DEPRESSION ANXIETY AND STRESS OF WOMEN/GIRLS WITH AND WITHOUT POLYCYSTIC OVARY SYNDROME

A DISSERTATION SUBMITTED TO THE DEPARTMENT OF EDUCATION JADAVPUR UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF PHILOSOPHY IN EDUCATION

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2019

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THIS DISSERTATION DEDICATED TO MY RESPECTED PARENTS, WHOLE FAMILY AND SPECIALLY TO MY BELOVED CHILD FOR THEIR ENDLESS SUPPORT,

ENCOURAGEMENT,

BLESSINGS, & LOVE.

DECLARATION

I, Mili Maity do hereby declared that this dissertation entitled, “Depression Anxiety and Stress of Women with and without Polycystic Ovary Syndrome” submitted by me to the department of Education, Jadavpur University, Kolkata, West Bengal, for the fulfillment of degree of Master of Philosophy in Education is a record of original research work carried out by me under the supervision and guidance of Prof. Bishnupada Nanda, Professor, and H.O.D. Department of Education, Jadavpur University, Kolkata and that it has not been submitted for the award of any degree, diploma or any other recognition to any other University or Institution.

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ACKNOWLEDGEMENT

For the preparation of this thesis, the researcher has received encouragement, assistance, and co-operation from various persons.

In the very first researcher expressed her heartiest gratitude and respect to her guide Prof. Bishnupada Nanda, HOD, Department of Education, Jadavpur University for his valuable guide, concrete suggestion, and helpful criticism throughout the course of this study and preparation of the report.

The researcher expressed her special gratitude to Dr. Muktipada Sinha, Associate professor, Department of Education, Jadavpur University for his significant keystrokes in the research work.

The researcher expressed her gratitude and respect to others teachers of the department of Education for their valuable suggestions.

She expressed her best regards and special thanks to all the friends who have helped in her research work.

The researcher expressed special thanks and best gratitude to the authority of Institutions from where the data were collected for their permission and co-operation.

She expressed special thanks and gratitude to all the samples of the study for their co-operation and kindness.

She is indebted to various authors, publishers, and organizations whose books, articles, and websites she consulted during the preparation of this study and to librarians of different libraries for their immense help and sympathetic co-operation.

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PREFACE

Polycystic ovary syndrome is a multifactorial, physical, psychological, and social obstacle for the women in reproductive age. Day by day due to complexities of life as well as unusual lifestyle of the girls are affected by PCOS and this tendency is rising. PCOS affects the entire feminine life of women and is regarded as “theft of womanhood”.

Girls in the school and colleges age were affected by this syndrome which again influence their academic and psychological life. These girls kept their problems hidden and are unable to express it to others. For their academic achievement they need support from different authorities including the academic institutions.

The present investigator therefore, selected the title as “DEPRESSION ANXIETY AND STRESS OF WOMEN/GIRLS WITH AND WITHOUT POLYCYSTIC OVARY SYNDROME” for in depth study of PCOS affected girl’s stress, anxiety, and distress.

To entire research report has been placed into five distinct chapters. The investigator tried to her best to know the mental pain of these lonely girls/women and how this syndrome affects their academic life.

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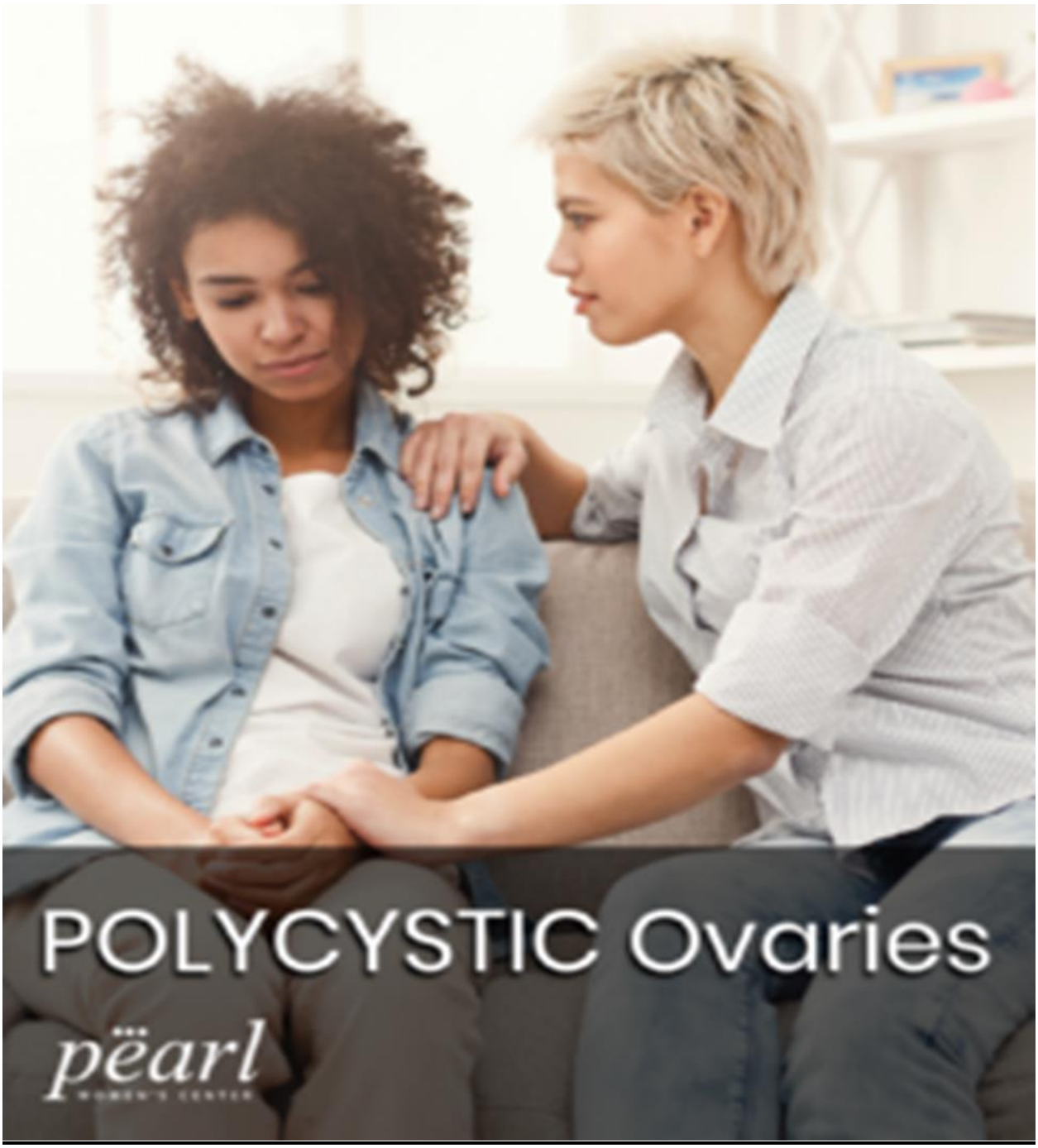
DEPRESSION ANXIETY AND STRESS OF WOMEN WITH AND WITHOUT POLYCYSTIC OVARY SYNDROME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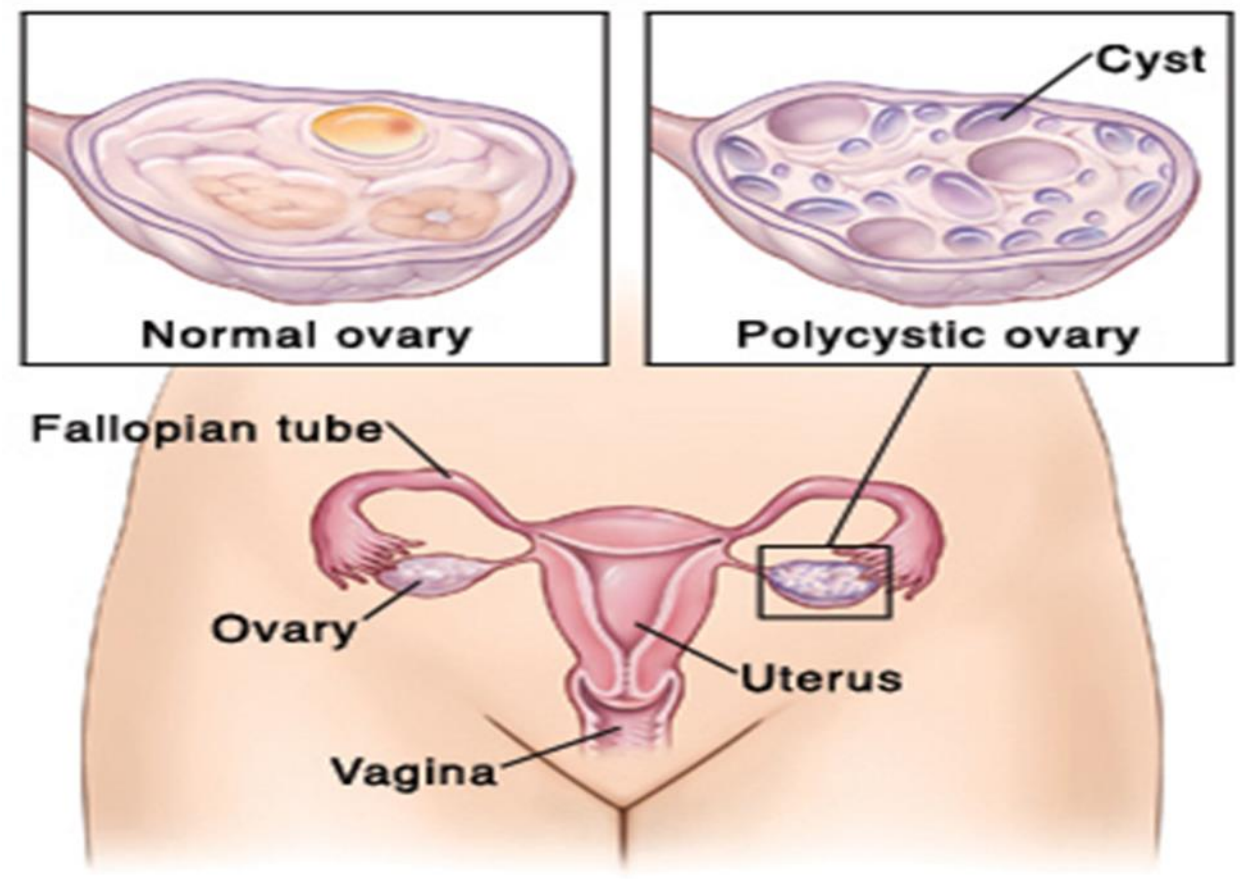
CHAPTER-1

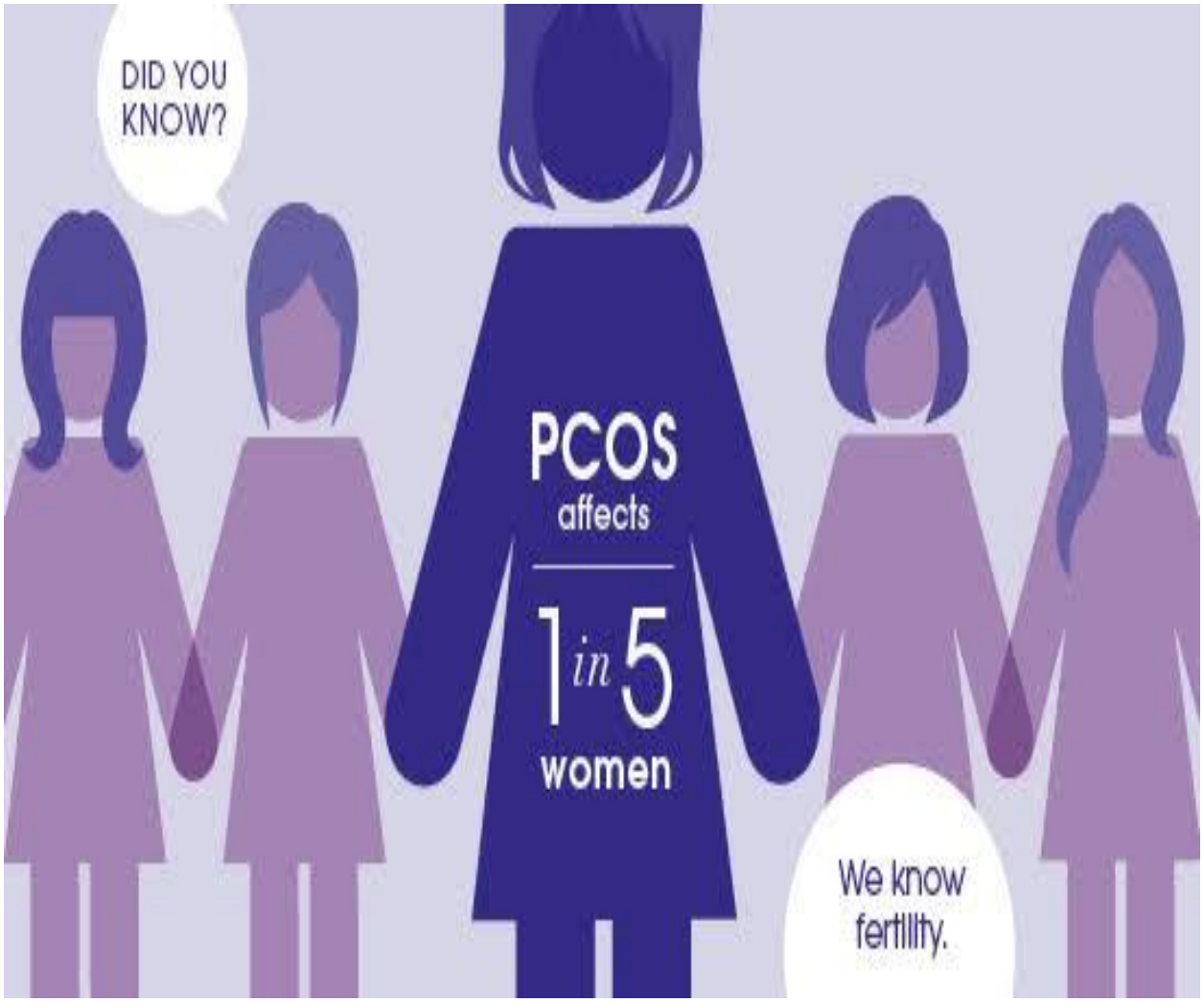
INTRODUCTION

1.1 INTRODUCTION

As well as men women are biggest part of society, so progress and prosperity of any society also mostly depend on wellbeing of women. Education is the most important way by which women can be the eligible part of society. We know the concept of sound mind in sound body. Achievement in all aspects including education depends on wellbeing and quality of life.

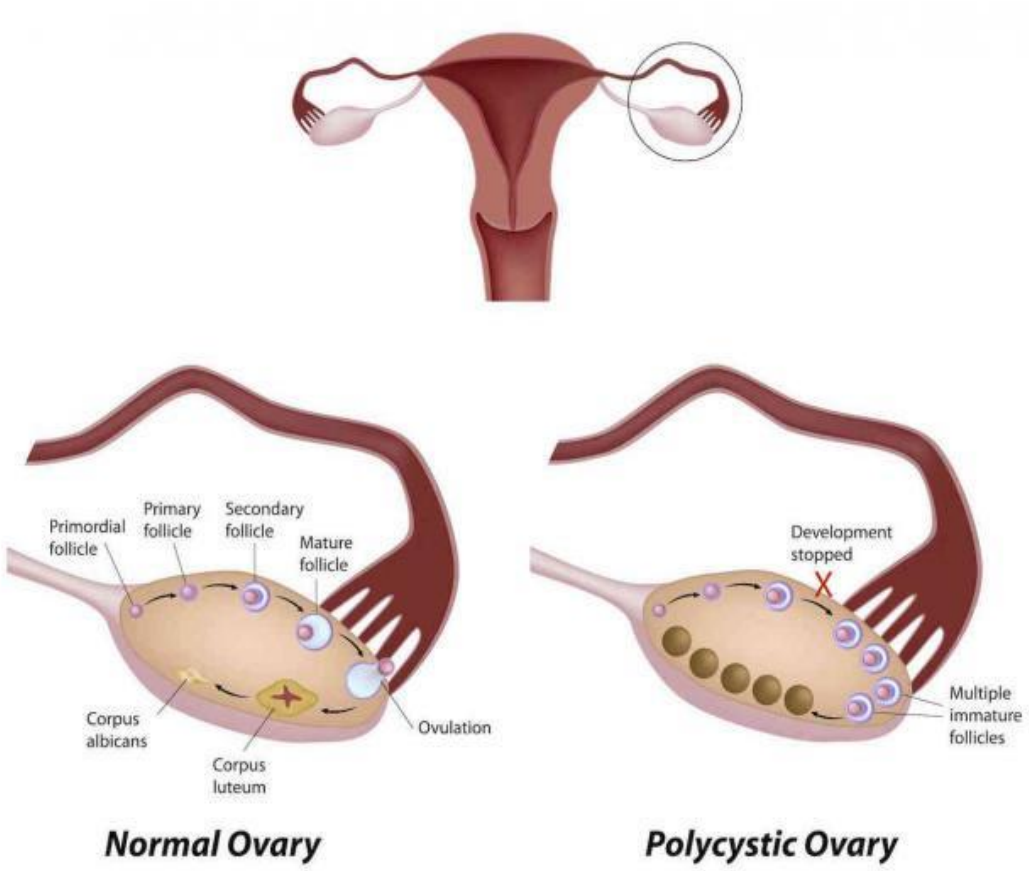
Polycystic Ovary Syndrome (PCOS) is a complex, multifactorial physical obstacle as it is very common, affecting up to one in five women of reproductive age. It causes various physical and mental obstacles in the way of women's wellbeing, quality of life, and achievements.





Now a days PCOS is a common disease which affecting one in every five women at fertile age. It is a disease in which a girl/women's ovary filled by some or many cyst which creates barriers in normal menstruation and abolished normal menstruation cycle which called oligomenorrhoea. The clinical problems occur in women's body like---

- Oligomenorrhoea– dysfunction of menstruation cycle and sometimes the irregularity of the menstruation cycle.
- Hyperandrogenism – increase of androgenic hormone i.e. Testosteron, andchronic oligo-anovulation i.e. ovules are not released in the regular cycle causing childlessness.



- Spontaneous abortion due to hyperandrogenism or dominance of androgynous hormones that is testosterone.
- Metabolic problems like – insulin resistance, impair glucose tolerance, type 2 diabetes mellitus and adverse cardiovascular risk profile.

- Problematic greasy skin.
- Obesity.

- Hirsutism- intensify male pattern body hair growth.
- Alopecia- masculine type hair loss and male pattern balding.

These problems also creates some mental disorders like---

- Chronic anxiety disorders.
- Stress.

- Depression
- Personality disorders.

