.

Journal of Chemical Health Risks

www.jchr.org

JCHR (2023) 13(5), 1015-1036 | ISSN:2251-6727

4. Increased insulin levels are a factor in or a direct cause of the abnormalities in the hypothalamic-pituitary-ovarian axis that result in PCOS. Increased ovarian androgen production, decreased follicular maturation, and decreased SHBG binding are all effects of hyperinsulinemia, which raises the frequency of GnRH pulses. This in turn causes an increase in the LH/FSH ratio. The activity of 17-hydroxylase, which catalyses the conversion of progesterone to androstenedione and thereafter to testosterone, is also increased by excessive insulin. PCOS risk is elevated as a result of the combined impact of hyperinsulinemia.

5. Aromatase is an enzyme found in adipose (fat) tissue that changes androstenedione into estrone and testosterone into estradiol. The contradiction of having both excess androgens (which cause hirsutism and virilization) and excess estrogens arises from the overabundance of adipose tissue in obese women (which inhibit FSH via negative feedback).

6. Many (poly) ovarian cysts are a common ultrasound finding for the disease, which is how it got its most well-known moniker. These are actually immature ovarian follicles, not "cysts." The primordial follicles gave rise to the follicles, but because of the disrupted ovarian function, their development was halted (or "arrested") at an early stage. When viewed with ultrasonography, the follicles may be positioned along the ovarian perimeter and look like a "string of pearls."

7. Many researchers have linked inflammatory mediators to anovulation and other PCOS symptoms, suggesting that PCOS may be connected to chronic inflammation. The increased amount of oxidative stress and PCOS appear to be related in a similar manner.

Symptoms

1. **Irregular periods**:

Missing periods or not having a period at all are symptoms of abnormal menstruation. Heavy hemorrhage during menstruation is also possible.

2. **Hirsutism**:

Excessive facial hair development or excessive hair growth on your armpits, chest, and belly (abnormal hair growth). This impacts up to 70% of PCOS patients. (Abnormal hair growth)

3. Acne:

Acne can be caused by PCOS, particularly on the back, torso, and forehead. This acne may persist past your adolescence and be challenging to cure.

4. **Acanthosis nigricans**:

Patches of dark skin appear, particularly in the creases of your neck, underarm, groin (between your thighs), and under your breasts (Darkening of skin) (Darkening of the skin)

5. **Cysts**:

Many individuals with PCOS have enlarged or numerous follicles (egg sac cysts) on ultrasonography. • Hair loss: People with PCOS may lose hair on their heads or get bald.

6**. Alopecia**:

loss of hair follicles strength and hair loss due to thin and weakening.

7. **Infertility**:

the most prevalent factor in infertility in AFAB individuals. it is possible that irregular ovulation can prevent conception

8. **Weight gain**:

Abnormal weight gain and increase in bmi scale readings dramatically.

9. **Sleep apnea**:

Women with PCOS frequently complain about lack of sleep or sleeplessness. There are several factors that contribute to poor sleep, but PCOS is linked to a sleep condition known as sleep apnea. In the instance of sleep apnea, the individual ceases breathing for a period of time while sleeping.[16]

Journal of Chemical Health Risks

www.jchr.org

JCHR (2023) 13(5), 1015-1036 | ISSN:2251-6727

10. **Emotional problems**:

(Anxiety, Depression, Poor body image).

Causes

1. **Insulin resistance**:

Insulin intolerance. Insulin is a hormone produced by the pancreas. It enables cells to use sugar, body's main source of energy. Blood sugar levels can rise if cells become immune to the action of insulin. This can cause your body to produce more insulin in an attempt to lower your blood sugar level. Too much insulin may cause your body to produce an excess of the masculine hormone testosterone and experience difficulties with ovulation, the procedure by which eggs are released from the uterus. Dark, velvety areas of skin on the lower portion of the neck, armpits, groin, or under the breasts are one indication of insulin resistance. Other symptoms include an increase in hunger and weight growth.

2. **Low grade inflammation**:

In reaction to an illness or injury, white blood cells produce various substances. The reaction is referred to as low-grade inflammation. According to research, individuals with PCOS experience a specific kind of chronic, low-grade to inflammation that causes their polycystic ovaries to generate androgens. This can result cardiac and blood artery issues.

4. Heredity:

According to research, certain traits may be related to PCOS. A family history of PCOS may play an important role in the development of the disease.

4.**Excess Androgen**:

when you have PCOS, follicles can generate a lot of androgens. Ovulation is hampered by an excess of testosterone. This means that eggs are not produced on a daily basis and are not discharged from the follicles where they grow. Excess testosterone can also cause hirsutism and pimples.

Complications

1.Endromentrial cancer:

Women with PCOS are somewhat more likely than women without PCOS to acquire endometrial cancer.1The more irregular and fewer a women's periods are, the higher her risk. The endometrium is exposed to hormones like oestrogen throughout a regular menstrual cycle, which stimulates the lining to multiply and thicken. The endometrium thickens much more than usual when ovulation does not take place, as is frequent in PCOS, since the lining is not shed and is exposed too much higher quantities of estrogen. This increases the possibility that cancerous cells may develop. Controlling PCOS requires re-establishing hormone balance in order to return to a regular menstrual cycle. Weight loss, exercise, and diet are all essential. Oral contraceptives, together with the medication's metformin and inositol, can help some PCOS patients achieve more regular menstrual cycles.

2.heart disease:

PCOS raises a woman's risk of hypertension and heart disease.2This is because elevated insulin levels have been linked to PCOS and have been linked to an increased risk of excessive fatty acids, markers of inflammation, elevated blood pressure, and atherosclerosis. These illnesses can raise your chances of having a heart attack or having a stroke.

3.Diabetes:

Women with PCOS usually have insulin resistance, which means their bodies are resistant to adequately utilizing glucose, resulting in greater levels of glucose and more insulin generated. Generally elevated amounts of sugar in bloodstreams can develop to diabetes over time.

2012 research published in Diabetes found that 39.3% of women with PCOS got type 2 diabetes over a 10-year period, compared to just 5.8% of the population of women in the general population.

4.Metabolic syndrome:

Metabolic Syndrome, often known as Syndrome X, is a collection of risk factors that frequently occur together and raise one's risk of cardiovascular disease.

Journal of Chemical Health Risks

www.jchr.org

JCHR (2023) 13(5), 1015-1036 | ISSN:2251-6727

The following are the most prevalent metabolic abnormalities linked with this syndrome:

- Abdominal weight gain
- The levels of triglyceride are high.
- Low HDL (good cholesterol) values
- Blood pressure that is too high
- Elevated fasting blood sugar levels

Women with PCOS have a one-in-three likelihood of developing metabolic syndrome due to its relationship to overweight and elevated insulin levels.

5.Non-alcoholic steatohepatitis:

Severe liver inflammation induced by fat accumulation.