Polycystic ovary syndrome is a complex, multifactorial, heterogeneous disorder with psychological, reproductive, and metabolic manifestations affecting 4-18% of reproductive-aged women (Nanda, 2017; Zangench et.al., 2012). In some other studies it was noticed that PCOS affect 5-10% of women at fertile age and is a leading cause of infertility among women (Adali, Yild-izhan, Kurdoglu et.al., 2008; Oddens, den Tonkellar & Nieuwenhuyse, 1999; Schweiger & Ortmann, 2002). According to Frank (2003) and Homburg (2003) PCOS is characterized by hyperandrogenism and chronic oligo-anovulation causing involuntary childlessness. Therefore, PCOS represent dysfunction of the menstruation cycle and sometimes the irregularity of the menstruation cycle (oligomenorrhoea). PCOS is also a major cause of spontaneous abortion due to hyperandrogenism (dominance of androgynous hormones that is testosterones) some common features of male are manifested in these females (intensified body hair growth, that is hirsutism, problematic greasy skin and acne, alopecia of androgen origin that is masculine–type hair loss). Due to insulin resistance they may be affected by over body weight. The cause of all these problems may be cystic ovaries and / or malfunctioning metabolism. According to Stein and Leventhal (1935), PCOS is characterized by enlarged ovaries, obesity, hirsutism and chronic anovulation. It also has a negative effect on individual's norms of femininity, causing a negative effect on individual's mental health and quality of life. The PCOS affected women may be affected by lifelong emotional distress, anxiety, and depression (Nanda, 2017; Nanda & Mandol, 2013; Adali et.al., 2008; Elsenbruch, Benson, Tan, Mann, & Pleger, 2006; Esler, Travers, Guttikonda et. al., 2007; Rasgon, Rao, Hwang et.al., 2003; Greil, 1997; Guerra, Lobera & Barri, 1998; Oddens et. al., 1999).

Other than the infertility, masculine hair growth throughout the body, obesity, eating disorders are some common features of PCOS subjects. Women with PCOS are affected by severe mental disorders like distress, anxiety and depression (Weiner, Primeau & Ehrmann, 2004; Keegan, Liao, & Boyle 2003). In several studies it was established that depression level of women with PCOS are above average compared with the control group (Rasgon, Rao, Hwang et.al., 2003; Keegan et.al., 2003; Elsenbruch, 2003).

In the study of Benson, Hahn, Tan et.al.(2009), Markowitz, Friedman & Arent (2008), Roberts, Deleger, Strawbridge and Kaplan (2003) it was established that women's obesity or weight problems might increase depression in the normal population and the same is applicable to the women with PCOS. Even it was noticed that depression of women with PCOS is significantly more than patients suffering from cancer (Keegan et.al., 2003).

In one third (1/3) patients diagnosed with PCOS possess clinically significant anxiety symptoms (Benson et.al., 2009).The cause of severe anxiety symptoms among the women with PCOS are menstrual disorders, infertility, excessive hair growth in the body, skin problems and obesity (Kitzinger & Willmott, 2002; Lipton et.al., 2006; Yazici, Baz & Yazici, 2004; Petry, Barry, Pietrzak & Wagner, 2008; Lechner, Bolman, van Dalen, 2007). Dissatisfactions with body image and greater body mass may also causes higher level of depression and anxiety among women

with PCOS. Suicidal tendency is also higher among women with PCOS. They also possess mental disorders and mood disorders (Elsenbruch, 2003).

According to Scaruffi, Gambineri, Cattaneo, Turra, Vettor, Mioni (2014) women with PCOS have more relevant personality and psychiatric disorder than normal samples.

Overweight is most common in PCOS women, emotional disorders are associated with PCOS. The management of PCOS is urgently needed and the psychological health of these patients must be monitored regularly (Petkova, Kamusheva, Manova, Savova, & Andreevska 2018).

In a group volume of study it was observed that PCOS women are affected from diabetes mellitus (DM_2), dislipedemia (decrease plasma triglycerides), metabolic abnormalities, cardiovascular risk factors and psychological problems like emotional distress, depression, anxiety, and hyper tension (Apridonidze et.al., 2005; Dunaif, 1995; Ehrmann et.al.,1999; Legor et.al.,1999; Reaven, 1988, 1991; Carmina, 2003; Azziz, 2004; Chang, 2004; Elsenbruch et. al.,2006; Barber et.al., 2006; Dunaif, 1997; Adali, 2008; Nanda,2017; Nanda & Mondal, 2013; Zangench et. al., 2012; Cinar et.al., 2011).

PCOS females are affected from decrease quality of life that influence their feminine identity (Kitzinger& Willmott, 2002). They also are affected from sexual dissatisfaction and they lose their feminine character (smooth hair loss bodies and faces, regular menstruation and the capacities to bear children). Therefore, they avoid greater society and always face a confusion of their gender identity. Kitzinger & Willmott (2002). Keegan et. al., (2003) and Nanda (2017) established that PCOS is a deeply stigmatizing condition, “a theft of womanhood”. Several studies have shown a correlation between hirsutism and depression (Dixon et. al., 2003; Adali et. al., 2008; Wiener et. al., 2004; Eggers & Kirchengast, 2001).

Girls and women affected from PCOS come to know that they will not be able to receive a child which causes depression of both the groups. Weight difficulties have also been identified as the most distressing symptoms in adolescence and young women with PCOS (Barnerd et. al., 2007; Oddens et. al., 1999).

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CHAPTER- II

REVIEW OF RELATED LITERATURES

2.1 INTRODUCTION:

A review of related literatures is a customary component of any thesis. The chapter on review of related literature "looks again" at the literature (the reports of what have others done) in a "related" area. It is the effective evaluation of selected documents on a research topic. A review may form an essential part of the research process or may constitute a research project in itself. It gives a detailed account of the literature available related to the selected topic of study.

It is a must for the successful completion of research. In this chapter the investigator has attempted to note down some points which are relevant to the study on previous literature and a theoretical overview of the study. The present investigation was an attempt to study depression, anxiety, and stress of women/girls with and without PCOS. The investigator viewed the studies, which one directly or indirectly related to the problem area and has presented them in an order. In this section, researcher made an elaborate attempt to review the available literature related to the present research area.

2.2 Many research works related to this present problem had done in India and also out of INDIA. For this study researcher reviewed all these available literature. These are ------

2.2.1 RELATED RESEARCH STUDIES FROM INDIA:

- **Chaudhari, A. P., Mazumdar, K., Mehta, P. D**. (2018) conducted the study entitled, "**Anxiety, Depression, and Quality of Life in Women with Polycystic Ovarian Syndrome**". The goals of the study were to prevalence of anxiety and depression among women suffering from PCOS and to determine if symptoms of PCOS were associated with psychiatric morbidity, and to determine the impact of psychiatric morbidity on the QOL. The samples of the study were 70 females in the reproductive age group (18–45 years) diagnosed with PCOS as per Rotterdam criteria and without any preexisting psychiatric illness. The data collection process about anxiety and depressive disorders were performed by clinical interview then rated according to the Hamilton scales. QOL of patients were assessed by using the World Health Organization-QOL-BREF. Binary logistic regression was performed to study the association of the symptoms with the psychiatric morbidity of cases. QOL scores of patients with and without psychiatric morbidity were compared using Mann–Whitney U-test. To statistically analysis of data IBM SPSS 20 Software were used. Seventy-five consecutive patients diagnosed with

PCOS at the Department of Gynaecology were referred for evaluation. Seventy patients consented to be enrolled in the study. Thus, a total of 70 females in the age group of 18–45 years were studied. The mean age of the sample was 27.65 ± 7.60 years. The prevalence scores of anxiety and depression in these samples were 38.6% and 25.7%, respectively. The study showed these major findings that… (a) Infertility and alopecia were associated with anxiety, while acne was associated with depression. (b) Hirsutism was associated with a lower psychological QOL. (c) Patients with psychiatric morbidity had a significantly lower QOL than those without.

- **Balaji, S., Amadi, C., Prasad, S., Kasav, J. B., Upadhyay, V., Singh, A. K., Surapaneni, K. M., and Joshi, A.** (2015) conducted the study, entitled, "**Urban Rural Comparisons of Polycystic Ovary Syndrome Burden among Adolescent Girls in a Hospital Setting in India**." The aim of this study was to determine the differences between urban and rural burden of polycystic ovarian syndrome among Indian adolescent females aged 12 to 19 years. It was a pilot cross-sectional study which was conducted for a period of one month (August-September 2013) at Balaji Hospital, Vellore, Tamil Nadu, and India. Sample of the study were 126 study participants located in various urban (50%), and rural (50%) settings. Socio demographic and anthropometric characteristics, clinical history, occurrence of acne and hirsutism, serum testosterone levels, obstetric history, family history of chronic diseases, menstrual history, physical activity, and dietary intake information of PCOS women were collected for this study. 18% of the whole participants were confirmed of having PCOS by recent guidelines of Rotterdam Consensus for adolescent diagnosis of PCOS (presence of all three elements). Major number of the sample with PCOS had mean age of 16 (SD = 2) years with an average age of menarche 12 years (SD = 1). In conclusion of the study the major finding was come out that those urban participants were attacked by PCOS more than rural participants.

- **L. Chitra Varanasi Asvini Subasinghe Yasmin L. Jayasinghe Emma T. Callegari Suzanne M. Garland Alexandra Gorelik John D. Wark** (2018) conducted the study, entitled, "**Polycystic ovarian syndrome: Prevalence and impact on the wellbeing of Australian women aged 16–29 years."** Goals of the study were to determine the prevalence of PCOS in Australian women aged 16–29 years by using the National Institutes of Health (NIH) criteria compared to self-reported PCOS, to compare co-morbidities between PCOS and Non-PCOS group, and to determine the most distressing aspect of a diagnosis of PCOS for these young women. Samples of the study were collected from the Young Female Health Initiative (YFHI) and Safe-D studies. Data were collected by using questionnaires, physical examinations, and blood tests from 2012 to 2016 by participants. To collect the data two supplementary questionnaires were distributed. The first one comprised of questions on reproductive health and impact of diagnosis. It was sent to participants who self-reported having PCOS in the original

studies. And the second questionnaire which was comprised of general reproductive health questions sent to the remainder. After data collection and analysis the result was that according to the NIH criteria the prevalence of PCOS and the prevalence of self-reported PCOS was [12% (31/254) vs 8% (23/300)], 35% (8/23) self –reported actually fulfilled the NIH criteria for PCOS. Comorbidities of two groups were relatively similar. Among the participants 65% (15/23) were unhappy or worried about their initial PCOS diagnosis, and 72% (13/18) participants stating that fertility concerns were the most distressing aspect of their diagnosis. From the results the study concluded that self –reported actually fulfilled the NIH criteria for PCOS.

- **Sharma, T. R.** (2015) conducted the study, entitled, "**Polycystic Ovarian Syndrome and Borderline Personality Disorder: 3 Case Reports and Scientific Review of Literature**." It was a qualitative research. Aim of the study was to determine three cases of PCOS with comorbid borderline personality disorder. The researcher reviewed available literatures related to the study and concluded that Polycystic Ovarian Syndrome associated with chronic anovulation, infertility, and hyperandrogenism, hirsutism, acne and male pattern alopecia, the sequelae of hyperandrogenism, and infertility as a result of ovulatory disturbance and impaired quality of life (QoL) of total participants.

- **Upadhaya, S. K., Sharma, A., Agarwal, A.** (2016) conducted the study entitled, "**Prevalence of Anxiety and Depression in Polycystic Ovarian Syndrome**." Objective of the study was to access prevalence of anxiety and depression in patients with PCOS. It was conducted in Obstetrics and Gynaecological Department of Tertiary Care Center. Hospital Anxiety Depression (HADs) scale was used for assessing PCOS patients and semi-structured questionnaire was used for gathered socio-demographic and clinical information. After analyzed the data it was observed that the prevalence of anxiety was 28% and depression was 11%. So this study showed that patients with PCOS have high prevalence of anxiety and depression.

- **Nanda, B. P and Mondal, S.** (2013) conducted the study, entitled, "**Increasing Risk of Anxiety and Depression in Women with Polycystic Ovary Syndrome.**" This study was conducted to estimate the prevalence of anxiety and depression disorders in women with PCOS compare with controls. It was a cross-sectional study. Total sample were 122 in which 61 have PCOS and other 61 were Non-PCOS. PCOS identified by Rotterdam Criteria. The data were collected by using Bengali Standardized Questionnaire assessing depression (Beck Depression Inventory- II) and anxiety (State Trait Anxiety Inventory).

The results of this study showed that depression and anxiety were higher and most common in PCOS women than women without PCOS.

- **Nanda, B. P.** (2017) conducted the study entitled, "**The Crisis of Womanhood: A study on The Health and Quality of Life of Women with Polycystic Ovary Syndrome**." Purpose of the study was to analyze the mental stress, anxiety, depression as well as health related quality of life, sexual satisfaction and sexual self worth of women with PCOS on the basis of different socio demographic features. 122 samples in which 61 were PCOS and other 61 were Non-PCOS women were recruited in this study. DASS-42 scale, Health-Related Quality of Life (HRQL), Sexual Satisfaction and Sexual self-worth Questionnaire developed by the researcher (2013) and Socio demographic characteristics of PCOS and Non-PCOS women (Age, Education, Marital- Status, Habit, Age of marriage etc.) were used to collect the data. The results of this study showed that----- (a) majority of women with PCOS exhibit psychological disorders, (b) large decrement of health related quality of life and sexual dissatisfaction in women with PCOS than without PCOS.

- **Manandhar, S., Upadhyay, N., Gautam, S., and Ghimir, S.** (2016) conducted the study entitled, "**Polycystic Ovary Syndrome: Psycho-Social, Reproductive And Metabolic Manifestations And Its Management."** This study was conducted to find out the psychosocial, metabolic, and reproductive manifestations of PCOS and how it could be managed, and to find out the effect of PCOS on menstruation along with the incidence of pregnancy loss. This prospective and clinical study was conducted at Infertility and Hormone Research Centre, Bijulibazaar, Kathmandu from July 2014 to November 2014. 130 women diagnosed with PCOS were selected by the inclusion criteria for the study, age range of 21 to 41 years. The mean BMI of the participants was found to be 24.2882 ± 3.2689 kg/m2. 92.3% of participants had high waist to hip ratio. From this study the results were comes out that among 122 women receiving fertility treatment, only 9.016% were pregnant.22.04% of women had a history of pregnancy loss, 8.5% of women had a family history of PCOS. In this study, 86.92% of the women had bilateral cyst. . Folic acid (89.65%), Metformin (82.75%), Clomiphene citrate (79.31%), Progestin (77.58%) were the most prescribed drugs for PCOS , 41.66% of women had regular menstruation after taking medications. 8.62% achieved pregnancy and 3.176% had their miscarriages. So the present study concluded that ---- (a) PCOS is highly associated with depression. Body image disorder, eating disorder, and sexual dysfunction. (b) PCOS can cause of pregnancy loss or miscarriages. (c) Some cases of PCOS managed by medication.

2.2.2 RESEARCH STUDIES FROM FOREIGN COUNTRIES:

- **Adali, E., Yildizhan, R., Kurdoglu, M., Kolusari, A., Edirne, T., Sahin, H. G., Yildizhan, B., & Kamaci, M.** (2008) conducted study entitled, "**The Relationship between Clinico-Biochemical Characteristics and Psychiatric Distress in Young Women with Polycystic Ovary Syndrome**". Purpose of the study was to find relation between clinico-biochemical characteristics of PCOS and psychiatric distress in young women with Polycystic Ovary Syndrome. In this study 42 PCOS women and 42 age matched healthy controls was examined. The General Health Questionnaire (GHQ-12) to ascertain emotional distress and the Beck Depression Inventory (BDI) to determine depressive symptoms were used to collect these data. Statistical analyses were performed by using SPSS version 10.0 (SPSS Inc., Chicago, IL, USA). Data were presented as mean+- SD or as percentages. The BDI and GHQ-12 scores of the women with PCOS were significantly higher than those non-PCOS women (BDI, 11.69+- 9.49 vs 5.80 +- 4.58; GHQ-12, 3.38+- 3.38 vs 1.54 +- 1.97, respectively) and BMI and WHR were positively correlated with the BDI and GHQ-12 scores. Results of this study conclude that clinic biochemical characteristics of PCOS occurs psychiatric distress.

- **Sayyah-Melli, M., Alizadeh, M., Pourafkary, N., Ouladsahebmadarek, E., Jafari-Shobeiri, M. et.al.** (2015), conducted study entitled "**Psychological Factors Associated with Polycystic Ovary Syndrome: a Case Control Study**." This study was conducted to determined psychological factors which were associated with Polycystic Ovary Syndrome. In this study 742 PCOS women were compared with 798 non-PCOS women. The data were collected by using Minesota Multiphasic Personality Inventory (MMPI) and Patient Health Questionnaire (DSM-iv) for diagnosed major psychological disorders and other depressive and anxiety syndromes. The suspected psychopathology was evaluated by a clinical psychiatrist. Statistical analyses were performed by using descriptive statistics for the variables of interest, a chi-squared test to compare categorical variables and the difference between means, an independent t-test to compare continuous variables, and Wilcoxon-Mann-Whitney-U test to rank the anxiety levels, depression scores, and other psychological disorder between groups. All these statistical work were done by using SPSS, version 13.0, for Windows. The result showed that there was significant difference between PCOS group and non-PCOS group, in education level (71.8% vs 80.4%), and employment status (60% vs 53%), chronic anxiety (35.7% vs 26.8%), depression (18.9% vs 7.9%), anxiety disorders (7.7% vs 3.3%) and personality disorders (2.9% vs 1.7%). Major finding of the study were----- (a) chronic anxiety and depression were higher in women with Polycystic Ovary Syndromes. (b) Lower education level and unemployment were higher in these PCOS women than controls.

- **Azziz. R., Carmina, E., Dewailly, D., Diamanti-Kandarakis, E., Escobar-Morreale, H. F., Futterweit, W., Janssen, O. E., Legro, R. S., Norman, R. J., & Taylor, A. E.** (2009),conducted the study entitled "**The Androgen Excess and PCOS Society Criteria for The Polycystic Ovary Syndrome: The Complete Task Force Report.**" This was a qualitative research. In this study researchers reviewed all available published Peer-Reviewed on PCOS and recommend a definition of PCOS. Data were collected by usinga consensus process via electronic communication and then reviewed and critiqued by the Androgen Excess and PCOS (AE-PCOS) society, AE-PCOS Board of Directors. After all member's satisfaction with the contents and minority portion all section were finalized. After reviewed all available data AE-PCOS Society Task Force drawn the conclusion that – should be defined by the presence of ----- (a) Hyperandrogenism (clinical and/or biochemical), (b) Ovarian dysfunction (oligo-anovulation and/or polycystic overies), (c) Alopecia, (d) Acne, (e) Hirsutism, and related other disorders.

- **Zangench, F. Z., Jafarabadi, M., Abedi-Nia, N., & Hagho Mahi, F.** (2012), conducted the study entitled "**Psychological Distress in Women with Polycystic Ovary Syndrome from Imam Khomeini Hospital, Tehran**." Purpose of the study was to identify the relation between psychological distress and PCOS. It was a descriptive-analytical study. In this study 81 women patients with PCOS were taken as sample from Valie-e-Asr Reproductive Health Research Center. Data were collected by using a questionnaire with items related to pieces of information about stress. Symptoms of stress were assessed by using the Understanding Yourself questionnaire. Data were analyzed by using SPSS, version 13.0. The data were presented as mean+- SD or as frequency with percentages and P-value less than 0.05 was considered as statistically significant. The result of this study showed that 8(9.9%) participants did not have any sign of stress, 32(39.5%) had neurotic stress, 29(35.8%) had high and 12(14.8%) had extremely high levels of stress. The odds of high levels of anxiety in women with hirsutism was 3.1 (95% CI, 1.00-9.59). The odds of high levels of obsession in overweight patients was 3.2 (95%, CI, 1.12- 9.234). The odds of high levels of worries in patients with touchy personality was 3.4 (95% CI, 1.10- 11.19) obsession score. So finally this study showed that psychological distress is most common in PCOS patients.

- **Benson, S., Hahn, S., Tan, S., Mann, K., Janssen, O. E., Schedlowski, M., & Elsenbruch, S.** (2009), conducted the study entitled, "**Prevalence and Implication of Anxiety in Polycystic Ovary Syndrome: Results of an Internet-Based Survey in Germany.**" Goal of the study was to address the prevalence, determined and implications of anxiety alone or anxiety in combination with depression in Germany women with Polycystic Ovary Syndrome. It was a nation-wide, internet based survey. Data were

collected by using HADS (Hospital Anxiety and Depression Scale), Quality of life (SF-12) and socio demographic information and clinical symptoms of PCOS. Total sample of this study were 448 women with PCOS. Results showed that 34% cases had clinically relevant HADS anxiety scores and 21% had clinically relevant HADS depression scores. Quality of life was significantly impaired in PCOS women with anxiety (P< 0.001), in women with comorbid anxiety and depression (P< 0.001). The risk of clinically relevant HADS anxiety scores was significantly enhanced in PCOS women with acne (odds ratio (OR)= 1.52; 95% confidence interval (CI) = 1.03-2.52) and an unfulfilled wish to conceive (OR=1.50; 95% CI =1.01- 2.23). This study showed that women with PCOS at an increased risk for clinically relevant anxiety, comorbid anxiety, and depression were most common in PCOS sample.

- **Farkas, J., Rigo, A., Demetrovics, Z**. (2013), conducted the study, entitled "**Psychological Aspects of The Polycystic Ovary Syndrome**". It was a qualitative type research. This study was conducted to find relation between this gynaecological disorder of endocrine origin and various psychological symptoms like depression, anxiety, body image dissatisfaction, eating and sexual disorders, and low life satisfaction. After reviewed related literatures authors viewed that the syndrome is significant from a therapeutic point of view and these psychological symptoms have high correlation with Polycystic Ovary Syndrome.

- **Scaruffi, Gambineri, Cattaneo, Turra, Vettor, Mioni** (2014) conducted the study entitled, "**Personality and Psychiatric Disorders in Women Affected by Polycystic Ovary Syndrome**". Aim of this study is to verify whether this hyperandrogenic characterizes a strong psycho (patho) logical personality. In this study 60 PCOS women and 40 healthy and aged compared women were selected as sample. PCOS sample were evaluated by anthropometric, metabolic, hormonal, clinical, and psychological parameters. The Rorschach test, Exner's comprehensive system (CS) and the Millon Clinical Multiaxial Inventory-III (MCMI) were administered to each PCOS patients and in other side the Rorschach test according to CS was administered to collect the data. The result of this study showed that MCMI-III evidenced axis II DSM-IV personality disorders [4.1% schizoid, depressive, sadistic, negativistic (passive-aggressive), and monastic, 6.1% avoiding, 12.2% dependent, 20.4% histrionic,16.3% narcissistic, 2.0% obsessive-compulsive], and according to axis I DSM-IV psychiatric disorders: 10.2% anxiety, 2.0% somatoform disorder and bipolar disorder, 16.3% major depressive disorder. 44.9% delusional disorder and 4.1% thought disorder, Rorschach test's result showed 53.1% reduced coping abilities and social skills, 55.1% depression, 30.6% perceptual distortion and cognitive slippage, 24.5% constantly alert and worry, 8.1% at risk for suicide, and 50% of patients had chronic stress. So the major finding of the study

was women with PCOS have more relevant personality and psychiatric disorder than normal samples.

- **Conway,G., Dewailly, D., Diamanti-Kandarakis, E., Escobar- Morreale, H.F., Franks, S., Gambineri, A., Kelestimur, F., Macut, S., Micic, D., Pasquali, R., Pfeifer, M., Pignatelli,D., Pugeat, M., Yildiz, B. O.** (2014), on behalf of the ESE PCOS Special Interest Group conducted the study entitled, "**The polycystic ovary syndrome: a position statement from the European Society of Endocrinology**". Purpose of the study was to define PCOS and to determine all major factors related to it. This is a qualitative research. Researchers reviewed related research papers and then established the definition of PCOS and summaries all major aspects related to a etiological factors, including early life events, potentially involved in the development of the disorder. Diagnostic tools of PCOS are also discussed, with emphasis on the laboratory evaluation of androgens and other potential biomarkers of ovarian and metabolic dysfunctions. This study also paid specific attention to the role of obesity, sleep disorders, and neuropsychological aspects of PCOS and on the relevant pathogenetic aspects of cardiovascular risk factors. In addition, this paper has also discussed about treatment choices based according to the phenotype and individual patient's needs. Finally, the study suggested potential areas of translational and clinical research for the future with specific emphasis on hormonal and metabolic aspects of PCOS.

- **Petkova, V., Kamusheva, M., Manova, M., Savova, A., Andreevska, K** (2018) conducted the study entitled, "**Polycystic ovary syndrome impact on women's quality of life: pilot study.**" The aim of this study was to assess the impact of Polycystic Ovary Syndrome (PCOS) on Bulgarian patients' QoL through a Polycystic Ovary Syndrome Questionnaire (PCOSQ). It was a pilot study. In this study data were collected via PCOSQ. 24 women agd 15-35 from Sofia , Bulgaria were taken as sample in this study. Data were collected by PCOQS. The PCOSQ scale was translated into Bulgarian and standardized by forward translation, backward translation, and a pre-test. In this study the mean age of the sample was 25.6 ± 6.4 (range 15-35). Results from the study found that women with PCOS had a lower appraisal of their appearance because of their weight. The lowest and the highest results were obtained for their mental and emotional status (q.18-1.92 and q.7-4.42). The lowest results were obtained for the questions concerning their overweight-all the 5 questions were in the range of 3.25-3.58. The highest result (-4.42) was for "emotions". Mean level of QoL is 3.7 on a scale of 1 to 7. From the results of this study some major findings were comes out that—(a) Overweight is most common in PCOS women, (b) emotional disorders are associated with PCOS. (c) The management of PCOS is urgently needed and the psychological health of these patients must be monitored regularly.

- **Kosidou, K., Dalman, C., Widman, L., Arver, S., Lee, B.K., Magnusson, C., Gardner, R. M.** (2016) conducted the study entitled, "**Maternal polycystic ovary**

syndrome and the risk of autism spectrum disorders in the offspring: a population-based nationwide study in Sweden". This study was conducted to find out the relation between maternal polycystic ovary syndromes (PCOS) and the risk of ASD in the offspring. 4-17 aged children born in Sweden from 1984-2007 were the entire population of the study. 23 748 ASD cases and 208 796 controls, matched by birth month and year, sex and region of birth were taken as samples. All data were collected from linkages to national registers held by Statistics Sweden and the National Board of Health and Welfare. The registers routinely collected health and socio demographic data on the entire population of Sweden. Analyses were performed using SPSS, version 20 (IBM, Armonk, NY, USA) and using R. version 3.1.2. Among mothers with PCOS, 1.3% were underweight, 41.2% normal weight, 31.7% overweight and 25.7% obese. Corresponding proportions among mothers without PCOS were 3.8, 67.7, 20.9 and 7.6%, respectively. In conclusion, the present study provides the evidence that children of mothers with PCOS have an increased risk of developing ASD, regardless of sex. The results of this study support that early life androgen exposure may be important for the development of autism in both sexes.

- **Teede, H., Deeks, A., Moran, L.** (2010) conducted the study entitled, "**Polycystic ovary syndrome: a complex condition with psychological, reproductive and metabolic manifestations that impacts on health across the lifespan**". The study conducted to find out the relation between PCOS and various psychological, reproductive, and metabolic problems across the life span. It was a qualitative research. In conclusion the study showed that PCOS is a common complex condition in women associated with psychological, reproductive, and metabolic features manifestations across the lifespan and represents a major health and economic burden. Insulin resistance occurs in the majority of women with PCOS, especially those who are overweight,

- **Dashti, S., Latiff, L. A., Hamid, H.A., Sani, S. M., Akhtari-Zavare, M., Bakar, A. S. A., Sabri, N. A. I. B., Ismail, M., Esfehani, A. Z.** (2016) conducted study entitled, **"Sexual Dysfunction in Patients with Polycystic Ovary Syndrome in Malaysia"**. The aim the study was to evaluate the frequency and predisposing factors of sexual dysfunction in PCOS patients. It was a cross-sectional study. 16 married women with a definite diagnosis of PCOS were the samples of the study. Sexual function of these samples was assessed in the domains of desire, arousal, lubrication, orgasm, satisfaction, and pain using the female sexual function index (FSFI) questionnaire. For mental health patients were also assessed by using the depression, anxiety, and stress (DASS-21) questionnaire. Hirsutism was assessed by using the Ferriman-Gallwey (FG) scoring system. By the person interview demographic data were obtained from patients. From the data it was found that 62.5% of patients had sexual dysfunction, with the domains of arousal and lubrication particularly affected (93.8% and 87.5%, respectively). Participants with symptoms of depression and anxiety were significantly more likely to suffer sexual dysfunction than those without these symptoms ($p=0.04$ and $p=0.03$ respectively). Patients with stress symptoms reported higher orgasm dysfunction than those without participants ($p=0.02$). No significant difference in any of the FSFI score domains was observed between patients with and without hirsutism. The study concluded

that --- (a) Patients with Polycystic Ovary Syndrome markebly suffer from sexual dysfunction and therefore it seems appropriate to be screened for intervention. (b) Poor mental health conditions that may be the result of infertility or other complications of PCOS also associated with sexual dysfunction in these patients.

- **Niet, J.E., Koning, de C.M., Pastoor, H., Duivenvoorden, H.J., Valkenburg, O., Ramakers, M.J., Passchier, J., Klerk, de C., Laven, J.S.E.** (2010) conducted the study, entitled, **"Psychological and sexarche in women with polycystic ovary syndrome."** The objective of this study was to evaluate the relation between PCOS characteristics and psychological well-being as well as sexarche. The study has taken 1148 women as sample with normogonadotropic anovulation (WHO II), who attended fertility clinic between 1991 and 2006, with oligoamenorrhoea or amenorrhea. The diagnosis of PCOS was established on the basis of the revised Rotterdam criteria (Rotterdam ESHRE, 2004). Psychological well-being was investigated in 480 patients with the Rosenberg self-esteem scale (RSES), the body cathexis scale (BCS) and the fear of negative appearance evaluation scale (FNAES). Sexarche was also assessed. The result of this study were amenorrhea was associated with lower self-esteem (P = 0.03), greater fear of negative appearance evaluation (P = 0.01) and earlier sexarche (P= 0.004). Hyperandrogenism and acne were associated with poorer body satisfaction (P = 0.03, 0.02, respectively). Hirsutism and BMI were negatively associated with all psychological variables (RSES, P = 0.01; BCS, P = 0.05; FNAES, P = 0.02 and RSES, P = 0.03; BCS, P = 0.001; FNAES, P = 0.03, respectively). In conclusion the results of this study suggest that menstrual irregularities might be related to sexarche, and this study also stresses that at the time of treatment of women with PCOS doctors should focus on psychological and sexual characteristics as well as physical.

- **Sulaiman, M. A., Al-Farsi, Y. M., Al-Khaduri, M. M., Waly, M. I., Saleh, J., and Al-Adawi, S.** (2017) conducted the study entitled, **"Psychological burden among women with polycystic ovarian syndrome in Oman: a case–control study."** Aims of the study were to compare socio demographic and clinical characteristics of women with PCOS diagnosed with non-PCOS women and prevalence of severity of depression, anxiety, and stress and to explore the association between PCOS and indices of psychological disturbances after adjusting for potential confounding factors. It was a hospital-based case–control study which conducted among women aged 16–49 years. 52 women were selected diagnosed with PCOS (as per Rotterdam 2003 criteria) and 60 controls who were PCOS-free. Controls were randomly selected from eligible outpatients at the OBGYN Outpatient Clinic the psychological burdens – depression, anxiety, and stress – were quantified by using Depression, Anxiety, and Stress Scale-21 (DASS-21). The crude odds ratios (ORs) generated by logistic regression models indicated an increased risk of depression, anxiety and stress among women with PCOS compared to controls. The adjusted OR also indicated an increased risk of depression (OR =1.10; 95% confidence

interval [CI] 0.50, 2.43), anxiety (OR =1.09; 95% CI 0.47, 2.52) and stress (OR =1.45; 95% CI 0.68, 3.12). However, no statistical differences were observed along the three psychological distresses ($p>0.05$) between the two study groups. The results of the study showed that the presence of PCOS is associated with an increased risk of psychological burden.

- **Damone, A. L., Joham, A. E., Loxton. D., Earnest, A., Teede, H. J., and Moran, L. J.** (2018), conducted the study entitled, **"Depression, anxiety, and perceived stress in women with and without PCOS: a community-based study."** Aim of this study was to assess depression, anxiety and perceived stress in women with and without PCOS in a large community-based sample and to determine the role of stress in contributing to and find the relationship of Polycystic Ovary Syndrome with depression and anxiety. It was a cross-sectional longitudinal community based study in Australia of Women Health (ALWSH). 478 women with PCOS were compared with 8134 women without PCOS by a self-reported diagnosis of PCOS. Depression, anxiety, and perceived stress of samples were measured by using validated scales. For compare and differentiation between two groups researchers used $\chi 2$ and t tests. To determine the factors contributing to each outcome Univariable and multivariable regression were performed in this study. Women with PCOS reported higher prevalence of depression (27.3% v. 18.8%), anxiety symptoms (50% v. 39.2%), and greater score for perceived stress (1.01 ± 0.03 v. 0.88 ± 0.01). From the results of the study, conducted research study concluded these major findings were------- (a) women with PCOS have increased depression, anxiety, and perceived stress. (b) Stress is highly associated with PCOS as well as depression and anxiety.

- **Stadnicka, G., Łepecka-Klusek, C., Kulesza-Brończyk, B., and Pilewska-Kozak, A. B.** (2015) conducted the study entitled, **"The quality of life of women suffering from polycystic ovary syndrome."** Aim of the study was to assess the relation between clinical symptoms of polycystic ovary syndrome (PCOS) and its effect on the quality of life of women, their activity, and their sexual lives. 78 women with PCOS were recruited as samples. To assess the quality of life The World Health Organization quality of life questionnaire (WHOQOL-Brief) and to assess their sexual activity and associated disorders the female sexual function questionnaire -28 (FSQ-28) were used in this study. From the results of the study major findings of the study were found that ---- (a) Women with obesity, hirsutism, showed lower quality of life than normal women, (b) women who had undergone treatment for 4–6 years experienced significantly worse quality of life than those who had undergone therapy for less than 3 or more than 6 years, (c) on the basis of various domains of sexual response there was a positive correlation ($p <0 .05$) between better quality of life and women's sexual activity.

- **Frène, V. De., Verhofstadt, L., Loeys, T., Stuyver, I., Buysse, A., and Sutter, P. De.**(2014) conducted the study, entitled, "**Sexual and relational satisfaction in couples where the women has polycystic ovary syndrome: a dyadic analysis**." Objective of the study was to found relation between PCOS and sexual and relational satisfaction of PCOS women and their partners. It was a cross-sectional study conducted from April 2007 till April 2009 at the Department of Reproductive Medicine of the Ghent University Hospital. 31 overweight women with PCOS between the ages of 18 and 43 years were recruited as sample having a committed relationship at the time of recruitment. Data were collected by using PCOS Questionnaire (PCOSQ) to assess Objective PCOS characteristics and PCOS-related concerns, Visual Analogue Scale (VAS) to assess acne, and the Maudsley Marital Questionnaire (MMQ) to assess Sexual and relational satisfaction of the PCOS women as well as their partners. Dyadic statistical analyses of this study were performed by using linear mixed models ($\alpha < 0.05$). From the results of this study major findings were concluded that ---- (a) both subjective and objective characteristics of PCOS were associated with the sexual and relational satisfaction of couples dealing with this chronic disease. (b) The influence of these characteristics on the level of satisfaction for PCOS women and their partners were not same for all cases was an important finding which should be kept in mind during the psychological guidance of couples dealing with PCOS.

- **Roessle, K. K., Glintbo, D., Ravn, P., Birkebaek, C., and Andersen, M** (2012) conducted the study entitled, **"Supportive relationships – Psychological effects of group counseling in women with polycystic ovary syndrome (PCOS).**" The present study was aimed to examine the psychological impact of a group-oriented approach to disease management and health behavior in women with polycystic ovary syndrome (PCOS). Total sample of the study were 17 overweight PCOS women. Sample were selected randomly in a crossover design of eight weeks high-intensity aerobic exercise followed by eight weeks of group counseling (n=8) or vice versa (n=9). Data were collected by observing theinterpersonal communication, emotional and relational aspects and analyzed throughout the period focusing on changes in health behavior. After analyzed the data major findings of the study concluded that ---- (a) individual and group relationship, and generating feedback from other participants were important for changes in behavior, (b) Group counseling sessions which focusing on supportive relationships followed by high-intensity aerobic training have beneficial effects on wellbeing, health and exercise behavior.

- **Katulski, K., Rojewska, P., Męczekalski, B.** (2012) conducted the study entitled, "**The influence of polycystic ovary syndrome on patient quality of life.**" It was a qualitative research.The research study was conducted to determine the symptoms PCOS causes mental problems such as depression and anxiety, and affects the quality of life (QoL) mostly and how patients report their self-esteem. Related available literatures were studied by researchers, and after that investigators found that there were many research on PCOS and its effect on psycho-social and quality of life in adolescent and young women. From reviewed literatures it was found that various clinical symptoms such as anovulation causes childlessness, hirsutism, acne, alopecia, obesity, creates

psychological problems like anxiety, depression, stress, and other personality disorders researchers also found interest in the study that how PCOS affects postmenopausal women.

- **Moghadam, Z.B., Fereidooni, B., Saffari, M., Montazeri, A**. (2018) conducted the study entitled, **"Measures of health-related quality of life in PCOS women: a systematic review**."Goals of this systematic review were to identify those general and specific instruments, and to determine the factors that affect HRQoL in women with Polycystic Ovary Syndrome. This research strategy included general and specific terms which were related to PCOS and Quality of Life of women with PCOS (QoL). In this study a review was performed on studies that were published between 1945 to 2017 and that were indexed in MEDLINE, ISI Web of Science, and Scopus. Total 52 studies were reviewed in which 9 were qualitative and 43 were quantitative. The analysis of this systematic review concluded that 3 specific and 5 general instruments included SF-36, PCOSQ were used to measure the QoL in PCOS women and these instruments measures the QoL from various aspects.

- **Joham, A. E., FRACP, Teede, H. J., Ranasinha, S., Zoungas, S., and Boyle, J.** (2014) conducted the study entitled, "**Prevalence of Infertility and Use of Fertility Treatment in Women with Polycystic Ovary Syndrome: Data from a Large Community-Based Cohort Study.**" Aim of this study was to compare infertility, fertility treatment use, and relationship to body mass index (BMI) in women with PCOS to women without PCOS in a community-based population. In this cross-sectional analysis of Australian Longitudinal Study on Women's Health (ALSWH) women from the general community were randomly selected from the national public insurance database and mailed survey data were collected at multiple time points. 9145 respondents aged 28–33 years were involved in this study. Out of 8612 women with known PCOS status, 478 women reported having PCOS; regarding fertility status information was available for 4856 women. Self-reported PCOS status, BMI, infertility, and use of fertility therapies including ovulation induction and in vitro fertilization (IVF) were measured. Factors associated with infertility and use of fertility treatment was examined by using Logistic regression. Prevalence of self-reported PCOS was 5.8% (95% confidence interval [CI]: 5.3%–6.4%). There was significant difference in infertility between PCOS and non-PCOS women (72% of 309 PCOS women vs16% of 4547 non-PCOS women $p < 0.001$). Infertility was 15-fold higher in women reporting PCOS (adjusted odds ratio 14.9, 95% CI 10.9–20.3), independent of BMI. Of women reporting infertility, there was greater use of fertility hormone treatment, (62%, $n = 116$ vs. 33%, $n = 162$, $p < 0.001$) in women reporting PCOS; however, IVF use was similar. This community based study concluded that infertility and use of fertility hormone treatment was significantly higher in women reporting PCOS.