Diagnosis of PCOD

Polycystic ovarian condition (PCOS) is a typical endocrine problem that influences conceptive matured women. The analysis of PCOS depends on clinical and research Centre of discoveries, and there is no single conclusive indicative test for the condition. Be that as it may, a few demonstrative measures have been proposed by different clinical associations, including the Rotterdam criteria, National Institute of Child Health, and Human Development (NICHD) criteria and the Androgen Excess and PCOS Society (AE-PCOS) criteria. In addition to these diagnostic criteria other lab tests that might be useful in the determination of PCOS incorporate estimations of serum levels of testosterone, sex chemical restricting globulin (SHBG), and luteinizing chemical (LH). Raised degrees of testosterone and LH and low degrees of SHBG are normal discoveries in women with PCOD. Trans-vaginal ultrasound assessment of the ovaries is additionally valuable in the analysis of PCOS. The presence of various little follicles (2-9 mm in width) organized in an incidentally found ring is a trademark component of polycystic ovaries.

Ultrasound is a generally involved demonstrative device in the determination of polycystic ovary disorder (PCOS). PCOS is normally analyzed in view of the presence of two out of three of the accompanying measures: unpredictable feminine cycles, elevated degrees of androgen chemicals, and polycystic ovaries seen on ultrasound imaging.

The ultrasound evaluation of polycystic ovaries includes the representation of different little follicles (generally > 12) in the ovaries, which are normally organized incidentally around the ovary and measure 2-9 mm in width. The ovarian volume may likewise be expanded in PCOS because of the presence of various little follicles.

As well as diagnosing PCOS, ultrasound can likewise be utilized to screen the reaction to treatment and evaluate for any possible difficulties, like ovarian blisters or endometrial hyperplasia.

Rotterdam criteria

The Rotterdam standards are the most regularly involved symptomatic measures for PCOS. As per these standards, the finding of PCOS requires the presence of somewhere around two of the accompanying three elements:

(I) oligo-ovulation or anovulation,

(II) clinical or biochemical indications of hyperandrogenism, and

(III) polycystic ovaries on ultrasound assessment. Different reasons for these elements ought to be barred before the finding is made. What is more, the models express that the presence of sporadic monthly cycles or anovulation ought to be affirmed by serum progesterone estimations or endometrial biopsy. The Rotterdam models were changed in 2003 by the European Culture for Human Multiplication and Embryology (ESHRE) and the Ame Oligo-ovulation or anovulation alludes to rare or missing feminine periods. Clinical indications of hyper androgenism incorporate skin break out, hirsutism (exorbitant hair development), and male-design sparseness, while biochemical signs incorporate raised degrees of androgens (male chemicals) in the blood. Polycystic ovaries are characterized as the presence of at least 12 follicles estimating 2-9 mm in breadth. The Rotterdam models have been broadly utilized and American Culture for Regenerative Medication (ASRM)

Journal of Chemical Health Risks

www.jchr.org

JCHR (2023) 13(5), 1015-1036 | ISSN:2251-6727

These are viewed as the most delicate symptomatic rules for PCOS. Be that as it may, there have been a few reactions of the standards, as they may over diagnose PCOS at times, especially in ladies with typical androgen levels. Notwithstanding these reactions, the Rotterdam measures keep on being generally utilized in clinical practice and examination. They have been approved in various examinations and have been displayed to precisely distinguish ladies with PCOS. By and large, the Rotterdam models give a helpful device to the conclusion of PCOS, yet they ought to be utilized related to clinical judgment and other indicative tests to guarantee precise determination and fitting treatment.

By and large, the Rotterdam models give a valuable device to the finding of PCOS, yet they ought to be utilized related to clinical judgment and other demonstrative tests to guarantee exact determination and proper treatment.

National Institute of Child Health and Human Development (NICHD) Criteria (NICHD) Measures were created in 1990 to analyze Polycystic Ovary Condition (PCOS) and depend on clinical and research facility discoveries. The standards require the presence of no less than two of the accompanying three elements: (I) oligomenorrhea or amenorrhea, (ii) clinical or biochemical indications of hyperandrogenism, and (iii) prohibition of different reasons for hyperandrogenism .As indicated by the NICHD rules, women determined to have PCOS in the event that she meets two out of the accompanying three models:

- Irregular periods: The lady has sporadic monthly cycles, which might be either rare or successive. This implies that she might have less than nine periods in a year or over 35 days between periods.
- Hyperandrogenism: The lady has indications of abundance androgen creation, like skin break out, hirsutism (overabundance hair development on the face, chest, and back), or raised degrees of androgens in the blood.
- Polycystic ovaries: The lady has polycystic ovaries, which are distinguished by ultrasound. This really intends that there are at least 12 follicles (little liquid filled sacs) in every ovary, as well as the ovaries are developed.

Other Investigations

1.Glucose resilience: PCOS is related with an expanded gamble of insulin opposition and type 2 diabetes. Glucose resilience tests, for example, oral glucose resistance tests (OGTT), can assist with surveying insulin responsiveness and recognize people who might be in danger of creating diabetes. Fasting glucose and insulin levels may likewise be estimated.

2.Lipid profile: PCOS is likewise connected with an expanded gamble of dyslipidemia, including raised degrees of fatty substances and low thickness lipoprotein (LDL) cholesterol. Estimating lipid levels can assist with recognizing people who might be in danger for cardiovascular sickness

3.Thyroid capability: Thyroid issues, like hypothyroidism, can cause side effects like PCOS. Testing thyroid capability can assist with precluding these circumstances and guarantee that the right determination is made. Tests for thyroid-invigorating chemical (TSH) and free thyroxin (T4) levels might be performed.

4.Prolactin levels: Raised degrees of prolactin, a chemical that invigorates milk creation, can cause unpredictable periods and different side effects like those seen in PCOS. Estimating prolactin levels can assist with recognizing people who might have hyper prolactinoma, a condition that can be treated with medicine.

5.Hormonal assays: Estimation of serum levels of follicle-animating chemical (FSH), luteinizing chemical (LH), and sex chemicals, including testosterone, androstenedione, and dehydroepiandrosterone sulphate (DHEAS), can help in the finding of PCOS. In ladies with PCOS, LH is in many cases raised comparative with FSH, prompting a higher LH/FSH proportion.

6.It is essential to take note of that not all people with PCOS will have unusual lab results, and a few people with ordinary lab results might in any case have PCOS. In this manner, a thorough assessment by a

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JCHR (2023) 13(5), 1015-1036 | ISSN:2251-6727

medical services supplier is fundamental for the exact finding and the executives of PCOS.

BDI Depression Scale

The Beck Depression Inventory (BDI) is a self-report poll that comprises of 21 things estimating the depression symptoms in people. The things on the BDI survey different side effects of gloom, like sensations of trouble, responsibility, loss of interest, and changes in hunger and rest designs.

- To regulate the BDI in ladies with PCOS, the poll is regularly given in a paper or electronic configuration. The member is told to peruse everything and select the reaction that best depicts their experience throughout recent weeks. The reaction choices for everything range from 0 to 3, with higher scores demonstrating more serious burdensome side effects.
- When the member has finished the poll, the scores for everything are added to it an all-out BDI score, which goes from 0 to 63. In light of the complete score, the seriousness of misery side effects can be ordered into classifications going from negligible to extreme.