- **Kumarapeli, V.L., Seneviratne, R. de. A., and Wijeyaratne, C.N.** (2010) conducted the study entitled, **"Health-related quality of life and psychological distress in polycystic ovary syndrome: a hidden facet in South Asian women**." This study was conducted to assess psychological distress and HRQoL among Sri Lankan women with PCOS. In this Case–control study at Gampaha District, Sri Lanka. 146 newly diagnosed

women with PCOS, according to the Rotterdam criteria, and 170 age-matched controls were recruited from community screening of 3030 eligible women between 15 and 39 years of age. World Health Organization Quality of Life questionnaire (WHOQOL-BREF), validated for Sri Lankans with PCOS and a 30-item General Health Questionnaire (GHQ30) were used to assess HRQoL and psychological distress, respectively in this study. There was a significant difference in mean GHQ score between PCOS and non-PCOS women (5.25 ± 6.25 SD vs1.58 ± 1.46 SD, P < 0.001). Hirsutism in PCOS (defined as a Ferriman–Gallwey, FG, score ‡ 8) was significantly associated with psychological distress (P = 0.002). Multivariate analysis revealed the FG score as a significant predictor of psychological distress (P < 0.05). From the Mean scores for the physical, psychological and social relationships domains of the WHOQOL-BREF were significantly lower (P = 0.01) in women with PCOS than in controls. In conclusion researchers showed that -------- (a) In South Asia PCOS occurred and adversely affects their psychological wellbeing and HRQoL. (b) Psychological distress is related to hirsutism rather than to obesity, which affects white Europeans with PCOS.

- **Shafti, V., Shahbazi, S.** (2016) conducted the study entitled, **"Comparing Sexual Function and Quality of Life in Polycystic Ovary Syndrome and Healthy Women**." Aim of this study was to compare of Quality of Life (QoL) and sexual wellbeing between women with and without PCOS. 129 PCOS and 125 healthy women were qualified by using convenient and Rotterdam criteria in this causal-comparative study. Both PCOS and controls group of this study responded to World Health Organisation Quality of Life (WHOQO) FSI BREF questionnaire. All data of the study were analyzed by SPSS using MANOVA. Results showed that except the environment domain PCOS women's quality of life from all aspects were significantly lower than healthy group ($p < 0.01$), but sexual function of these two groups were not significantly different ($p > 0.05$).

- **Malik-Aslam,A., Reaney, M. D., Speight, J.** (2010) conducted the study entitled, "**The Suitability of Polycystic Ovary Syndrome-Specific Questionnaires for Measuring the Impact of PCOS on Quality of Life in Clinical Trials.**" The aim of this review was to identify that PCOSQ measures the impact of PCOS on QoL and to establish that whether it support their use in clinical trials. In this review type research systematic search was conducted in which "PCOS" and "QoL" related terms and synonymes were used and their identification, measurement process, related questionnaire were also used to explore its use, development history, and demonstrated measurement properties for further research. Finlay from the result of searches it was come out that impact of PCOS on QoL can measure by PCOSQ.

- **Stefanaki, C., Bacopoulou, F., Livadas, S., Kandaraki, A., Karachalios, A. Chrousos, G. P., and Diamanti-Kandarakis, E.** (2015) conducted the study, entitled, "**Impact of a mindfulness stress management program on stress, anxiety,depression and quality of life in women with polycystic ovary syndrome:a randomized controlled trial**". Goals of this study were to assess the efficacy of the mindfulness stress management program on the depression, anxiety, stress, and health-related life quality levels and to

evaluate the impact of the placebo effect on the outcome measures. Twenty three and fifteen women with PCOS and non-PCOS respectively were selected to use this parallel, two-armed trial conducted at the Evgenideion Hospital of the Athens University Medical School. It was conducted to explore the impact of an 8-week mindfulness stress management program on measures of depression, anxiety, and stress as well as on the quality of life in reproductive age women with PCOS.DASS21, PSS-14, PCOSQ, Daily life, and General Life Satisfaction Questionnaires were used to collect data in this study. After this trial it comes out that mindfulness technique could play a great role in controlling stress, anxiety, and quality of life.

2.3 TABULATION OF REVIEW OF RELATED LITERATURES AND IT'S MAJOR FINDINGS:

REVIEW OF RELATED LITERATURES FROM INDIA

Title of Research	Name of the Researchers	Name of the Journal	Major Findings
Anxiety, Depression, and Quality of Life in Women with Polycystic Ovarian Syndrome	Chaudhari, A. P., Mazumdar, K., Mehta,& P. D.	Indian journal of psychological Medicine, 2018, May-Jun, 40(3), 239–246.	▪ Infertility and alopecia were associated with anxiety, while acne was associated with depression. ▪ Hirsutism was associated with a lower psychological QOL.
Urban Rural Comparisons of Polycystic Ovary Syndrome Burden among Adolescent Girls in a Hospital Setting in India	Balaji, S., Amadi, C., Prasad, S., Kasav, J. B., Upadhyay, V., Singh, A. K., Surapaneni, K. M., & Joshi, A.	BioMed Research International Volume, 2015, Article ID 158951, 10 pages.	▪ Urban participants were attacked by PCOS more than rural participants.
Polycystic ovarian syndrome: Prevalence and impact on the wellbeing of Australian women aged 16–29 years	Varanasi, L. C., Subasinghe, A., Yasmin L. Jayasinghe Emma T. Callegari Suzanne M. Garland Alexandra Gorelik John D. Wark	ANZJOG April 2018, Volume58, Issue2.	▪ Self –reported actually fulfilled the NIH criteria for PCOS.
Polycystic Ovarian Syndrome and Borderline Personality Disorder: 3 Case Reports and Scientific Review of Literature	Sharma, T. R.	Medical University of South Carolina Anderson, SC USA, October 31-2015.	▪ Polycystic Ovarian Syndrome associated with chronic anovulation, infertility, and hyperandrogenism, hirsutism, acne and male pattern alopecia, the sequelae of hyperandrogenism, and infertility as a result of ovulatory disturbance and impaired quality of life (QoL).

Prevalence of Anxiety and Depression in Polycystic Ovarian Syndrome	Upadhaya, S.K., Sharma, A., & Agarwal, A.	International Journal of Medical Science and Public Health Online,2016	▪ The prevalence of anxiety of 28% and depression 11% were observed. ▪ PCOS patient have high prevalence of anxiety and depression.
Increasing Risk of Anxiety and Depression in Women with Polycystic Ovary Syndrome	Nanda, B. P., & Mondal, S.,	Evolving Horizons, 2013 V-2.	▪ This cross sectional study shows that depression and anxiety is more common in PCOS compared with non-PCOS.
The Crisis of Womanhood: A Study on the Health and Quality of life of Women with Polycystic Ovary Syndrome	Nanda, B. P.	Evolving Horizons, 2017, V-6.	▪ The PCOS patient's health related quality of life decreased as well as their level of stress, anxiety, and depression. ▪ It is the theft of feminine norms.
Polycystic Ovary Syndrome: Psycho-social, reproductive, and metabolic manifestations and its management	Manandhar, S., Upadhyay, N., Gautam, S., & Ghimire, S.	World Journal of Pharmaceutical Research, 2016, vol-5, issue 4, 1167-1205.	▪ PCOS is highly associated with depression. Body image disorder, eating disorder, and sexual dysfunction. ▪ PCOS can cause of pregnancy loss or miscarriages. ▪ Some cases of PCOS managed by medication.

REVIEW OF RELATED LITERATURES FROM FOREIGN COUNTRIES

Title of Research	Name of Researcher	Publication in Journal	Major Findings
The Relationship between Clinico-Biochemical Characteristics and Psychiatric Distress in Young Women with Polycystic Ovary Syndrome	Adali, E., Yildizhan, R., Kurdoglu, M., Kolusari, A., Edirne, T., Sahin, H. G., Yildizhan, B., & Kamaci, M.	Journal of International Medical Research, 2008, 36, 1188-1196.	▪ Emotional distress and depression increased in women with PCOS, especially those who are obese.
Psychological Factors Associated with Polycystic Ovary Syndrome: a Case Control Study	Sayyah-Melli, M., Alizadeh, M., Pourafkary, N., Ouladsahebmadarek, E.,& Jafari-Shobeiri, M.	Journal of Caring Science, 2015, 4(3), 225-231.	▪ Chronic anxiety and depression were the most psychological pattern in PCOS. ▪ Lower education level and unemployment were higher in PCOS than non-PCOS.
The Androgen Excess and PCOS Society Criteria for The Polycystic Ovary Syndrome: The Complete Task Force Report	Azziz. R., Carmina, E., Dewailly, D., Diamanti-Kandarakis, E., Escobar-Morreale, H. F., Futterweit, W., Janssen, O. E., Legro, R. S., Norman, R. J., & Taylor, A. E.	Fertility and Sterility, 2009, 91(2), 456-488.	▪ Hyper androgenism, oligo-anovulation, and the exclusion of related disorders were strongly found in PCOS women. ▪ Hyperandrogenism (clinical and/or biochemical), (b) Ovarian dysfunction (oligo-anovulation and/or polycystic ovaries), (c) Alopecia, (d) Acne, (e) Hirsutism, and related other disorders.

Psychological Distress in Women with Polycystic Ovary Syndrome from Imam Khomeini Hospital, Tehran	Zangench, F. Z., Jafarabadi, M., Abedi-Nia, N., & Hagho Mahi, F.	Journal of Reproduction & Infertility, 2012, 13-2(51), 1-4.	▪ This study shows that PCOS women had extremely high level of distress.
Prevalence and Implication of Anxiety in Polycystic Ovary Syndrome: Results of an Internet Based Survey in Germany	Benson, S., Hahn, S., Tan, S., Mann, K., Janssen, O. E., Schedlowski, M., & Elsenbruch, S.	Human Reproduction, 2009, 24(6), 1446-1451.	▪ Quality of life was significantly impaired in PCOS, in particularly those with comorbid anxiety and depression. ▪ The risk for clinically relevant HADS anxiety scores was significantly enhanced in PCOS with acne.
Psychological Aspects of The Polycystic Ovary Syndrome	Farkas, J., Rigo, A.,& Demetrovics, Z.	Gynecological Endocrinology, 2013, 30(2).	▪ PCOS associated with great number of psychological symptoms-depression, anxiety, body image dysfunction, eating and sexual disorders, and low life satisfaction.
Personality and Psychiatric Disorders in Women Affected by Polycystic Ovary Syndrome	Scaruffi, Gambineri, Cattaneo, Turra, Vettor, Mioni	Frontiers in Endocrinology. https://doi.org/10.3389/fendo.2014.00185	▪ The major finding of the study was women with PCOS have more relevant personality and psychiatric disorder than normal samples.

The polycystic ovary syndrome: a position statement from the European Society of Endocrinology	Conway, G., Dewailly, D., Diamanti-Kandarakis, E., Escobar- Morreale, H. F., Franks, S., Gambineri, A., Kelestimur, F., Macut, S., Micic, D., Pasquali, R., Pfeifer, M., Pignatelli, D., Pugeat, M., & Yildiz, B. O.	European Journal of Endocrinology, (2014) 171, P1–P29.	▪ Phenotypic heterogeneity, metabolic issues, specifically insulin resistance and obesity, glucose intolerance states, including type 2 ▪ Diabetes are major character of PCOS
Polycystic ovary syndrome impact on women's quality of ovary syndrome and life: pilot study	Petkova, V., Kamusheva, M., Manova, M., Savova, A., & Andreevska, K.	Biomedical Research 2018; 29 (13): 2885-2888.	▪ Overweight is most common in PCOS women, ▪ Emotional disorders are associated with PCOS. ▪ The management of PCOS is urgently needed and the psychological health of these patients must be monitored regularly.
Maternal polycystic the risk of autism spectrum disorders in the offspring: a population-based nationwide study in Sweden	Kosidou, K., Dalman, C., Widman, L., Arver, S., Lee, B.K., Magnusson, C., & Gardner, R. M.	Molecular Psychiatry (2016) 21, 1441–1448.	▪ PCOS and the risk of ASD in the offspring. ▪ The study found maternal diagnosis of PCOS increased the risk of ASD, even after adjusting for potential confounders. ▪ Obesity among women with PCOS appeared to further increase the risk of ASD in the offspring.

Polycystic ovary syndrome: a complex condition with psychological, reproductive and metabolic manifestations that impacts on health across the lifespan	Teede, H., Deeks, A., & Moran, L.	BMC Medicine, 2010, 8, 41.	▪ Hyperandrogenism, metabolic dysfunction, infertility, diabetes, cardiovascular risk are very common in PCOS.
Sexual Dysfunction in Patients with Polycystic Ovary Syndrome in Malaysia	Dashti, S., Latiff, L. A., Hamid, H.A., Sani, S. M., Akhtari-Zavare, M., Bakar, A. S. A., Sabri, N. A. I. B., Ismail, M., & Esfehani, A. Z.	Asian Pac J Cancer Prev**,** (2016**),** 17 (8), 3747-3751.	▪ Patients with Polycystic Ovary Syndrome markedly suffer from sexual dysfunction and therefore it seems appropriate to be screened for intervention. ▪ Poor mental health conditions that may be the result of infertility or other complications of PCOS also associated with sexual dysfunction in these patients. ▪ No significant difference in any of the FSFI score domains was observed between patients with and without hirsutism.

Psychological wellbeing and sexarche in women with polycystic ovary syndrome	Niet, J. E., Koning, de C. M., Pastoor, H., Duivenvoorden, H. J., Valkenburg, O., Ramakers, M. J., Passchier, J., Klerk, de C., & Laven, J.S.E.	Human Reproduction, Volume 25, Issue 6, June 2010, Pages 1497–1503.	▪ This study suggests that menstrual irregularities might be related to sexarche. ▪ Treatment of women with PCOS should notably focus on physical but also on psychological and sexual characteristics.
Psychological burden among women with polycystic ovarian syndrome in Oman: a case–control study	Sulaiman, M. A., Al-Farsi, Y. M., Al-Khaduri, M. M., Waly, M.I., Saleh, J., & Al-Adawi, S.	DOI https://doi.org/10.2147/IJWH.S145383 2017 Volume 2017:9 Pages 897—904.	▪ No statistical differences were observed along the three psychological distresses ($p>0.05$) between the two study groups. ▪ The results of the study showed that the presence of PCOS is associated with an increased risk of psychological burden.
Depression, anxiety, and perceived stress in women with and without PCOS: a community-based study	Damone, A. L., Joham, A. E., Loxton. D., Earnest, A., Teede, H. J.,& Moran, L. J.	Psychol Med, 2018, 1-11.	▪ Women with PCOS have increased depression, anxiety, and perceived stress. ▪ Stress is highly associated with PCOS as well as depression and anxiety.

The quality of life of women suffering from polycystic ovary syndrome.	Stadnicka, G., Łepecka-Klusek, C., Kulesza-Brończyk, B., & Pilewska-Kozak A. B.	Prog Health Sci 2015, Vol 5, No2.	▪ Women with obesity, hirsutism, showed lower quality of life than normal women, ▪ women who had undergone treatment for 4–6 years experienced significantly worse quality of life than those who had undergone therapy for less than 3 or more than 6 years, (c) on the basis of various domains of sexual response there was a positive correlation (p <0 .05) between better quality of life and women's sexual activity.
Sexual and relational satisfaction in couples where the women has polycystic ovary syndrome: a dyadic analysis	Frène, V. De., Verhofstadt, L., Loeys, T., Stuyver, I., Buysse, A., & Sutter, P. De.	Human Reproduction, 2015, 30(3), 625-631.	▪ Both subjective and objective characteristics of PCOS were associated with the sexual and relational satisfaction of couples dealing with this chronic disease. ▪ The influence of these characteristics on the level of satisfaction for PCOS women and their partners were not same for all cases was an important finding which should be kept in mind during the psychological

			guidance of couples dealing with PCOS.
Supportive relationships – Psychological effects of group counseling in women with polycystic ovary syndrome (PCOS)	Roessle, K. K., Glintbo, D., Ravn, P., Birkebaek, C., & Andersen, M.	Communication & Medicine, (2012), Volume 9(2), 125–131.	▪ individual and group relationship, and generating feedback from other participants were important for changes in behavior, ▪ Group counseling sessions which focusing on supportive relationships followed by high-intensity aerobic training have beneficial effects on wellbeing, health and exercise behavior.
The influence of polycystic ovary syndrome on patient quality of life.	Katulski, K., Rojewska, P., & Męczekalski, B.,	Archives of Perinatal Medicine, 2012, 18(3), 148-152.	▪ Various clinical symptoms such as anovulation causes childlessness, hirsutism, acne, alopecia, obesity, creates psychological problems like anxiety, depression, stress, and other personality disorders. ▪ And researchers also found interest in the study that how PCOS affects postmenopausal women.

Measures of health-related quality of life in PCOS women: a systematic review	Moghadam, Z. B., Fereidooni, B., Saffari, M., & Montazeri, A.	International Journal of Women's Health 2018, 10 397–408.	➢ 3 specific and 5 general instruments included SF-36, PCOSQ were used to measure the QoL in PCOS women and these instruments measures the QoL from various aspects.
Prevalence of Infertility and Use of Fertility Treatment in Women with Polycystic Ovary Syndrome: Data from a Large Community-Based Cohort Study	Joham, A. E., FRACP,1,2 Teede, H. J., Ranasinha, S., MEpid,1 Zoungas, S.,& Boyle, J.,	Journal Of Women's Health, 2015, Volume 00, Number 0.	▪ Infertility and use of fertility hormone treatment was significantly higher in women reporting PCOS
Health-related quality of life and psychological distress in polycystic ovary syndrome: a hidden facet in South Asian women	Kumarapeli, V. L., Seneviratne, R. de. A ., & Wijeyaratne, C. N.	BJOG, 2011, 118,319–328.	▪ In South Asia PCOS occurred and adversely affects their psychological wellbeing and HRQoL. ▪ Psychological distress is related to hirsutism rather than to obesity, which affects white Europeans with PCOS.

Comparing Sexual Function and Quality of Life in Polycystic Ovary Syndromeand Healthy Women	Shafti, V., & Shahbazi, S**.**	Journal of Family and Reproductive Health, 2016, Vol. 10, No. 2, June.	▪ Quality of life of PCOS patients from various aspects of life were lower than healthy group
The Suitability of Polycystic Ovary Syndrome-Specific Questionnaires for Measuring the Impact of PCOS on Quality of Life in Clinical Trials	Malik-Aslam, A., Reaney, M. D., & Speight, J.	International Society for Pharmacoeconomics and Outcomes Research (ISPOR), 2010, 440–446.	▪ PCOSQ questionnaire helps to know the impact of PCOS on Quality of life (QoL).
Impact of a mindfulness stress management program on stress, anxiety, depression and quality of life in women with polycystic ovary syndrome: a randomized controlled trial	Stefanaki1, C., Bacopoulou, F., Livadas, S., Kandaraki, A., Karachalios, A., Chrousos, G. P., & Diamanti-Kandarakis, E.	The International Journal on Biology of Stress, 2015, 18(1), 57–66.	Mindfulness techniques actively worked in controlling **stress,** anxiety, depression and the quality of life in women with PCOS. Mindfulness method could be used as an adjunct method to the conventional management of these women.

2.4 RATIONAL OF THE STUDY:

After making a careful analysis of various related literature which was given in second chapter as "Review of Related literature" fallowing rational was undertaken to conduct the present study.

Previous research evident showed that PCOS influenced quality of life of women. As ----

According to Nanda (2017), Zangench et. al. (2012) polycystic ovary syndrome is a complex, multifactorial, heterogeneous disorder with psychological, reproductive, and metabolic manifestations affecting 4-18% of reproductive-aged women.

In some other studies it was noticed that PCOS affect 5-10% of women at fertile age and is a leading cause of infertility among women (Adali, Yild-izhan, Kurdoglu et.al., 2008; Oddens, den Tonkellar & Nieuwenhuyse, 1999; Schweiger & Ortmann, 2002).

According to Frank (2003) and Homburg (2003) PCOS is characterized by hyperandrogenism and chronic oligo-anovulation causing involuntary childlessness.

The PCOS women may be affected by lifelong emotional distress, anxiety, and depression (Nanda, 2017; Nanda & Mandol, 2013; Adali et.al., 2008; Elsenbruch, Benson, Tan, Mann, & Pleger, 2006; Esler, Travers, Guttikonda et. al., 2007; Rasgon, Rao, Hwang et.al., 2003; Greil, 1997; Guerra, Lobera & Barri, 1998; Oddens et. al., 1999).

According to Stein and Leventhal (1935), PCOS is characterized by enlarged ovaries, obesity, hirsutism and chronic anovulation. It also has a negative effect on individual's norms of femininity, causing a negative effect on individual's mental health and quality of life.

The cause of severe anxiety symptoms among the women with PCOS are menstrual disorders, infertility, excessive hair growth in the body, skin problems and obesity (Kitzinger & Willmott, 2002; Lipton et.al., 2006; Yazici, Baz & Yazici, 2004; Petry, Barry, Pietrzak & Wagner, 2008; Lechner, Bolman, van Dalen, 2007).

In the study of Benson, Hahn, Tan et.al.(2009), Markowitz, Friedman & Arent (2008), Roberts, Deleger, Strawbridge and Kaplan (2003) it was established that women's obesity or weight problems might increase depression in the normal population and the same is applicable to the women with PCOS.

In the study of Keegan et.al. (2003) even it was noticed that depression of women with PCOS is ssignificantly more than patients suffering from cancer.

According to Benson et.al. (2009) in one third (1/3) patients diagnosed with PCOS pauses clinically significant anxiety symptoms.

In several studies it was established that depression level of women with PCOS are above average compared with the control group (Rasgon, Rao, Hwang et.al., 2003; Keegan et.al., 2003; Elsenbruch, 2003).

According to Elsenbruch (2003) dissatisfactions with body image and greater body mass may also causes higher level of depression and anxiety among women with PCOS. Suicidal tendency is also higher among women with PCOS. They also pauses mental disorders and mood disorders.

From the above research studies it is clear that the girls/women affected by PCOS have a poor mental health as they are affected from severe anxiety, stress, and depression. Their quality of life and marital life is also severely affected.

The present investigator, therefore, become interested to study the depression, anxiety and stress of PCOS girls/women without PCOS who are in academic institutions.

2.5 STATEMENT OF THE PROBLEM:

Hence, in view of above research gaps and rational of the problem of the present study can be stated as “DEPRESSION ANXIETY AND STRESS IN WOMEN WITH AND WITHOUT PCOS”.

2.6 AIM OF THE STUDY:

The aim of this study was to assess and compare the depression, anxiety, and stress of women with and without PCOS.

2.7 OBJECTIVES OF THE STUDY:

- To compare the depression of women with and without PCOS.
- To study the depression of women with and without PCOS on the basis of certain demographic features.
- To compare the anxiety of women with and without PCOS.
- To study the anxiety of women with and without PCOS on the basis of certain demographic features.
- To compare the stress of women with and without PCOS.
- To study the stress of women with and without PCOS on the basis of certain demographic features.

2.8 OPERATIONAL DEFINITIONS:

In this research researcher used some major terms related to the problem. They are given bellow-----

2.8.1 PCOS:

PCOS-Polycystic Ovary Syndrome is a female related physical disorder affects women at fertile age. In this disease woman's ovaries fills by some or many cyst and crates dysfunction in regular menstruation cycle. For this endeometrtic walls of ovaries become heavy, which creates hyperandrogenism, anovulation, obesity, acne, alopecia, oligomenorrhea etc types of problem.

2.8.2 OLIGOMENORRHOEA :

It is dysfunction of regular menstruation cycle

2.8.3 HYPERANDROGENISM:

Hyperandrogenism is a condition in which male hormone i.e. testosterones increases in women body and female hormonesi.e.Estrogen decreases.

2.8.4 INSULIN RESISTANCE:

The imbalance of glucose in body.

2.8.5 TYPE-II DIABETES:

Longtime high glucose level in body and there is no way to cure.

2.8.6 OBESITY:

Excessive body weight as per height- hip- waist ratio.

2.8.7 ACNE:

Skin rashes, redness, and greasiness.

2.8.8 ALOPECIA:

Sportily hair-loss, male pattern balding.

2.9 DELIMITATIONS OF THE STUDY:

The study have some limitations, they are----------

- The data were collected by purposive sampling technique.
- Sufficient number of sample was not found as it is the case of gynaecological problems.
- The data were collected only from some schools (Dhamtore.B.B. Vidyabhaban, Debra Harimati School), colleges (Debra Thana S.K.S. Mahavidyalya, Pingla College, Sabang Sajanikanta Mahaidyalya) of Paschim Medinipur and Jaddavpur university, Kolkata.
- The data were analyzed by using only chi-square test.

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CHAPTER-III

RESEARCH METHODOLOGY

3.1 INTRODUCTION:

The present study was to look into the depression, anxiety, and stress in women/girls with and without polycystic ovary syndrome based on three domains namely depression in PCOS women, anxiety in PCOS women, and stress in PCOS women. For this descriptive survey method of research was used to conduct the present study. It was required to select a representative sample of women with PCOS and women without PCOS. The necessary tools for collecting data were selected. The relevant details of different aspects of the study were given as bellow.

3.2 RESEARCH DESIGN:

The study was conducted by using descriptive survey method.

3.3 POPULATION

Women with and without PCOS studying H.S, under graduate, post graduate, and higher level academic courses under various schools, colleges, and universities in West Bengal were conducted as population for the study.

3.4 SAMPLES

For collection of data the investigator selected 60 girls/women among which 30 have PCOS and 30 have no PCOS.. The PCOS women were identified and assessed by different gynaecologists and endocrinologists on the basis of using Rotterdam diagnostic criteria [requires two of, (a) anovulation; (b) clinical and/or biochemical signs of hyperandrogenism; (c) polycystic ovaries; and exclusion of other etiologies such as hypothyrodism, hypoprolactinemia, congenital adrenal hyperplasia, androgen-secreting tumours and Cushing's syndrome]. The specialist doctors identified and assess PCOS. The samples were selected by using purposive sampling technique. Both PCOS and Non- PCOS samples were from various parts of Pschim Medinipur, and Kolkata. At first investigator goes to women and talk about PCOS, after known those who had PCOS investigator convinced them to gave response to the questionnaire DASS-21 and to demographic data sheet. Women who gave proper responses to the questionnaire DASS-21 and to demographic data sheet investigator select them as sample.

Type of sample	Total Number of sample
Women with PCOS	30
Women without PCOS	30

3.5 VARIABLES:

3.5.1 DEPENDENT VARIABLES:

The following were the dependent variables of the study.

- Depression
- Anxiety
- Stress

3.5.2 INDEPENDENT VARIABLES:

The following were the independent variables of the study.

- Age
- Education
- Marital status
- Menstrual irregularity
- Menstrual pain
- Hypertension
- Flowing of bloods

3.6 METHOD OF THE STUDY:

The present study was a survey study. It was a survey type research because to assess the depression, anxiety, and stress of PCOS women and Non-PCOS women the researcher collect data from girl/woman student studying in various academic level. Researcher collect data from various schools (H.S level female student only), colleges, and universities in west Bengal using purposive sampling method, DASS-21, and related demographic data sheet (developed by researcher and her guide).

3.7 TOOLS

3.7.1 STRUCTURED DEMOGRAPHIC DATA SHEET:

It was developed by the present researcher to collect the demographic information from the respondents.

3.7.2 DASS-21 SCALE:

For collection of the data DASS-21 developed by Lovibond &Lovibond (2015) was used by the present researcher. The scale DASS-21 is a popular wide used scale. Here theletters of the named scale are---

D- Depression

A- Anxiety

S- Stress

S- Scale

The DASS-21 is a self-reported questionnaire designed to measure the severity of a range of symptoms of Depression, Anxiety, and Stress. The scale has 21 items in which 7 are for measure depression, 7 are for measure Anxiety, and 7 are for measure Stress. Each items has 3 options—

0- Means not applicable to me.
1- Means rarely applicable to me.
2- Means often/sometimes applicable to me.
3- Means always applicable to me.

In completing the DASS-21 questionnaire, the individual is required to indicate the presence of symptoms over the previous week. 0 indicate that did not apply to me at all over the last week and 3 indicate that applied to me very much or most of the time over the past week. Higher score means high level of depression, anxiety, stress, and lowered score denotes low level of depression, anxiety, and stress.

3.8 COLLECTION OF DATA:

Both PCOS and Non-PCOS sample were selected by purposive process. The data were collected by purposive sampling technique. The present investigator personally collect the data from some schools (Debra Harimati Saraswat Vidyamandir, Dhamtore B. B Vidyabhaban, Maratala Satyeswar Secondary and Higher Secondary Institution at Paschim Medinipur, Jadavpur Vidyapith at Kolkata), colleges (Debra Thana S.K.S Mahavidyalaya, Sabang Sajanikanta Mahavidyalaya, Pingla College at Paschim Medinipur; Jharagram Sebayatan college at Jharagram), and Jadavpur University at Kolkata. For collection of relevant data, the investigator download DASS-21 scale's Questionnaire, typed demographic datasheet, multiplied and supplied to each sample and collects the filled up questionnaire personally. She then cleaned and quantified each questionnaire and scored systematically and tabulated as much as possible.

3.9 DATA TABULATION AND ANALYSIS:

Data tabulation was done using Microsoft Excel 2007. And these data were analyzed using chi-square test. The findings and analysis of the study has been conducted in the next chapter-IV.

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CHAPTER –IV

RESULTS AND ANALYSIS

4.1 INTRODUCTION:

This chapter deals with the presentation, analysis, and interpretation of the collected data. It involves the use of statistical technique for the analysis of the obtained data. This chapter is the backbone of the total study. In any kind of study data analysis and interpretation plays a vital role on the basis of which the total research findings can be formulated. Hence without this portion the research work are always incomplete.

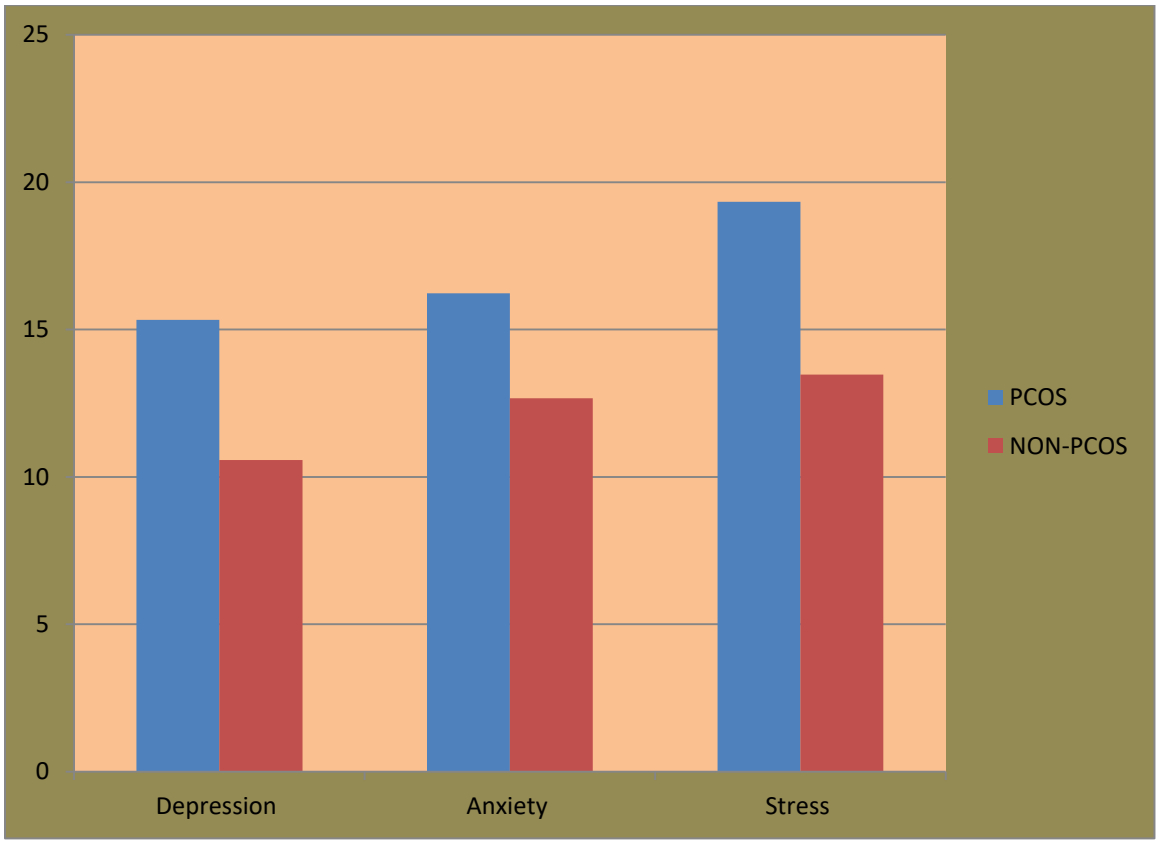
TABLE -4.2: showing depression, anxiety, and stress of women/girls with and without PCOS.

Women with PCOS				**Women without PCOS**		
	Total Score	Total No	Mean	Total Score	Total No	Mean
Depression	460	30	15.33	317	30	10.57
Anxiety	487	30	16.23	380	30	12.67
Stress	580	30	19.33	404	30	13.47

- From this table it was noticed that women with PCOS acquired more score in depression than without PCOS patients and the depression mean level is higher in PCOS patients than controls.
- PCOS patients acquired higher score in anxiety and their mean score is also higher than Non-PCOS.
- Stress score of PCOS women is more than controls group and the mean score of PCOS women is high than Non-PCOS.

  So, the result of this table showed that depression, anxiety, and stress level of women with PCOS was higher than women without PCOS.

4.2.1 GRAPHICAL PRSENTATION OF DEPRESSION, ANXIETY, AND STRESS LEVEL OF PCOS AND NON-PCOS .



4.3 ANALYSIS OF SCORES OF DEPRESSION LEVEL OF WOMEN /GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF DIFFERENT DEMOGRAPHIC FEATURES.

TABLE -4.3.1: Showing depression of women /girls with and without PCOS on the basis of age in years.

Women with PCOS								**Women without PCOS**					
		T.N	T.S	Mean	df	X2	Sign	T.N	T.S	Mean	df	X2	Sign
Age in years	17-24	14	178	12.71	2	35.55	Sig.at both	16	122	7.63	2	4.84	Not sig.at both
	25-32	11	187	17				7	105	15			
	33-40	5	95	19				7	90	12.86			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

The result of this table showed that ------

- Depression level of women with PCOS was more than women without PCOS in different age group.
- The result of chi-square test of PCOS women is significant at both 0.01 and 0.05 but in the case of Non-PCOS was not.
- In the case of PCOS women 33-40 years age group women showed more depression than other age group when 25-32 years age group women without PCOS showed more depression than other age groups.

4.3.1.1 GRAPHICAL PRSENTATION OF PCOS AND NON_PCOS WOMEN'S DEPRESSION LEVEL ON THE BASIS OF AGE.

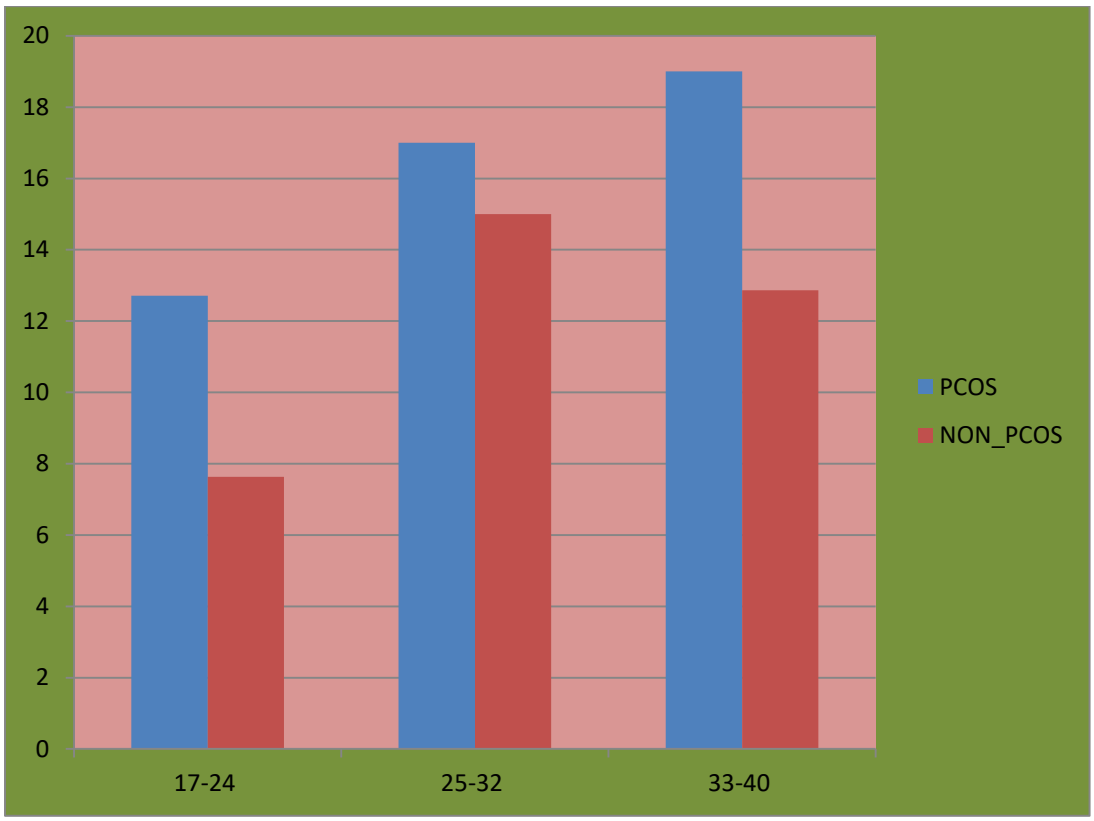


TABLE -4.3.2: Showing depression of women /girls with and without PCOS on the basis of Educational qualification.

Women with PCOS								Women without PCOS					
		T.N	T.S	Mean	df	X2	Sign	T.N	T.S	Mean	df	X2	Sign
Educational Qualification	H.S	5	36	7.2	3	87.14	Sig. at both	5	17	3.4	3	226.31	Sig.at both
	U.G	7	108	15.43				6	32	5.33			
	P.G	10	162	16.2				6	80	13.33			
	Higher studies	8	154	19.25				13	188	14.46			

Here the T.N indicates Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of Educational qualification result of the table showed that---

- Depression level of PCOS women was higher than the Non-PCOS group on the basis of different educational qualification level.
- In H.S level both PCOS and Non-PCOS women had less depression than other educational qualification group.
- Both PCOS and Non-PCOS women involved in higher studies had more depression than other educational qualification group.
- The result of chi-square test of both PCOS and Non-PCOS women were significant at both 0.01 and 0.05 level.
- The table also showed that depression level increased step by step on the basis of higher academic qualification.