It is essential to take note of that the BDI is a self-report poll, and thusly, the exactness of the outcomes is subject to the member's capacity and readiness to precisely report their side effects. Moreover, a portion of the side effects of sorrow, for example, weakness and weight gain, are likewise normal highlights of PCOS itself, which might actually swell BDI scores.

The BDI has been utilized to survey gloom side effects in women with PCOS in a few examinations. In an investigation of 101 women with PCOS, the commonness of sadness (as estimated by BDI) was viewed as 42%, which was essentially higher than that in controls (14%). Additionally, another investigation discovered that 41% of ladies with PCOS had critical burdensome side effects (as estimated by BDI) contrasted with 17% of controls.

The BDI has additionally been utilized to assess the adequacy of mental mediations in further developing gloom side effects in ladies with PCOS. In an investigation of 46 ladies with PCOS, a care-based pressure decrease program essentially diminished BDI scores contrasted with a benchmark group. Essentially, a mental social treatment program was found to develop BDI scores fundamentally further in a gathering of 40 ladies with PCOS.

In spite of the handiness of BDI in evaluating sorrow side effects in ladies with PCOS, it is critical to take note of that there are a few impediments to the utilization of this instrument in this populace. For example, a portion of the side effects of despondency, for example, weariness and weight gain are likewise normal highlights of PCOS itself, which might actually swell BDI scores.

In conclusion, the BDI is a helpful device for surveying wretchedness side effects in ladies with PCOS, and it has been demonstrated to be related with more significant levels of uneasiness and less fortunate personal satisfaction. Furthermore, mediations, for example, care-based pressure decrease and mental social treatment have been displayed to further develop despondency side effects as estimated by BDI in ladies with PCOS. Nonetheless, considering the expected impediments of involving BDI in this populace, for example, the frustrating impact of PCOS side effects and social differences is significant.

Quality of life in women

PCOS is described by the presence of numerous cysts on the ovaries, irregular periodic cycles, hyperandrogenism, and insulin opposition. These side effects can altogether influence women well-being and personal satisfaction, including physical and mental prosperity, and can prompt depression, nervousness, and other psychological issues.

Study published in the Journal of Sexual Medicine found that women with PCOS had significantly lower health-related quality of life scores than those without the condition. The study also found that women with PCOS experienced more sexual dysfunction, infertility, and menstrual irregularities, which further impacted their quality of life. These findings highlight the need for effective management strategies to improve women's quality of life with PCOS. [31]

Another study published in the Journal of Human Reproductive Sciences examined quality of life issues

Journal of Chemical Health Risks

www.jchr.org

JCHR (2023) 13(5), 1015-1036 | ISSN:2251-6727

in Indian women with PCOS. The study found that women with PCOS experienced a range of physical and emotional symptoms that negatively impacted their quality of life. Specifically, the study found that women with PCOS had lower scores on measures of emotional and social well-being, as well as sexual satisfaction. These findings suggest that PCOS can impact multiple domains of a woman's life and highlight the need for comprehensive management strategies.

In addition to physical and emotional symptoms, PCOS can also impact women's fertility and reproductive health. Women with PCOS may struggle to conceive or may require assisted reproductive technology to become pregnant. A study published in the Journal of Women's Health examined the impact of PCOS on the quality of life of women undergoing in vitro fertilization (IVF). The study found that women with PCOS had lower quality of life scores than those without the condition. These findings suggest that PCOS can impact women's quality of life throughout the reproductive lifespan and highlight the need for effective management strategies.

Overall, PCOS can have a significant impact on women's quality of life, including physical, emotional, and reproductive health. However, there are effective management strategies available to improve quality of life for women with PCOS. These strategies should focus on a patient-center approach that addresses individual symptoms and concerns, with a focus on lifestyle modifications, medication, and psychological support.

List of factors that affect quality of life in women with PCOS:

1. Menstrual dysfunction
2. Infertility
3. Hirsutism
4. acne
5. Weight
6. Emotional and mental health
7. Sleep disorders
8. Cardiovascular health
9. Insulin resistance and diabetes
10. Sexual function

There are several scales that have been used to assess quality of life in women with polycystic ovary syndrome (PCOS). Some commonly used scales include:

1. PCOSQ:

The PCOS Health-Related Quality of Life Questionnaire is a 26- item questionnaire that assesses the impact of PCOS on quality of life across several domains, including emotions, body hair, weight, infertility, and menstrual problems. The PCOSQ has been validated in several languages and has been shown to be a reliable and sensitive measure of quality of life in women with PCOS [34]

2. SF-36:

The Short Form 36 is a general health survey that assesses quality of life across several domains, including physical functioning, role limitations, social functioning, and emotional well-being. The SF-36 has been used in several studies to assess quality of life in women with PCOS.

3. WHOQOL-BREF:

The World Health Organization Quality of Life-BREF is a general quality of life questionnaire that assesses physical, psychological, social, and environmental well-being. The WHOQOL-BREF has been used in several studies to assess quality of life in women with PCOS.

4. DPCOSQ:

The Dutch PCOS Questionnaire is a 15-item questionnaire that assesses quality of life in Dutch women with PCOS. The DPCOSQ has been shown to be a reliable and valid measure of quality of life in this population.

Overall, these scales can be useful tools for assessing the impact of PCOS on quality of life and evaluating the effectiveness of interventions aimed at improving quality of life in women with PCOS (PCOSQ).

Journal of Chemical Health Risks

www.jchr.org

JCHR (2023) 13(5), 1015-1036 | ISSN:2251-6727

The PCOS Health-Related Quality of Life Questionnaire (PCOSQ) is a widely-used tool for assessing the impact of polycystic ovary syndrome (PCOS) on women's quality of life. Developed by researchers at the University of Sheffield in 1998, the questionnaire consists of 26 items and assesses quality of life across several domains, including emotions, body hair, weight, infertility, and menstrual problems. The PCOSQ has been validated in several languages and has been shown to be a reliable and sensitive measure of quality of life in women with PCOS.

A study published in the Journal of Women's Health used the PCOSQ to assess the impact of PCOS on quality of life in a sample of Chinese women with PCOS. The study found that women with PCOS had lower quality of life scores than healthy controls, particularly in the domains of emotions and menstrual problems. Another study published in the European Journal of Obstetrics, Gynecology, and Reproductive Biology used the PCOSQ to assess quality of life in women with PCOS who were undergoing in vitro fertilization. The study found that women with PCOS had lower quality of life scores than women without PCOS, particularly in the domains of emotions and infertility.

The PCOSQ has also been used to evaluate the effectiveness of interventions aimed at improving quality of life in women with PCOS. For example, a study published in the Journal of Clinical Endocrinology & Metabolism used the PCOSQ to assess the impact of metformin treatment on quality of life in women with PCOS. The study found that metformin treatment improved quality of life in several domains, including emotions, menstrual problems, and hirsutism.

Overall, the PCOSQ is a valuable tool for assessing the impact of PCOS on quality of life and evaluating the effectiveness of interventions aimed at improving quality of life in women with PCOS. It can help to raise awareness of the impact of PCOS on quality of life and encourage more research into effective treatments for the condition.