4.3.2.1 GRAPHICAL REPRESENTATION DEPRESSION OF WOMEN /GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF EDUCATIONAL QUALIFICATION.

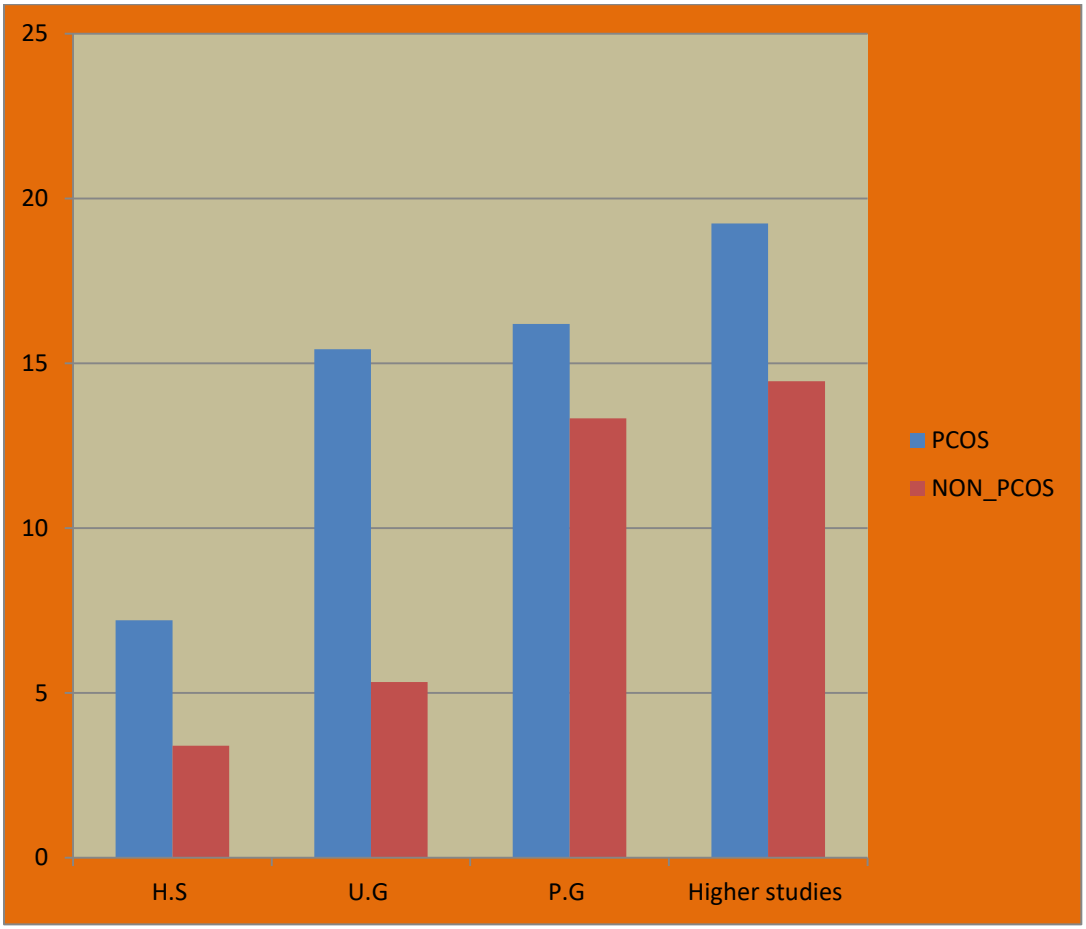


TABLE -4.3.3: Showing depression of women /girls with and without PCOS on the basis of Marital Status.

Women with PCOS								Women without PCOS					
		T.N	T.S	Mean	df	X2	Sign	T.N	T.S	Mean	df	X2	Sign
Marital Status.	Married	9	104	11.56	1	138.06	Sig.at both	9	76	8.44	1	85.88	Sig.at both
	Unmarried	21	356	16.95				21	241	11.48			

Here the T.N indicates Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of Marital Status result of the table showed that---

- A PCOS woman poses more depression than Non-PCOS on the basis of Marital Status.
- An unmarried PCOS woman poses more depression than married PCOS women.
- The total score and mean result of this table showed that both PCOS and Non-PCOS Unmarried women had more depression than married women.

4.3.3.1 GRAPHICAL REPRESENTATION OF DEPRESSION OF WOMEN /GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF MARITAL STATUS.

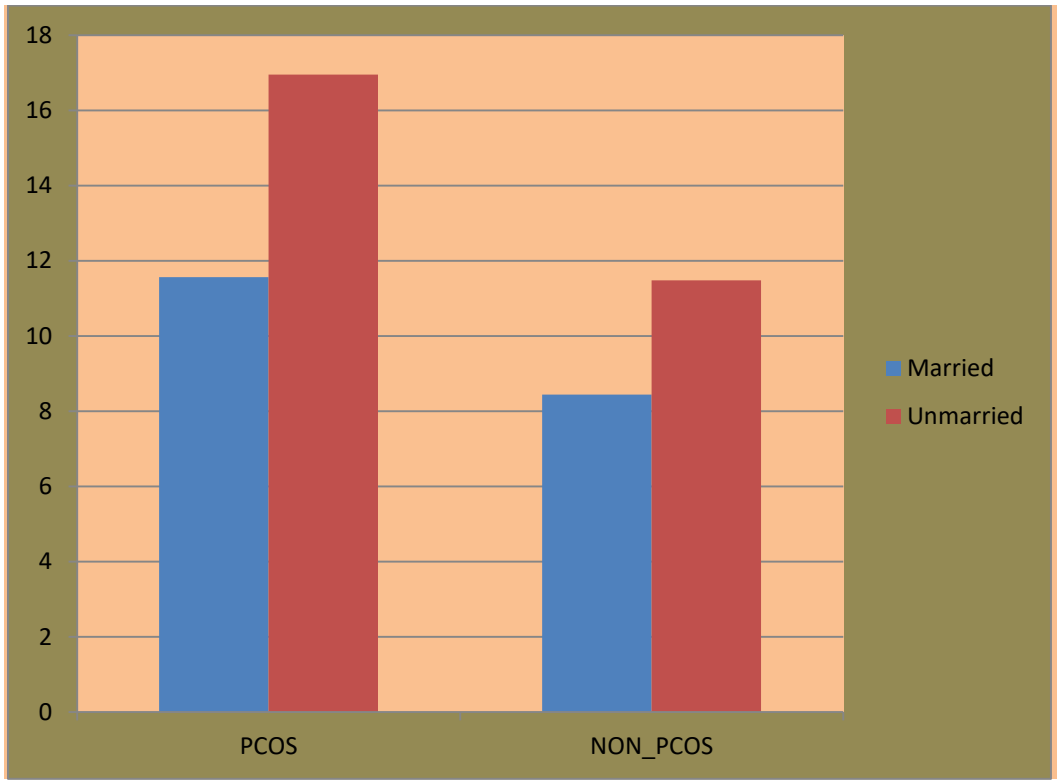


TABLE -4.3.4: Showing depression of women /girls with and without PCOS on the basis of Menstrual Regularity.

Women with PCOS								Women without PCOS					
		T.N	T.S	Mean	df	X2	Sign	T.N	T.S	Mean	df	X_2	Sign
Menstrual regularity	Regular	10	130	13	1	86.96	Sig.at both	27	271	10.04			
	Irregular	20	330	16.5				3	46	15.33			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of Menstrual Regularity result of the table showed that---

- Depression level of PCOS women was higher than the Non-PCOS group on the basis of Menstrual Regularity.
- The total score and mean result of this table showed that both PCOS and Non-PCOS women who had irregular menstruation cycle pauses more depression than those women who had regular menstruation cycle in every month.
- Due to sample number difference chi-square test was done only in the case of PCOS.

4.3.4.1: GRAPHICAL REPRESENTATION OF DEPRESSION OF WOMEN /GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF MENSTRUAL REGULARITY.

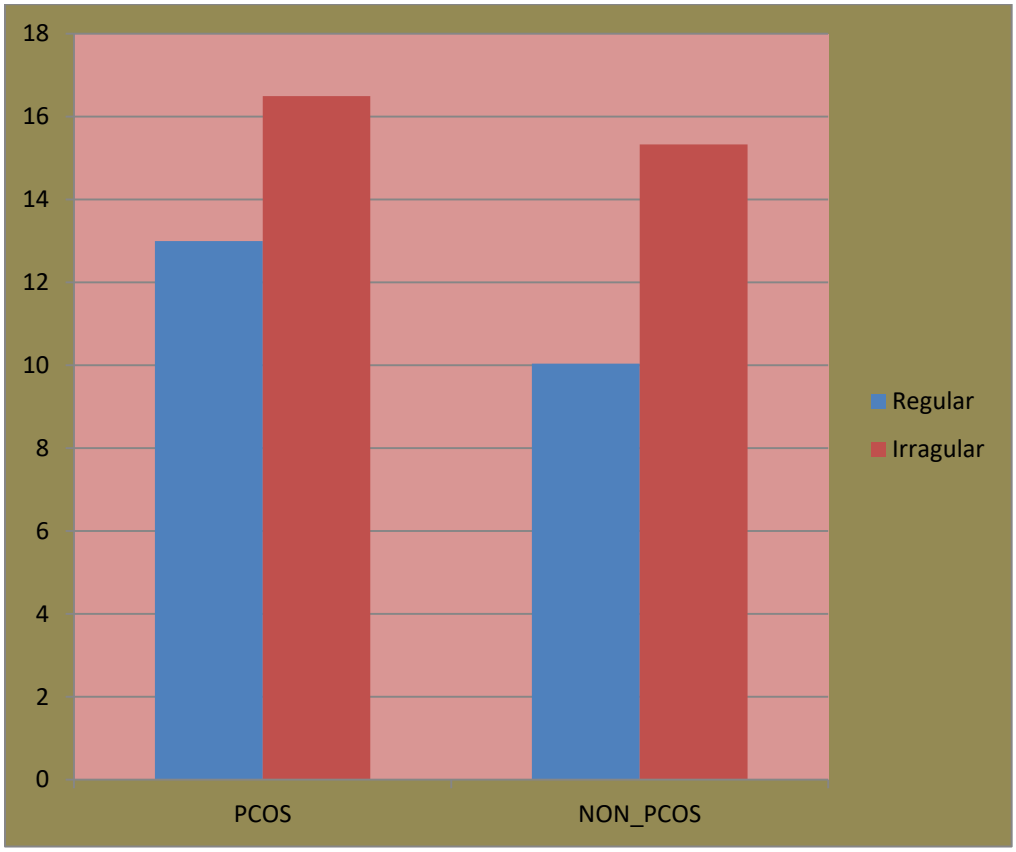


TABLE-4.3.5: Showing depression of women /girls with and without PCOS on the basis of Menstrual Pain.

Women with PCOS								Women without PCOS					
		T.N	T.S	Mean	df	X_2	Sign	T.N	T.S	Mean	df	X_2	Sign
Menstrual pain	Yes	20	324	16.2	1	76.84	Sig.at both	4	48	12			
	No	10	136	13.6				26	269	10.35			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of Menstrual Pain result of the table showed that---

- Depression level of PCOS women was higher than the Non-PCOS group on the basis of Menstrual Pain.
- The total score and mean result of this table showed that both PCOS and Non-PCOS women who had painful menstruation cycle poses more depression than those women who had regular menstruation cycle in every month.
- Due to sample number difference chi-square test was done only in the case of PCOS.

4.3.5.1: GRAPHICAL REPRESENTATION OF DEPRESSION OF WOMEN/GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF MENSTRUAL PAIN.

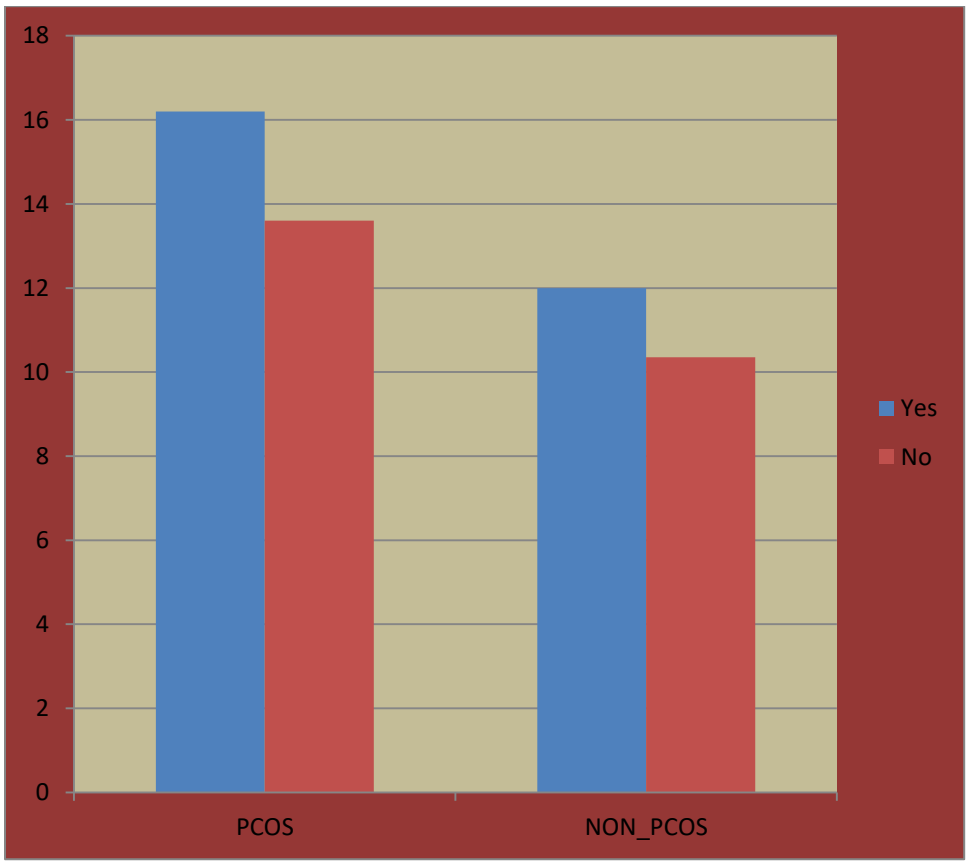


TABLE -4.3.6: Showing depression of women /girls with and without PCOS on the basis of Hyperten

Women with PCOS									Women without PCOS					
		T.N	T.S	Mean	df	X_2	Sign		T.N	T.S	Mean	df	X_2	Sign
Hper tension	Yes	18	294	16.33	1	35.62	Sig.at both	6	72		12	1	94.42	Sig.at both
	No	12	166	13.83				24	245		10.21			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of hypertension result of the table showed that---

- Depression level of PCOS women was higher than the Non-PCOS group on the basis of hypertension.
- The total score and mean result of this table showed that both PCOS and Non-PCOS women who had hypertension had more depression.
- Due to sample number difference chi-square test was done only in the case of PCOS.

4.3.6.1: GRAPHICAL REPRESENTATION OF DEPRESSION OF WOMEN/GIRLS WITH AND WITHOUT PCOS ON THE BASIS OFHYPER TENSION.

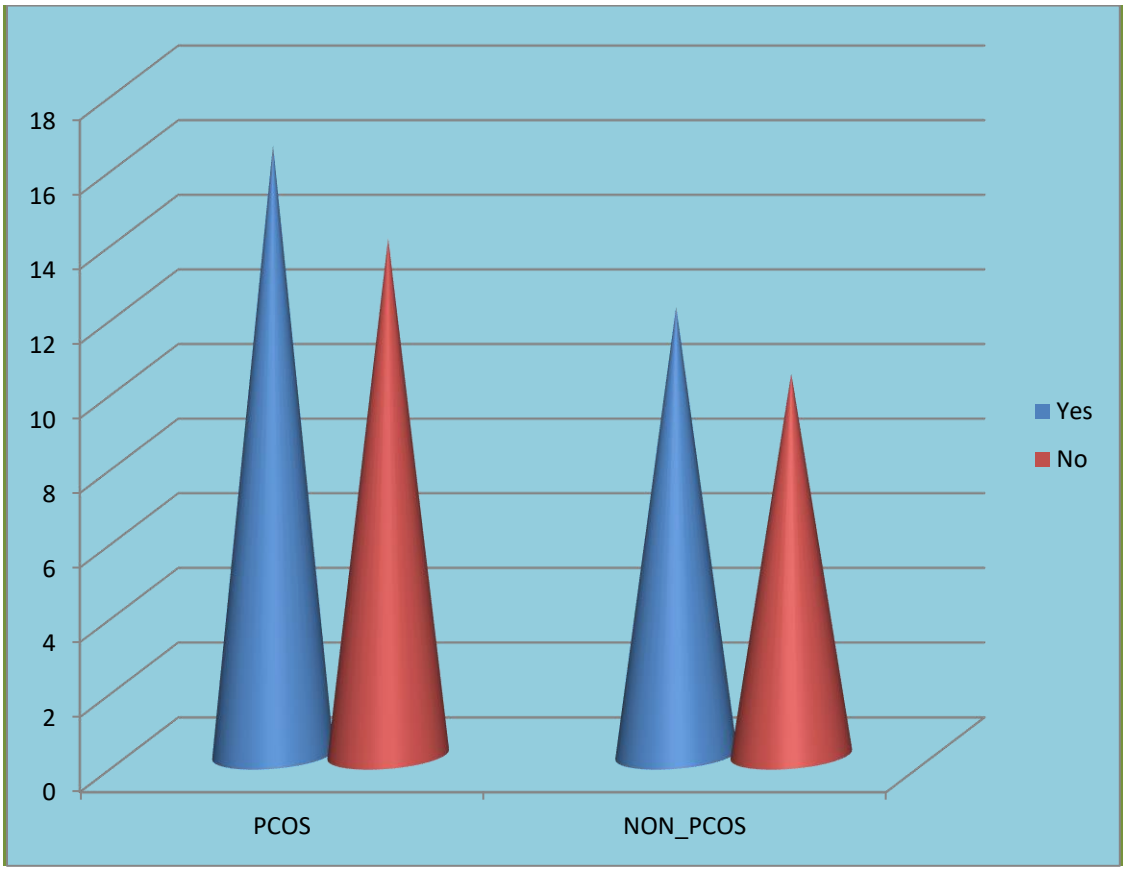


TABLE -4.3.7: Showing depression of women /girls with and without PCOS on the basis of Flowing of bloods.

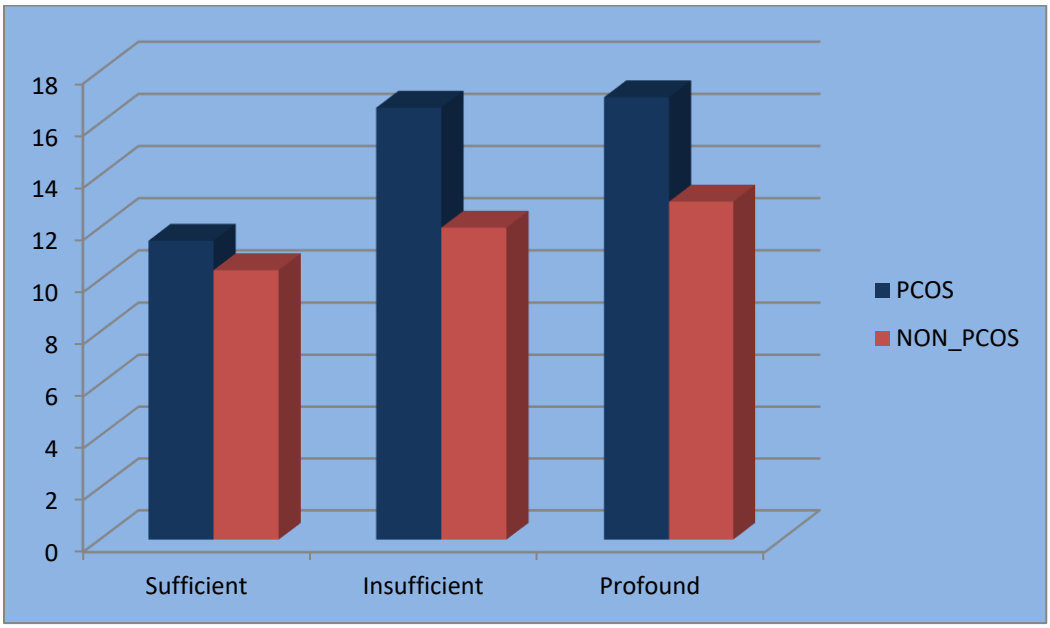
		Women with PCOS						Women without PCOS					
		T.N	T.S	Mean	df	X2	Sign	T.N	T.S	Mean	df	X2	Sign
Flowing of bloods	Sufficient	8	92	11.5	2	91.91	Sig.at both	27	280	10.37			
	Insufficient	15	249	16.6				2	24	12			
	Profound	7	119	17				1	13	13			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of result of the table showed that---

- Depression level of PCOS women was higher than the Non-PCOS group on the basis of flowing of bloods.
- The total score and mean result of this table showed that both PCOS and Non-PCOS women who had profound menstruation blood flow poses more depression.
- The result of chi-square test of both PCOS and Non-PCOS women were significant at both 0.01 and 0.05 level.
- The table also showed that depression level increased step by step on the basis of flowing of bloods.

4.3.7.1: GRAPHICAL REPRESENTATION OF DEPRESSION OF WOMEN/GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF FLOWING OF BLOODS.



4.4: ANALYSIS OF SCORES OF ANXIETY LEVEL OF WOMEN /GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF DIFFERENT DEMOGRAPHIC FEATURES.

TABLE -4.4.1: Showing anxiety of women /girls with and without PCOS on the basis of Age in Years.

Women with PCOS								Women without PCOS					
		T.N	T.S	Mean	df	X2	Sign	T.N	T.S	Mean	df	X2	Sign
Age in years	17-24	14	232	16.57	2	71.5	Sig.at both	16	234	14.63	2	137.7	Sig.at both
	25-32	11	174	15.82				7	82	11.71			
	33-40	5	81	16.2				7	64	9.14			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of result of the table showed that---

- Anxiety level of women with PCOS was more than women without PCOS in different age group.
- In the case of PCOS women 25-32 years age group women showed less anxiety than other age group when 33-40 years age group women without PCOS showed less anxiety than other age groups.
- Both PCOS and Non-PCOS women in age group of 17-24 showed more anxiety than other age group.
- The result of chi-square test of both PCOS and Non-PCOS women were significant at both 0.01 and 0.05 level.

4.4.1.1: GRAPHICAL REPRESENTATION OF ANXIETY OF WOMEN/GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF AGE.

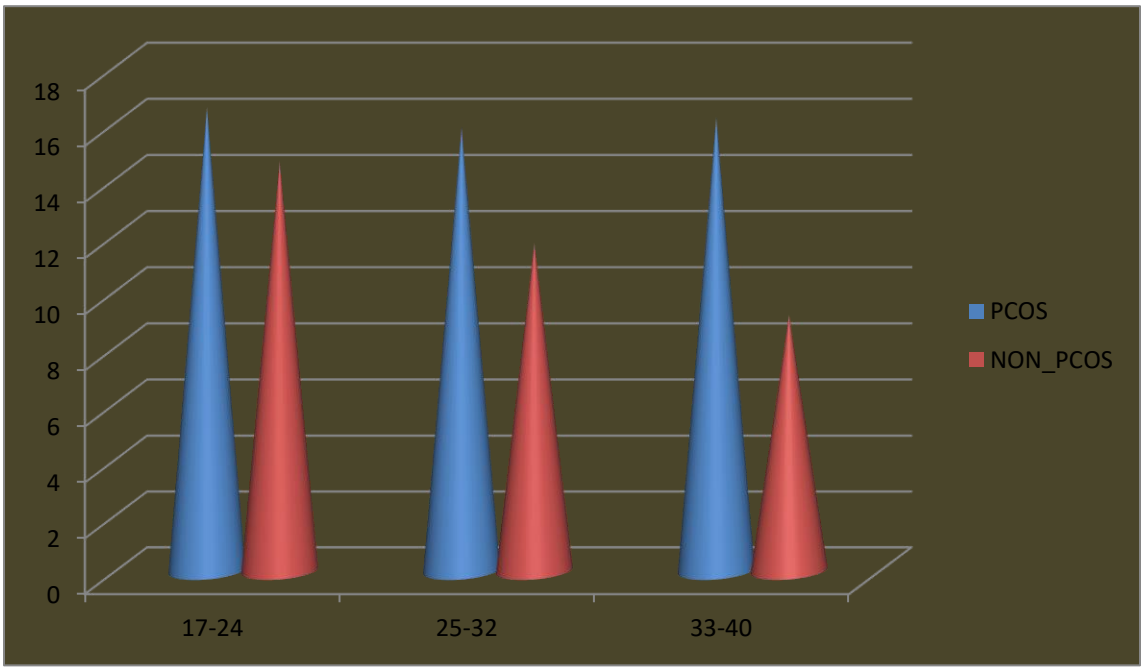


TABLE -4.4.2: Showing anxiety of women /girls with and without PCOS on the basis of Educational Qualification.

Women with PCOS								Women without PCOS					
		T.N	T.S	Mean	df	X_2	Sign	T.N	T.S	Mean	df	X_2	Sign
Educational qualification	H.S	5	57	11.4	3	59.07	Sig.at both	5	42	8.4	3	117.79	Sig.at both
	U.G	7	116	16.57				6	74	12.33			
	P.G	10	172	17.2				6	81	13.5			
	Higher studies	8	142	17.75				13	183	14.08			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of Education result of the table showed that---

- Anxiety level of PCOS women was higher than the Non-PCOS group on the basis of different educational qualification level.
- In H.S level both PCOS and Non-PCOS women had less anxiety than other education qualification group.
- Both PCOS and Non-PCOS women involved in higher studies had more anxiety than other education qualification group.
- The result of chi-square test of both PCOS and Non-PCOS women were significant at both 0.01 and 0.05 level.
- The table also showed that anxiety level increased step by step on the basis of higher academic qualification.

4.4.2.1: GRAPHICAL REPRESENTATION OF ANXIETY OF WOMEN/GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF EDUCATION.

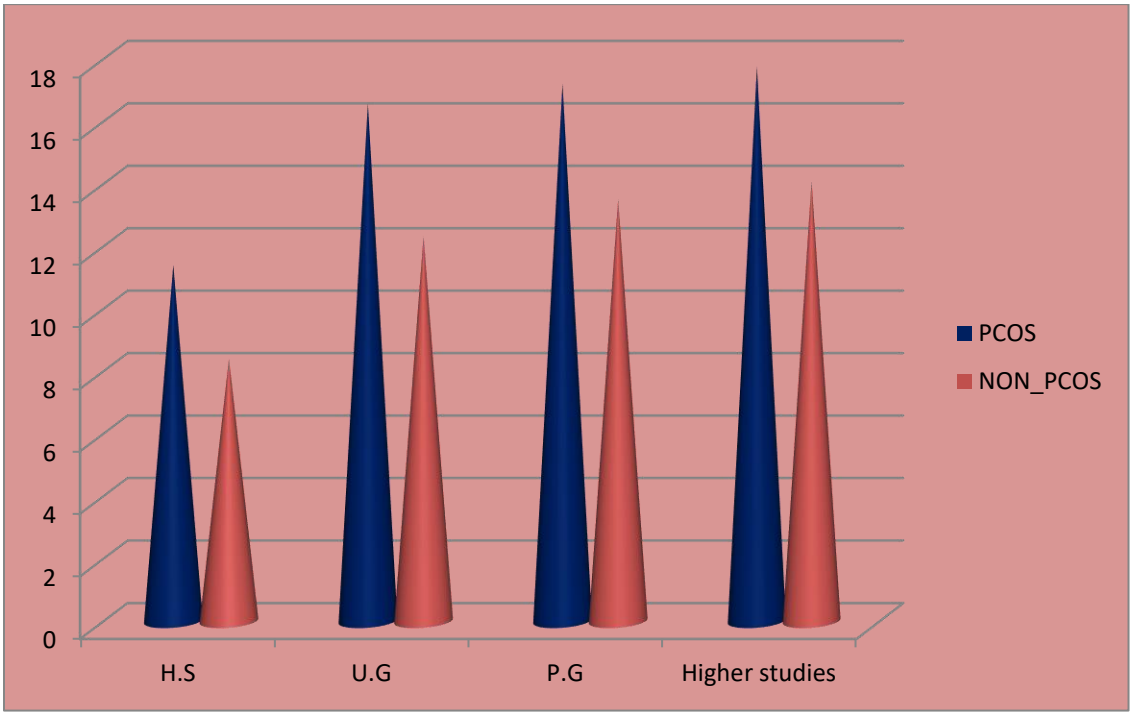


TABLE -4.4.3: Showing anxiety of women /girls with and without PCOS on the basis of Marital Status.

Women with PCOS								Women without PCOS					
		T.N	T.S	Mean	df	X_2	Sign	T.N	T.S	Mean	df	X_2	Sign
Marital status	Married	9	138	15.33	1	91.42	Sig.at both	9	90	10	1	105.26	Sig.at both
	Unmarried	21	349	16.62				21	290	13.81			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of marital status result of the table showed that---

- PCOS women possess more anxiety than Non-PCOS on the basis of marital status.
- Unmarried PCOS women possess more anxiety than married PCOS women.
- The total score and mean result of this table showed that both PCOS and Non-PCOS unmarried women had more anxiety than married women.

4.4.3.1: GRAPHICAL REPRESENTATION OF ANXIET YOF WOMEN/GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF MARITAL STATUS.

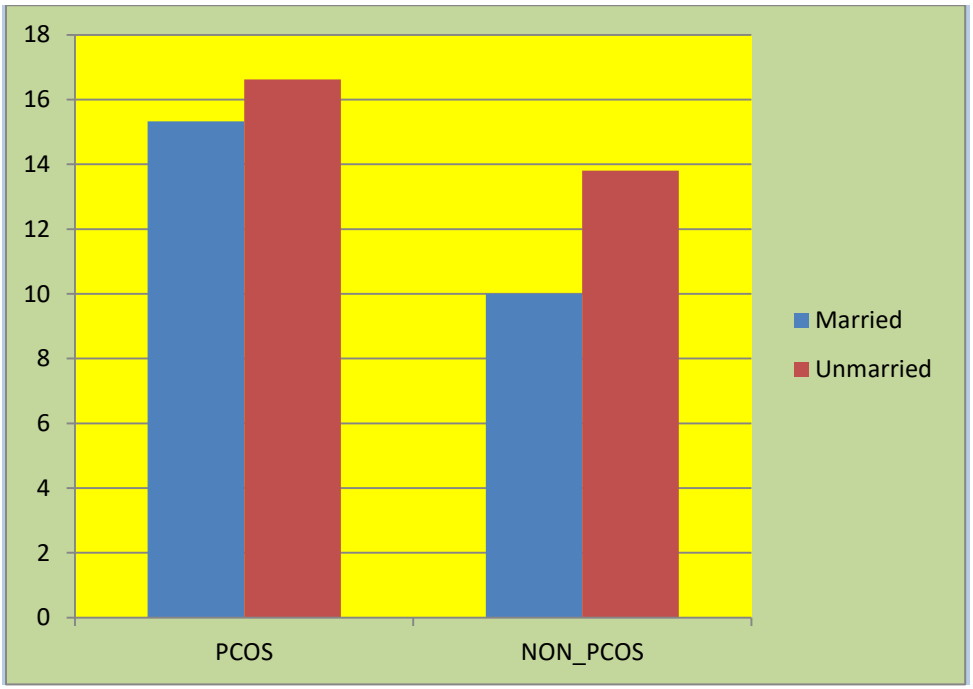


TABLE -4.4.4: Showing anxiety of women /girls with and without PCOS on the basis of Menstrual Regularity.

Women with PCOS								Women without PCOS					
		T.N	T.S	Mean	df	X2	Sign	T.N	T.S	Mean	df	X2	Sign
Menstrual regularity	Regular	10	150	15	1	71.80	Sig.at both	27	337	12.48			
	Irregular	20	337	16.85				3	43	14.33			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of menstrual regularity result of the table showed that---

- Anxiety level of PCOS women was higher than the Non-PCOS group on the basis of menstrual regularity.
- The total score and mean result of this table showed that both PCOS and Non-PCOS women who had irregular menstruation cycle posses more anxiety than those women who had regular menstruation cycle in every month.
- Due to sample number difference chi-square test was done only in the case of PCOS.

4.4.4.1: GRAPHICAL REPRESENTATION OF ANXIETY OF WOMEN/GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF MENSTRUATION REGULARITY.

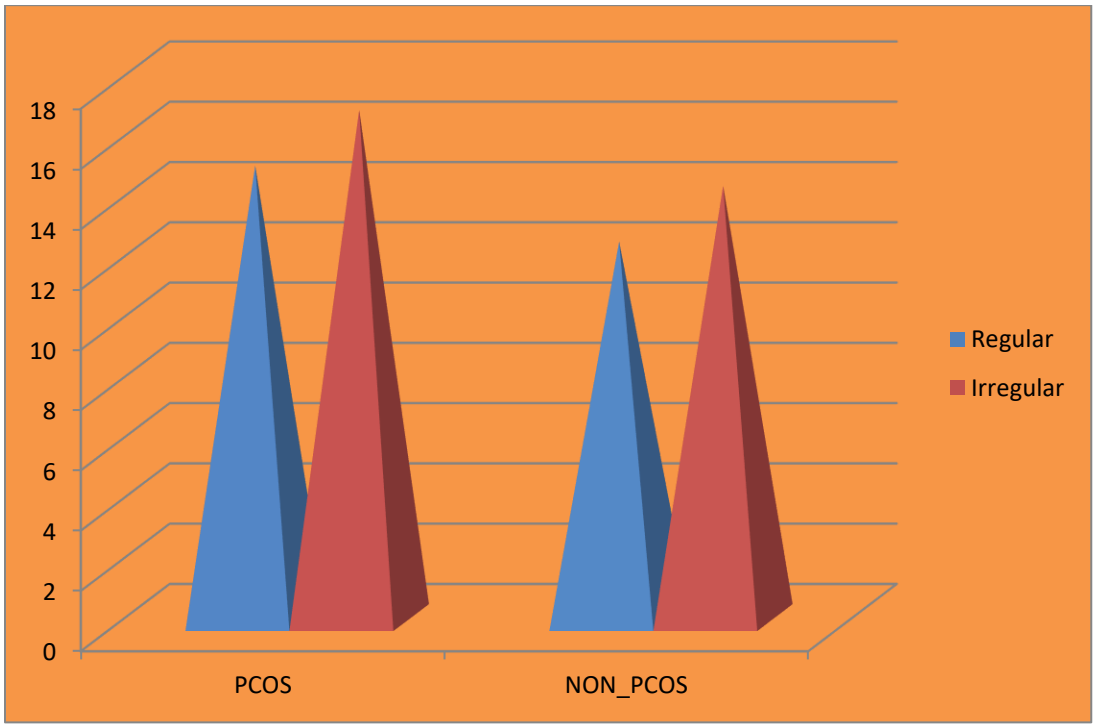


TABLE-4.4.5: Showing anxiety of women /girls with and without PCOS on the basis of Menstrual Pain.

Women with PCOS								Women without PCOS					
T.N			T.S	Mean	df	X_2	Sign	T.N	T.S	Mean	df	X_2	Sign
Menstrual pain	Yes	20	352	17.6	1	96.70	Sig.at both	4	52	13			
	No	10	135	13.5				26	328	12.62			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of menstrual pain result of the table showed that---

- Anxiety level of PCOS women was higher than the Non-PCOS group on the basis of menstrual pain.
- The total score and mean result of this table showed that both PCOS and Non-PCOS women who had painful menstruation cycle possess more anxiety than those women who had regular menstruation cycle in every month.
- Due to sample number difference chi-square test was done only in the case of PCOS.

4.4.5.1: GRAPHICAL REPRESENTATION OF ANXIETY OF WOMEN/GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF MENSTRUATION PAIN.

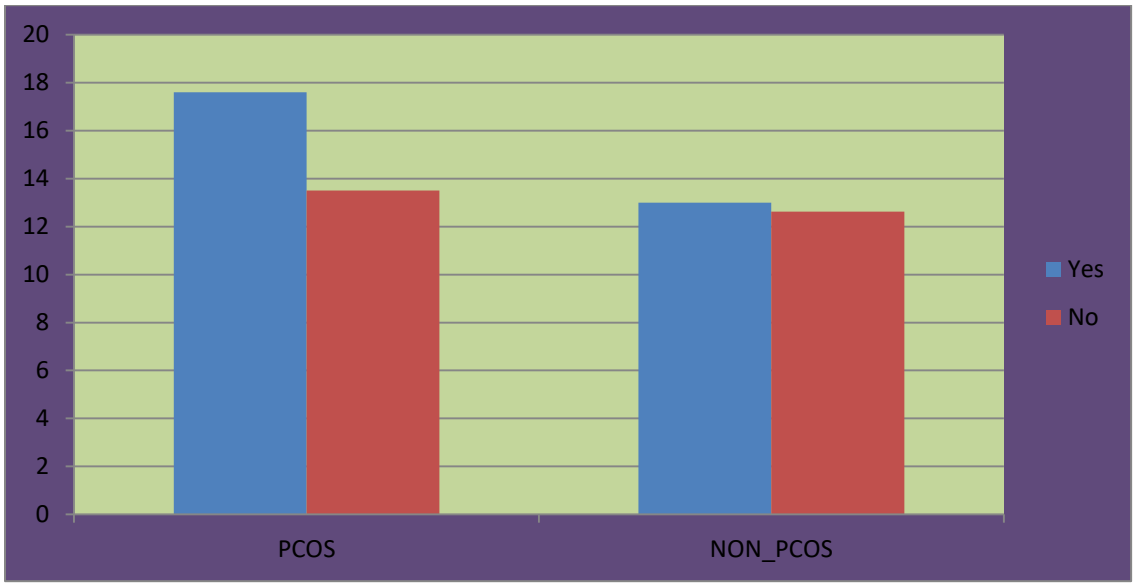


TABLE -4.4.6: Showing anxiety of women /girls with and without PCOS on the basis of Hyper Tension.

Women with PCOS								Women without PCOS					
		T.N	T.S	Mean	df	X_2	Sign	T.N	T.S	Mean	df	X_2	Sign
Hyper tension	Yes	18	322	17.89	1	50.62	Sig.at both	6	85	14.17	1	116.06	Sig.at both
	No	12	165	13.75				24	295	12.29			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of hyper tension result of the table showed that---

- Anxiety level of PCOS women was higher than the Non-PCOS group on the basis of hypertension.
- The total score and mean result of this table showed that both PCOS and Non-PCOS women who had hypertension had more anxiety than who had no hypertension.
- Due to sample number difference chi-square test was done only in the case of PCOS.

4.4.6.1: GRAPHICAL REPRESENTATION OF ANXIETY OF WOMEN/GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF HYPER TENSION.