Health-Related Quality of Life in Polycystic Ovary Syndrome (HRQLPCOS) Questionnaire:

Health-Related Quality of Life in Polycystic Ovary Syndrome (HRQL-PCOS) Questionnaire is a tool developed to assess the quality of life of women with polycystic ovary syndrome (PCOS). It consists of 26 items that measure the physical, emotional, and social aspects of HRQL that may be affected by PCOS.

The questionnaire was developed through a rigorous process of item generation and selection, cognitive interviews, and pilot testing. The initial items were generated from a comprehensive literature review and qualitative interviews with women with PCOS. The final items were selected based on their content validity, clarity, and relevance to HRQL in PCOS.

The HRQL-PCOS Questionnaire has been shown to have good psychometric properties in various studies. It has demonstrated high internal consistency, test-retest reliability, and convergent validity with other measures of HRQL and clinical outcomes in women with PCOS. It has also been translated and validated in several languages, including Spanish, French, and Turkish.

The HRQL-PCOS Questionnaire has been used in research studies to evaluate the impact of PCOS on quality of life and to identify factors associated with HRQL impairment in this population. It has also been used in clinical practice to assess the effectiveness of interventions aimed at improving HRQL in women with PCOS.

In summary, the HRQL-PCOS Questionnaire is a reliable and valid tool that can be used to assess the quality of life of women with PCOS. It is a valuable resource for researchers and clinicians who aim to understand and improve the impact of PCOS on the lives of affected women.

Comparison of 2 scales:

HRQL-PCOS (Health-Related Quality of Life in Polycystic Ovary Syndrome) and PCOSQ (Polycystic Ovary Syndrome Questionnaire) are two different questionnaires that are commonly used in clinical and research settings to assess the health-related quality of

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JCHR (2023) 13(5), 1015-1036 | ISSN:2251-6727

life (HRQL) of women with Polycystic Ovary Syndrome (PCOS).

The HRQL-PCOS questionnaire is a disease-specific questionnaire that was developed to assess the HRQL of women with PCOS. It consists of 15 items that assess physical, emotional, and social aspects of HRQL. The questionnaire has been validated and shown to have good internal consistency and test-retest reliability.

On the other hand, the PCOSQ questionnaire is a widely used tool for the assessment of the quality of life in women with PCOS. It consists of 26 items that are grouped into five domains, including emotions, body hair, weight concerns, infertility concerns, and menstrual problems. The PCOSQ has also been validated and has shown good psychometric properties [42]

While both HRQL-PCOS and PCOSQ are designed to measure the impact of PCOS on the quality of life of women, they differ in terms of the number of items, domains covered, and the specific aspects of HRQL they assess. Therefore, researchers and clinicians should choose the questionnaire that best suits their research or clinical needs.

Treatment

PCOS treatment should be suggested not just to reduce symptoms but also to stop the development of long-term consequences. The conventional treatment to lower androgen levels, relieve symptoms, and protect endometrial tissue is oral contraceptives combined with ant androgens.

Exercise and dietary changes, as well as prescription medications including insulin sensitizers and hormonal contraceptives, are frequently used in the management of PCOS. For PCOS-afflicted women, effective treatment can reduce symptoms and enhance quality of life.

Medication as treatment:

Infertility, hirsutism, acne, weight gain or obesity are just a few of the specific issues that PCOS treatment focuses on controlling.

Absent or Irregular periods:

To bring up regular periods, the contraceptive pill could be advised. Estrogen and progesterone-containing pills reduce testosterone production and control estrogen, which lowers the risk of endometrial cancer and treats abnormal bleeding, excessive hair growth, and acne.

The risk of endometrial cancer can be reduced by regulating your hormones, which can also treat acne, excessive hair growth, and irregular bleeding.

Progestin therapy:

Periods can be regulated by administering progestin for about 10 to 14 days for a period of one or two months. This can also protect from endometrial cancer. This progestin medication will not stop pregnancy and does not raise testosterone levels.

Problems related to fertility:

Clomiphene an oral anti-estrogen drug taken during the initial phase of the menstrual cycle. The standard treatment for ovulatory PCOS women is clomiphene citrate (CC), which induces ovulation. It promotes an egg's monthly release from the ovaries. This medication prevents some of the fat in food from being digested, which may also lower cholesterol levels.

Once daily for 5 days, 50 mg by mouth. You should start treatment on or around the fifth day of your period, and you'll probably ovulate between 5 to 10 days after starting clomiphene. As early as 30 days after the first course, a second course of 100 mg/day for 5 days may be administered if the patient does not ovulate. After 30 days, if necessary, a third treatment of 100 mg/day for 5 days may be administered.

Metformin:

This type 2 diabetes oral medicine enhances insulin resistance and reduces insulin levels. In addition to promoting ovulation, promoting regular monthly periods, and lowering the chance of miscarriage, metformin may also offer long-term health advantages like lowering high cholesterol levels and lowering the risk of heart disease. Nausea, vomiting, pain in the stomach, diarrhea, and appetite loss are the possible side effects.

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JCHR (2023) 13(5), 1015-1036 | ISSN:2251-6727

Letrozole: The ovaries may be stimulated by this breast cancer medication. In patients who have not responded to CC, 2.5 mg/day of the aromatase inhibitor letrozole may be administered as an alternative to stimulate ovulation. The dose can be increased up to 7.5mg/day. The main advantage is better ovulation inducing response particularly in obese patients.

Gonadotropins:

These hormonal treatments, which stimulate ovulation, are administered through injection. These are the standard treatment for the PCOS women who did not conceive or ovulate on the treatment of Clomiphene. It is a second line treatment of options in women with clomiphene resistant PCOS.

Unwanted hair growth or hair loss:

Hair loss (alopecia) and excessive hair growth (hirsutism) are typically treated with the combination oral contraceptive pills by reducing the production of androgens.

Eflornithine: It can be applied to slow down the growth of facial hair. This lotion cannot treat or eradicate unsightly facial hair. It inhibits an enzyme, a particular natural compound required for skin hair development. In addition to slowing hair growth, this impact may also make hair finer and lighter. Harmful if it may be swallowed. Very serious allergic reactions are rare. In case of rash, itching, swelling, difficulty in breathing, severe dizziness immediate medical attention is required.

Electrolysis: In each hair follicle, a small needle is implanted. The follicle is damaged and ultimately destroyed by the needle's electric current. There are technically three separate electrolysis procedures the first is the fastest and least painful electrolysis method called Thermolysis. The second is the least common and more painful electrolysis method called Galvanic method. The last method is the mix of both which is used for thick and curly hair. The acute redness in the treatment region, which lasts for about one to two days, can be treated by applying ice to the area for a few minutes at a time during the day with an ice pack or an ice roller.

Anti-androgens: These medications are sometimes used for excessive hair growth, and these medications may include spironolactone, flutamide, and cyproterone acetate, finasteride. In case of pregnancy or trying to get pregnant these medications should not be taken.

Minoxidil: It is a topical cream applied to the scalp used to treat hair loss of scalp and should not be suitable in case of pregnancy or trying to get pregnant. It can help to regrow new hair and stops the loss of the hair from the scalp. Minoxidil can only work if the hair is only due to female pattern baldness or androgenic alopecia. The pros of the minoxidil are it can slow down the hair loss and also it can be available as OTC medication. But it is expensive, may causes unwanted facial hair growth, it's very inconvenient to apply twice a day on scalp, can irritate the skin, take months to see results, at first it results in excessive hair loss.

Non-Pharmacological Treatment:

Patients with PCOS who are unable to conceive despite taking medication may be offered in vitro fertilization (IVF) treatment.

PCOS-related reproductive issues may be treated via a simple surgical technique called laparoscopic ovarian drilling (LOD). This lowers the level of testosterone and luteinizing hormone and increases the FSH thus can restore the general function of ovaries.

One or both ovaries may be removed surgically in a technique called an oophorectomy. This surgical procedure is typically carried out to avoid certain diseases including polycystic ovary syndrome, ovarian cancer, or endometriosis.

Cyst aspiration is a procedure that aspirates cyst fluid. As a result of this procedure, PCOS-afflicted women have better fertility. Cyst aspiration is only performed when an ultrasound can determine that the cyst is not malignant. The cyst will disappear after the surgery. In order to determine if the cysts were malignant or not, the fluid from the cyst will be collected and sent to the lab.

Life style modification:

The cornerstone of polycystic ovarian syndrome (PCOS) treatment is frequently regarded as lifestyle

Journal of Chemical Health Risks

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JCHR (2023) 13(5), 1015-1036 | ISSN:2251-6727

change. Numerous balanced dietary strategies to cut back on calorie consumption are recommended. Reduce intake of carbs since low-fat, high carbohydrate diets may cause insulin levels to rise. Choose complex carbohydrates over simple ones because they cause blood sugar levels to rise less quickly. To achieve weight loss, physical activity is advised.

Setting sleep as a top priority and minimizing stress can also aid in controlling insulin and blood sugar levels.

Moreover, taking supplements of important minerals like berberine, NAC, inositol, chromium can be very beneficial. As a support for the neurological system and adrenal glands, nutrients including magnesium, vitamin B5, and vitamin C are crucial. Avoid doing intense workout. Restrict high-intensity training because doing so can strain adrenals even more. Intake of caffeine should be avoided.

Materials and Methods

Study Site: The study was conducted in a gynecology department at maharaja institute of medical sciences (MIMS), Nelli-marla, Vizianagaram.

Study Period: The study was conducted for a period of 8 months

Study Design: Prospective observational study.

Sample Population: A total of 215 patients Enrolled in the study.

Study Criteria: The study criteria were enrolled inpatients and outpatients of Maharaja Institute of medical sciences, Nellimarla, Vizianagaram.

Inclusion criteria:

- Female subject's age ranges from Menarche to 45 years.
- Subjects who approve the valid informed consent prior to study procedure.
- Female subjects with 2 or more first trimester abortion
- Women complaining of heavy menstrual bleeding over several consecutive cycles.
- Females with Hyper androgenism, ovarian Dysfunction (Oligo-anovulation and polycystic ovaries).

Exclusion criteria:

- Subjectswith pregnancy are excluded.
- Postmenopausal women were often excluded from the study.
- Women on hormonal replacement therapy.
- Males are excluded from the study procedure.

Study plan:

phase 1:

- ✓ Obtaining consent from the hospital authority.
- ✓ Obtaining ICF from individuals.
- ✓ Literature survey.
- ✓ Designing data collection form.
- ✓ Taking patients demographics data.
- ✓ Data collection.
- ✓ Case Review

Phase 2:

- ✓ To evaluate common symptoms in PCOS women.
- ✓ To demonstrate the depression rate in PCOS women.
- ✓ To analyze the impact of PCOS on quality of life in women
- ✓ To evaluate the correlation of Quality of life with Age, BMI, and Depression.
- ✓ Data validation.
- ✓ Drawing of results.

Outcomes of the study:

- ➢ Weevaluated common symptoms in PCOS women.
- ➢ We Demonstrated the Depression rate in PCOS women.
- ➢ We analyzed the impact of PCOS in quality of life in women.
- ➢ We evaluated the correlation of QOL with Age, BMI, and Depression.

Results&Discussion

A total of 200 patients from the department of obstetrics and gynecology were included in the study.

Journal of Chemical Health Risks

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JCHR (2023) 13(5), 1015-1036 | ISSN:2251-6727

The study was conducted for about 6 months at Maharaja Institute of Medical sciences, a tertiary care hospital in Vizianagaram.

1.Age Distribution of Patients:

Out of 215 patients enrolled in this study, majority of patients 97 (45%) belong to age group between 21-25 years, 61 (28%) belong to the age group of 15-20 years,46(22%) belongs to the age group of 26-30 years,9 (4%) belongs to the age group of31-35 years,2 (1%) patient belong to the age group of 36-40.

AGE GROUP	NO. OF CASES	PERCENTAGE
15 – 20	61	28%
21 – 25	97	45%
26 – 30	46	22%
31 – 35	9	4%
36 – 40	2	1%
TOTAL	215	

Fig 1.1 Age Distribution Pattern

2. Individual Age Groups

Among 215 patients the majority of age group belong to 21-25

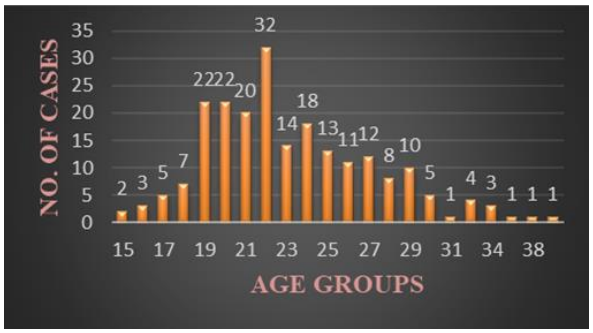

Fig 2: Graph Representation of Age Groups.

3. Educational Status:

From a total of 215 patient's majority of members 104 (48.3%) were students while the second highest 64(29.76%) were house wife, and the remaining patients 47 (21.8%) were working women.

EDUCATIONAL STATUS	NO. OF SUBJECTS	PERCENTGE
House wife	64	29.76%
Working	47	21.8%
Students	104	48.3%
total	215	100%

Fig 3.1 Tabular Representation for Educational Status

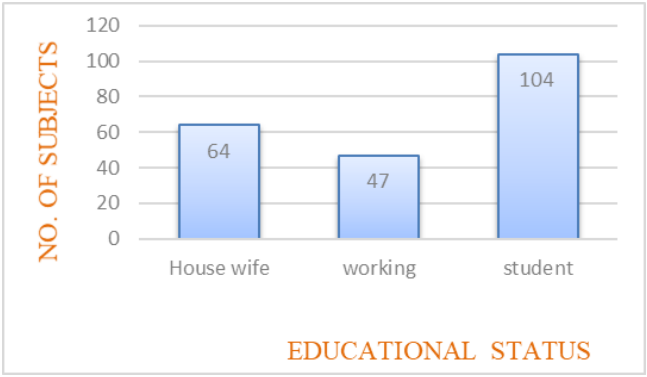

Fig 3.2 Bar Graph of Educational Status

4.Socio Economic Status:

Most of the subjects are from average socio Economical status 91(42.32%), whereas the remaining patients 78 (36.27%) and 46(21.4%) were above average and below average respectively.

SOCIO ECONOMIC STATUS	NO. OF SUBJECTS	PERCENTAGE
Below average	46	21.4%
Average	91	42.32%
Above average	78	36.27%
TOTAL	215	

Fig 4.1 Table for Socio Economic Status Representation**.**

5.Marital Status:

In this study 215 patients were participated from the data analysis it was observed that maximum number of women belong to the category unmarried 115 (53.4%) and the remaining women are married 100 (46.51%).

MARITAL STATUS	NO. OF SUBJECTS	PERCENTAGE
Unmarried	115	53.4%

Journal of Chemical Health Risks

www.jchr.org

JCHR (2023) 13(5), 1015-1036 | ISSN:2251-6727

Married	100	46.51
TOTAL	215	

Fig 5.1 Tabular Presentation of Marital Status

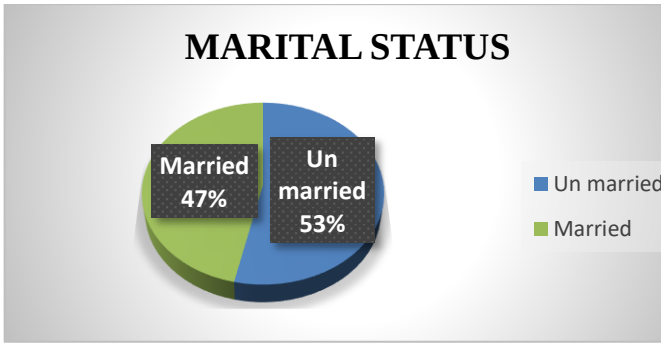

Fig 5.2 Schematic Representation of Marital Status

6. Fertility in Married Subjects:

Most of the subjects were unmarried 115(53.4%) and married subjects were 100 (46.51%) and are further classified based on the fertility among 100 patients 54 % are belonging to infertile category and 46 %were fertility category.

FERTILITY STATUS	NO. OF SUBJECTS	%
Infertile	54	54%
Fertile	46	46%
TOTAL	100	100%

Fig 6.1 tabular presentation for fertility status.

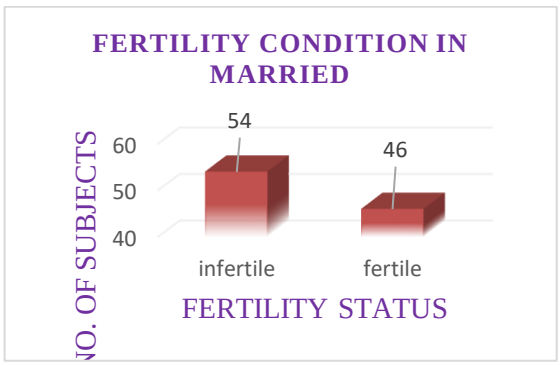

Fig 6.2 Bar Graph of Fertility Condition Among Subjects

7.Residence:

In this study, 134 participants are from rural area that is about 62.3% whereas only 81 members has participated from urban area that is 37.67%.

RESIDENTIAL AREA	NO. OF CASES	PERCENTAGE
Urban	134	62.3%
Rural	81	37.67
TOTAL	215	

Fig 7.1 residence area of the participants.

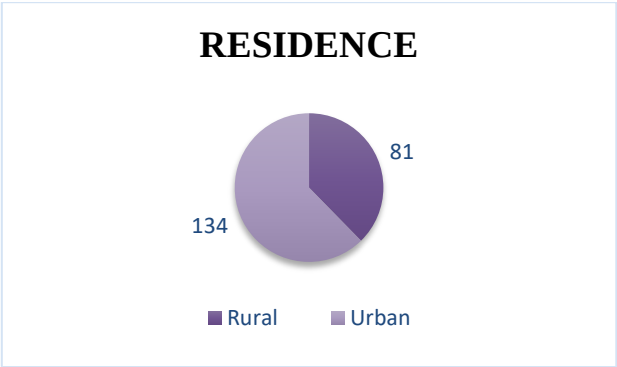

Fig 7.2 Schematic Representation of Residual area

8.Body Mass Index:

Out of 215 patients, majority of patients belong to normal BMI 100(46.5%), 61 (28.3%) subjects were overweight and 20(9.3%) were obese and remaining subjects 34 (15.8%) were under weight.

BMI	NO. OF CASES	PERCENTAGE
Under weight	34	15.8%
Normal	100	46.5%
Over weight	61	28.3%
Obese	20	9.3%
TOTAL	215	100%

Journal of Chemical Health Risks

www.jchr.org

JCHR (2023) 13(5), 1015-1036 | ISSN:2251-6727

Fig 8.1 Tabular Representation of Body Mass Indexes.

SYMPTOMS	NO. OF SUBJECTS AFFECTED	PERCENTAGE
Acne	101	46.90%
Alopecia	123	57.20%
Amenorrhea	136	63.25
Anaemia	40	18.6
Depression	79	36.7
Dysmenorrhea	120	55.80%
Hirsutism	94	43.70%
Sleep apnoea	79	36.70%
Thyroid	50	23.20%
Others	89	41.30%
Total	215	

Fig 9.1 Tabular Representatin Of Symptoms.

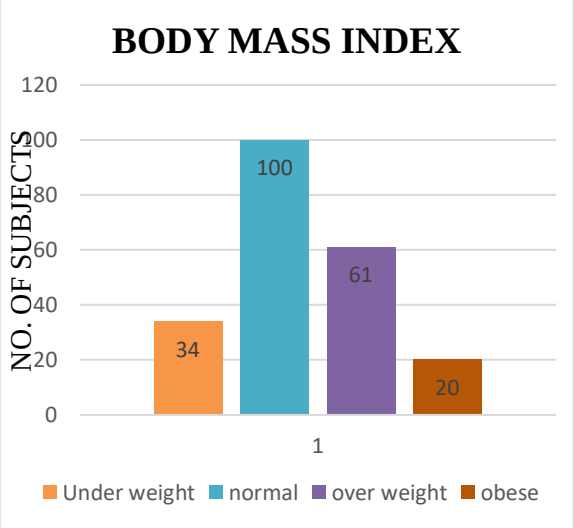

Fig 8.2: Bar Graph of Body Mass Index Representation.

9.Symptoms:

Most seen symptoms were Amenorrhea 136 (63.25%), alopecia 123(57.2%), and the same percentage of complication was observed in Depression and sleep apnea i.e. 79 (36.7%).

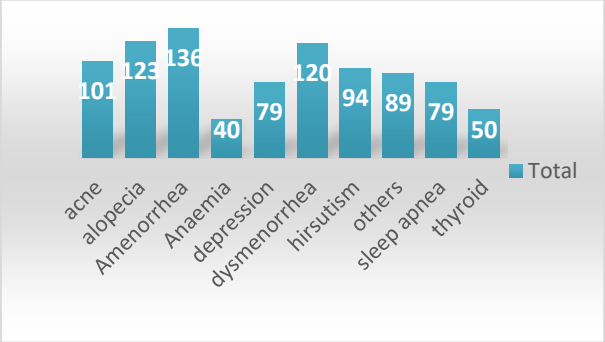

Fig 9.2: graph of symptoms.

10.PCOS Quality of Life Questionnarie:

POLYCYSTIC OVARIAN SYNDROME is an endocrine disorder which negatively impacts women in reproductive age. PCOS is associated with psychological stress and it also impact the quality of life in women .so, the assessment of HRQL provides Information about subjects. The PCOS HRQL questionnaire provides a measure for women with PCOS, and includes five domains: Emotional, Body hair, Infertility, weight, and Menstrual problems. This was analyzed by using PCOSQ–26.

CATEGORY	NO OF SAMPLES	PERCENTAGE
Very good quality of life	17	7.90%
Good quality of life	119	55.34%
Moderate quality of life	71	33.02%
Poor quality of life	8	3.72%

Fig 10.1 tabular representation of questionarries.

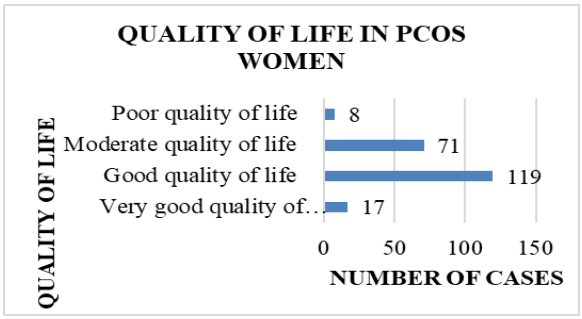

Fig 10.2 graphical presentation of quality of life.

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JCHR (2023) 13(5), 1015-1036 | ISSN:2251-6727

11. Beck depression scale:

Patient data was distributed based on the scores on the Beck Depression scale. Depression was found to be the risk factor associated with the frequency of 36.28%.

Depression status table		
DEPRESSION STATUS	**FREQUENCY**	**PERCENTAGES**
Normal	108	50.23%
Mild	78	36.28%
Moderate	21	9.77%
Borderline	7	3.26%
Severe	1	0.47%

Fig 11.1 Tabular Presentation of Depression Status.

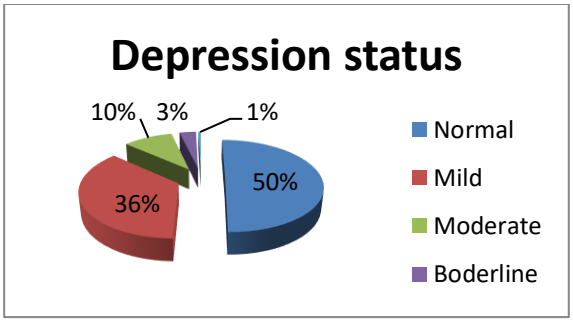

Fig 11.2 Graphical Presentation of Depression Status.

12.Correlation of Age with Quality of Life

Majority of the cases were noticed to have good quality of life with age group between 21 – 25 holding 52 cases [24.19%]. The least number of cases were recorded to have poor quality of life where in 26 – 30 age group exhibit highest within the poor quality of life with 3 cases [1.4%] whereas the age groups 21 -25 and 31 – 40 holding only 1 case in each category respectively that is 0.47%.

Age	VGQOL		GQOL			MOQL		PQOL	
	N	P	N		P	N	P	N	P
15 – 20	7	3.25	33		15.35	19	8.83	2	0.93
21 – 25	10	4.65	52		24.19	34	15.81	1	0.47
26 – 30				28	13.02	15	6.97	3	1.4
31 – 35				5	2.326	3	1.39	1	0.47
36 – 40				1	0.46			1	0.47

Table 12.1: Correlation of Age with Quality of Life

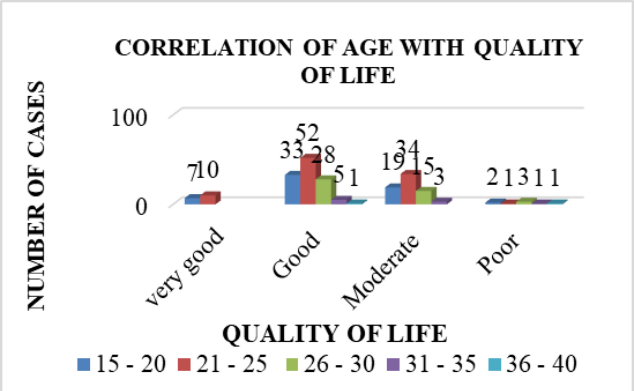

Fig 12.2: Graphical Representation of Correlation of Age with Quality of Life

13.Correlation Between Depression Status and Quality of Life

Patients with very good quality of life exhibited no level of depression whereas 1 person had severe depression even with good quality of life. Even people with poor quality of life also exhibited very minor difference on comparison with good quality of life.

Journal of Chemical Health Risks

www.jchr.org

JCHR (2023) 13(5), 1015-1036 | ISSN:2251-6727

Normal		Mild		Moderate		Border	
N	%	N	%	N	%	N	%
76	35.34	34	15.81	7	3.25	2	0.93
21	9.76	36	16.74	11	5.11	2	0.93
1	0.46	3	1.39	2	0.93	2	0.93
10	4.65	5	2.32	1	0.46	1	0.46

Table 13.1: Data of Correlation Between depression and QOL

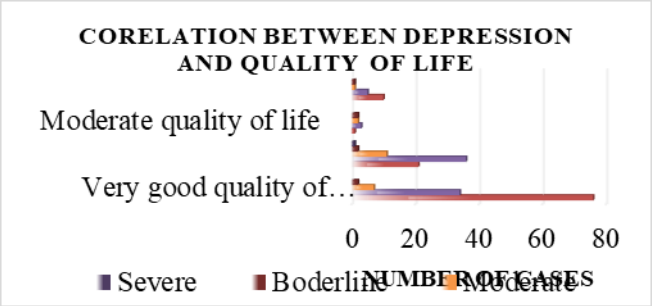

Fig 13.2: Graphical Representation of Correlation Between Depression and Quality of Life

14.Correlation of BMI with Quality of Life

11 patients with obese BMI had moderate quality of life. Whereas the maximum number of patients that is 57[26.5%] with normal weight had good quality of life. There is a significant relation of BMI with quality of life. Overall, as the BMI becomes abnormal the quality of life also gets affected adversely.

	U W		N W		O W		Obese	
	N	%	N	%	N	%	N	%
VGQOL	5	2.32	9	41.8	1	0.46	2	0.93
GQOL	18	8.37	57	26.51	39	18.	5	2.3
MQOL	10	4.65	31	14.41	19	8.83	11	5.111
PQOL	1	0.46	3	1.39	2	0.93	2	0.93

Table 14.1: Correlation of BMI With Quality of Life

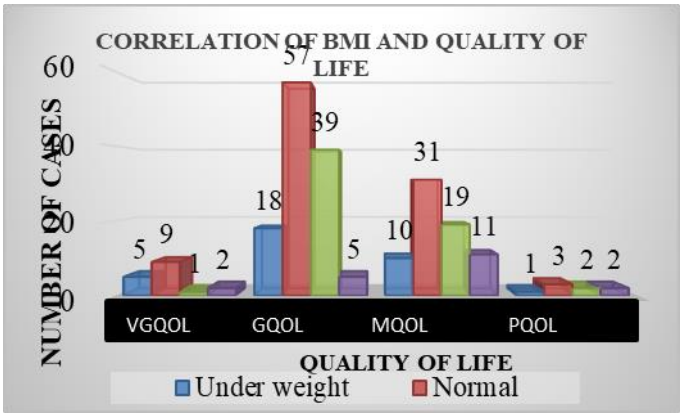

Fig 14.2 Correlation of BMI With Quality of Life

Discussion

PCOS is a prevalent hormonal disorder in women and it is one of the most underdiagnosed diseases. PCOS is distinguished by overproduction of androgens, abnormality in menstrual cycles. Although the exact reason for PCOS is not known.

In our study we included a sample size of 215 patients and collected various parameters to observe the most aggregating factor for PCOS. The main aim of our study is to evaluate the Impact of PCOS in quality of life in correlation to age, BMI, and various factors.

PCOS is an endocrine disorder and its complications affect the various aspects of HRQOL in women. The present study was conducted to find out the common symptoms that are associated in PCOS subjects and its impact on quality of life.

The aim of our study was to determine whether there is a correlation of age in PCOS women and their QOL.

Journal of Chemical Health Risks

www.jchr.org

JCHR (2023) 13(5), 1015-1036 | ISSN:2251-6727

We have considered patients age group from 15 to 45 years. We have categorized age group into 15-20, 21-25, 26-30, 31-35, 36-40 and the occurrence of PCOS among age groups are 15-20(28%), 21-25(45%),26-30(22%),31-35(4%), 36-40(1%). we cannot conclude that the particular age was affected with PCOS because PCOS has various risk factors. In this study we observed that age group of 21-25 years are more prone to PCOS when compared to other age group patients.

The individual distribution of PCOS subjects in our study are younger age group 21 - 25 [45%].The aim of our study in categorizing the educational status was to analyze how PCOS is affecting the quality of life among patients. The patients under category of students were 104(48.3%), working women were 47(21.8%) and patients under category of housewife were 64(29.76%).

In present study we observed that educated patients were more affected than working women and housewives.

By consideration of residence, the patients residing in rural areas 81(38%) and patients in urban areas were 134(62%).

We observed that patients in our study from rural areas are less affected with PCOS when compared with patients living in urban areas.

Most of the subjects in this study are 91(42.3%) from average Economical status followed by 78(36.2%) above average Economical status.

From a total of 215 subjects in our study, most of them had a normal BMI (46.5%) and the least were overweight (28.3%). In the present study most patients with PCOS have a BMI of 24 kg/m2 which is normal.

The symptoms associated with PCOS are menstrual irregularities, depression, acne, alopecia, sleep apnea, hirsutism, anemia, and thyroid dysfunction. The distribution of symptoms in our study observed are menstrual irregularities in 128 patients, depression in 79 patients, acne in 101 patients, alopecia in 123 patients, sleep apnea in 79 patients, hirsutism in 94 patients, anemia in 40 patients, and thyroid disease in 50 patients.

The prevalence of menstrual irregularities in women with PCOS in present study was 119.5%. Women with isolated symptoms of hirsutism are not shown to be at higher risk for depression. In our study, subjects with PCOS had lower scores in the symptoms, which is proved by the previous studies conducted by Maria L. Sanchez in Spain (58).

The analysis of PCOS subjects in our study revealed that they had fertility problems significantly more often. This result is similar to a previous study conducted by Raffique.

In present study Subjects with PCOS exhibit good QOL, even though associated with acne (46.9%), depression (36.7%), and hyperthyroidism (43.7%), our study exhibited contrast to the research conducted by Syeda Sidra in Islamabad.

Out of 215 participants, present study shows that 63.2 percent had menstrual irregularities, 43.7% had hirsutism, 57.2% had alopecia, 46.9% had acne, 36.7 percent had sleep apnea, and 18.6 percent had an anemic condition. Our study shows that the subjects with PCOS are not much affected by poor quality of life, and the results are contrast to the previous studies conducted by Karjuala Salla (61), Maria L. Sanchez (58), and S. Coffey and H. Mason (

The present study only includes an analysis and evaluation of risk factors, socio-demographic factors, and quality of life. The women's quality of life was assessed based on the PCOS Questionnaire. The present research explored QOL and psychological well-being in women with PCOS. To estimate the QOL we have used the sample-size PCOS questionnaire. In our study, 119 patients had good quality of life whereas 8 patients exhibited poor quality of life.

Data was collected through the Beck Depression Inventory Scale. Depression is independent of the quality of life as many of the patients in present study exhibited negligible depression status on correlating with their quality of life.

Majority of the patients that is 108 [50.23%] had no depression followed by 78 patients with mild depression [36.28%], then with 21 patients with moderate depression [9.77%] and then 7 people with 7 borderline depression [7%] and last 1 person with

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severe depression [0.47%]. Our study has shown contrast results with S. Coffey (62) regarding the depression criteria. Data was collected through the Beck Depression Inventory Scale our study exhibited the results similar to the study conducted by Zoha.sabir.

Specifically, women with PCOS were more likely to have difficulties with hirsutism, acne, menstrual irregularities, and infertility. In present study, we observed that women with PCOS are more likely to have many symptoms which indirectly affect the patient's quality of life.

On comparison of age with quality of life of our study with fauzia et al., (63) has exhibited similar results in accordance with age whereas the contrast is their results has shown effect in quality of life in patients whereas quality of life is not affected in our study.

In our study we correlated the BMI and quality of life our study exhibited that maximum number of subjects with normal BMI and had good quality of life. In our study we observed that there is a mild significant relation of BMI with quality of life.

In our study there was no evidence that quality of life was affected in correlation to age and various factors like depression.

Conclusion

Based on our study conducted on the total population of 215 PCOS patients we have observed that PCOS is the most common disease mainly seen in reproductive age women.

PCOS can occur at any age group but most common seen in 21 to 25 years of population. The most common symptoms in PCOS patients are amenorrhea, dysmenorrhea, and acne.

Based on the results 50 percent of population have no depression 36 percent of the population suffering with mild depression and 3percent of the population have broader line and 0.4 percent have severe so many of the PCOS women are not affected by depression.

Based on PCOSQ only 3 percent of population (sample cases) have poor quality of life and when they are correlated to age, BMI and depression we have observed that there is no impact in their quality of life.

As a clinical pharmacist by proper management and therapy with lifestyle changes such avoiding carbohydrate rich foods, avoiding junk food completely. Following strict and Regular exercise, stress management techniques can improve overall health in PCOS Patients and decrease the effect on their quality of life

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Conflicts of intrest

Nil

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