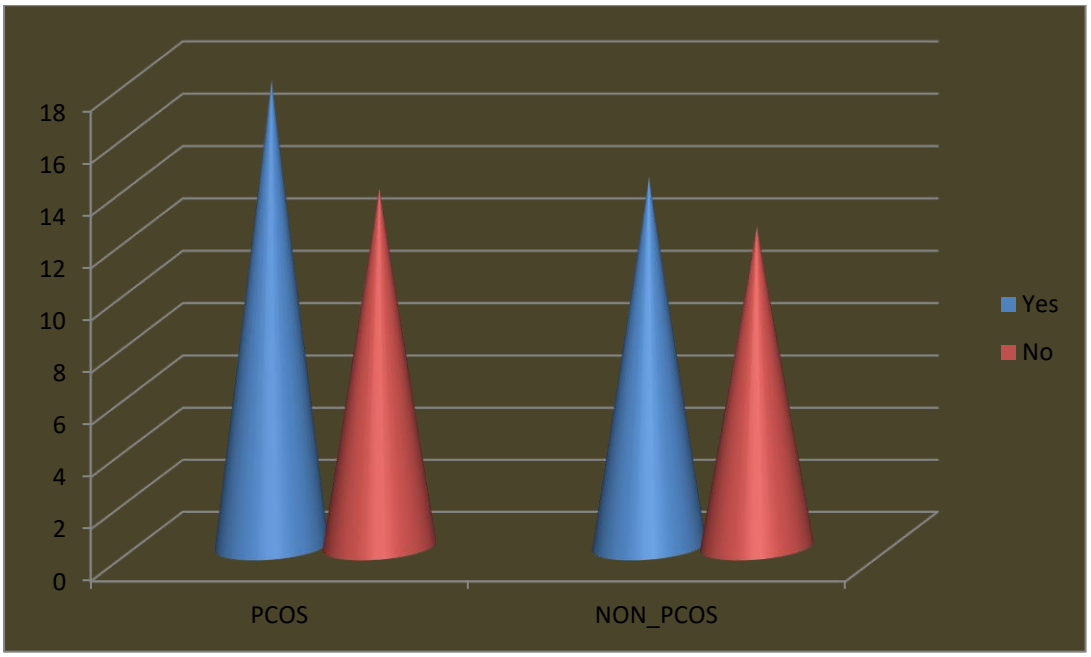


TABLE-4.4.7: Showing anxiety of women /girls with and without PCOS on the basis of Flowing of bloods.

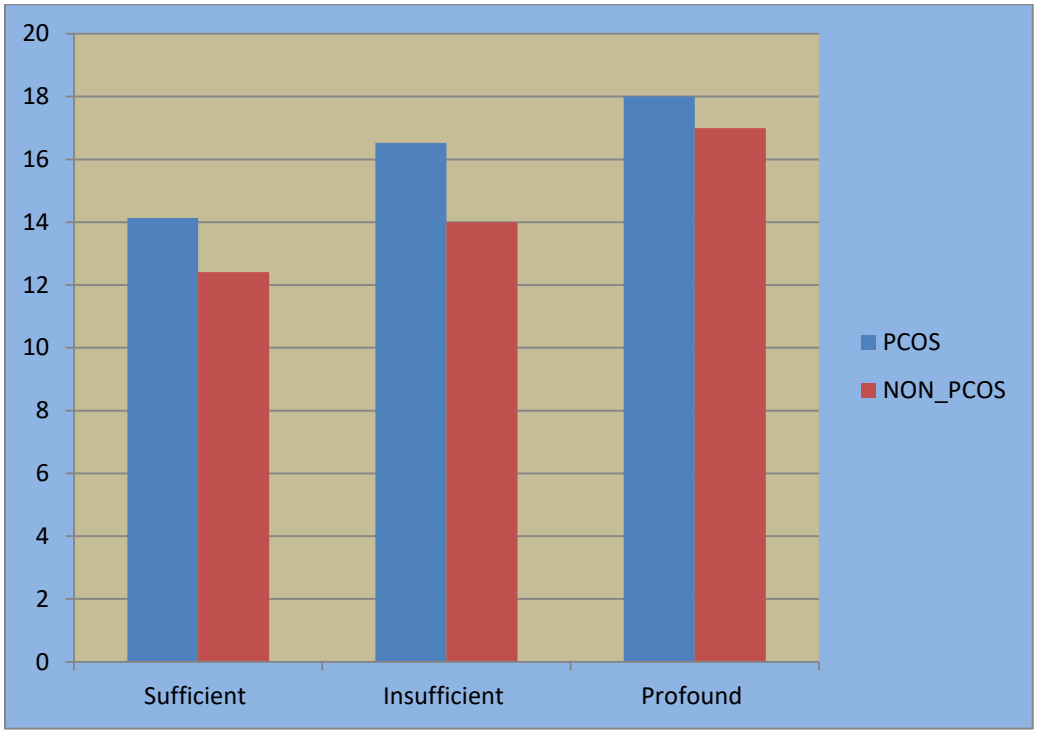
Women with PCOS								Women without PCOS					
		T.N	T.S	Mean	df	X_2	Sign	T.N	T.S	Mean	df	X_2	Sign
Flowing of bloods	Sufficient	8	113	14.13	2	68.33	Sig.at both	27	335	12.41			
	Insufficient	15	248	16.53				2	28	14			
	Profound	7	126	18				1	17	17			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of result of the table showed that---

- Anxiety level of PCOS women was higher than the Non-PCOS group on the basis of flowing of bloods.
- The total score and mean result of this table showed that both PCOS and Non-PCOS women who had profound menstruation blood flow possess more anxiety.
- The result of chi-square test of both PCOS and Non-PCOS women were significant at both 0.01 and 0.05 level.
- The table also showed that anxiety level increased step by step on the basis of flowing of bloods.

4.4.7.1: GRAPHICAL REPRESENTATION OF ANXIETY OF WOMEN/GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF FLOWING OF BLOODS.



4.5 ANALYSIS OF SCORES OF STRESS LEVEL OF WOMEN /GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF DIFFERENT DEMOGRAPHIC FEATURES.

Table -4.5.1: Showing Stress level of women /girls with and without PCOS on the basis of Age in Years.

Women with PCOS								**Women without PCOS**					
		T.N	T.S	Mean	df	X_2	Sign	T.N	T.S	Mean	df	X_2	Sign
Age in years	17-24	14	247	17.64	2	72.04	Sig.at both	16	176	11	2	19.09	Sig.at both
	25-32	11	228	20.73				**7**	116	16.57			
	33-40	5	105	21				**7**	112	16			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of result of the table showed that---

- Stress level of women with PCOS was more than women without PCOS in different age group.
- In the case of Non-PCOS women 25-32 years age group women showed more stress than other age group when 33-40 years age group women with PCOS showed more stress than other age groups.
- Both PCOS and Non-PCOS women in age group of 17-24 showed less stress than other age group.

4.5.1.1: GRAPHICAL REPRESENTATION OF STRESS OF WOMEN/GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF AGE.

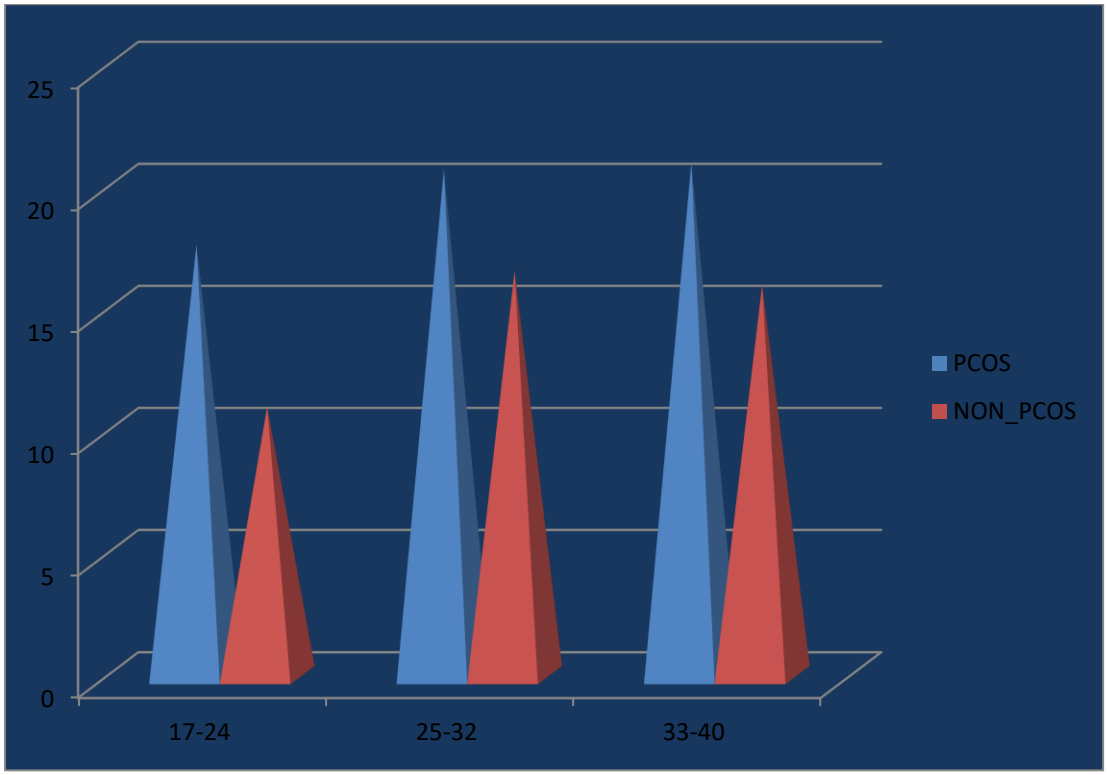


Table -4.5.2: Showing stress of women /girls with and without PCOS on the basis of Educational Qualification.

Women with PCOS								Women without PCOS					
		T.N	T.S	Mean	df	X_2	Sign	T.N	T.S	Mean	df	X_2	Sign
Educational qualification	H.S	5	78	15.6	3	90.6	Sig.at both	5	45	9	3	138.08	Sig.at both
	U.G	7	132	18.86				6	73	12.17			
	P.G	10	202	20.2				6	86	14.33			
	Higher studies	8	168	21				13	200	15.38			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of educational qualification of the table showed that---

- Stress level of PCOS women was higher than the Non-PCOS group on the basis of different educational qualification level.
- In H.S level both PCOS and Non-PCOS women had less stress than other educational qualification group.
- Both PCOS and Non-PCOS women involved in higher studies had more stress than other education qualification group.
- The result of chi-square test of both PCOS and Non-PCOS women were significant at both 0.01 and 0.05 level.
- The table also showed that stress level increased step by step on the basis of higher academic qualification.

4.5.2.1: GRAPHICAL REPRESENTATION OF STRESS OF WOMEN/GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF EDUCATION.

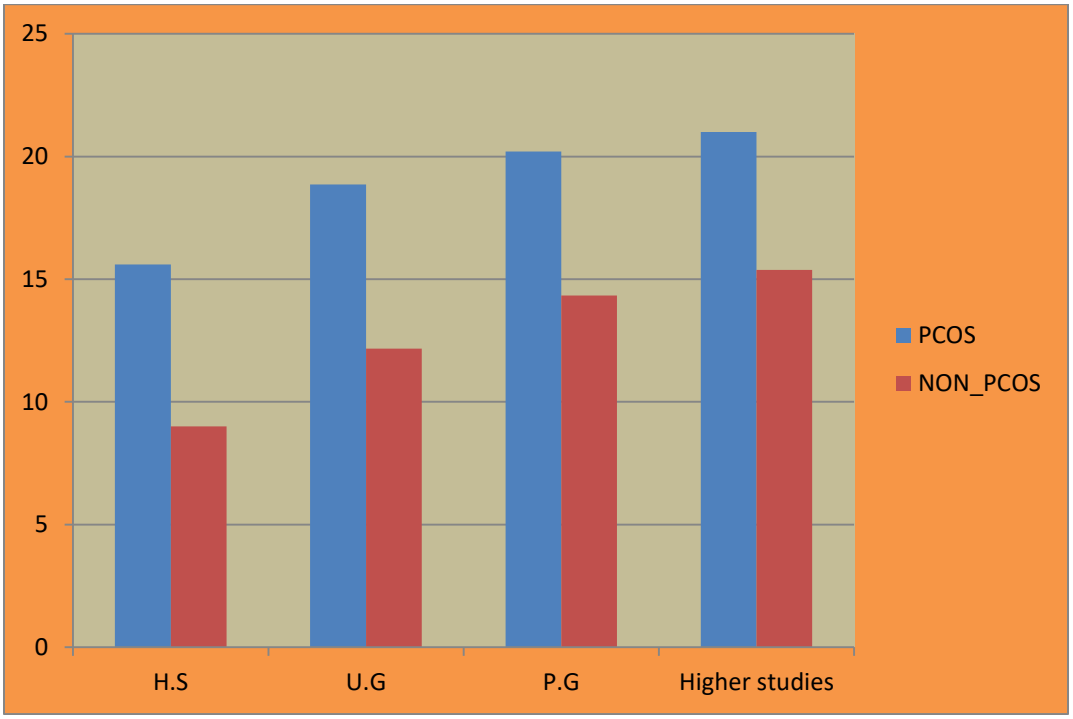


TABLE -4.5.3: Showing stress of women /girls with and without PCOS on the basis of Marital Status.

Women with PCOS								Women without PCOS					
		T.N	T.S	Mean	df	X_2	Sign	T.N	T.S	Mean	df	X_2	Sign
Marital status	Married	9	166	18.44	1	106.04	Sig.at both	9	96	10.67	1	111.24	Sig.at both
	Unmarried	21	414	19.71				21	308	14.67			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of marital status result of the table showed that---

- PCOS women possess more stress than Non-PCOS on the basis of Marital Status.
- Unmarried PCOS women possess more stress than married PCOS women.
- The total score and mean result of this table showed that both PCOS and Non-PCOS Unmarried women had more stress than married women.

4.5.3.1: GRAPHICAL REPRESENTATION OF STRESS OF WOMEN/GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF MARITAL STATUS.

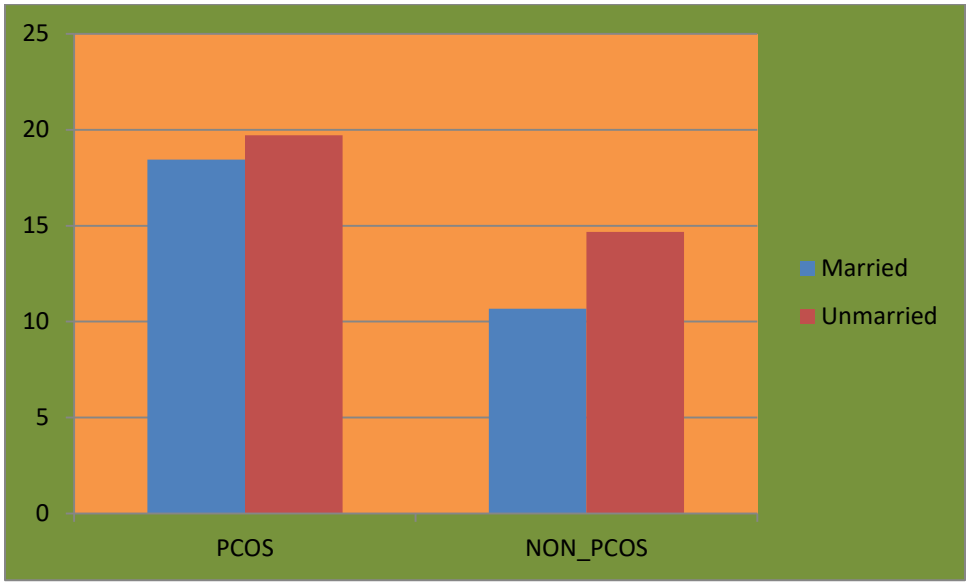


TABLE -4.5.4: Showing stress of women /girls with and without PCOS on the basis of Menstrual Regularity.

Women with PCOS								Women without PCOS					
		T.N	T.S	Mean	df	X_2	Sign	T.N	T.S	Mean	df	X_2	Sign
Menstrual regularity	Regular	10	160	16	1	116.56	Sig.at both	27	343	12.70			
	Irregular	20	420	21				3	61	20.33			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of menstrual regularity result of the table showed that---

- Stress level of PCOS women was higher than the Non-PCOS group on the basis of menstrual regularity.
- The total score and mean result of this table showed that both PCOS and Non-PCOS women who had irregular menstruation cycle possess more stress than those women who had regular menstruation cycle in every month.
- Due to sample number difference chi-square test was done only in the case of PCOS.

4.5.4.1: GRAPHICAL REPRESENTATION OF STRESS OF WOMEN/GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF MENSTRUATION REGULARITY.

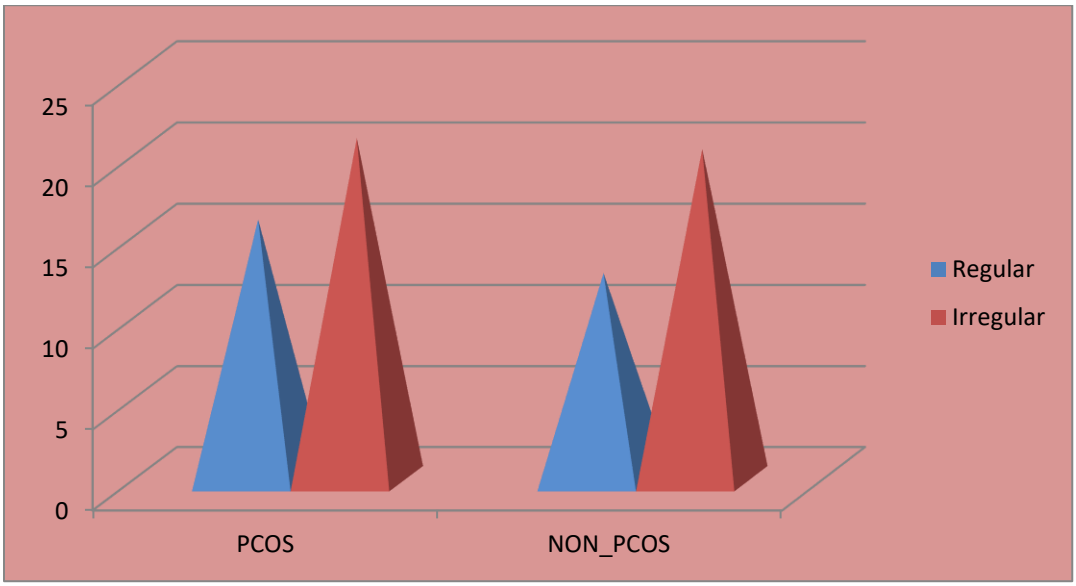


TABLE -4.5.5: Showing stress of women /girls with and without PCOS on the basis of Menstrual Pain.

Women with PCOS								Women without PCOS					
		T.N	T.S	Mean	df	X_2	Sign	T.N	T.S	Mean	df	X_2	Sign
Menstrual pain	Yes	20	420	21	1	116.56	Sig.at both	4	45	11.25			
	No	10	160	16				26	359	13.81			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of menstrual pain result of the table showed that---

- Stress level of PCOS women was higher than the Non-PCOS group on the basis of menstrual pain.
- The total score and mean result of this table showed that both PCOS and Non-PCOS women who had painful menstruation cycle possess more stress than those women who had menstruation cycle without pain in every month.
- Due to sample number difference chi-square test was done only in the case of PCOS.

4.5.5.1: GRAPHICAL REPRESENTATION OF STRESS OF WOMEN/GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF MENSTRUATION PAIN.

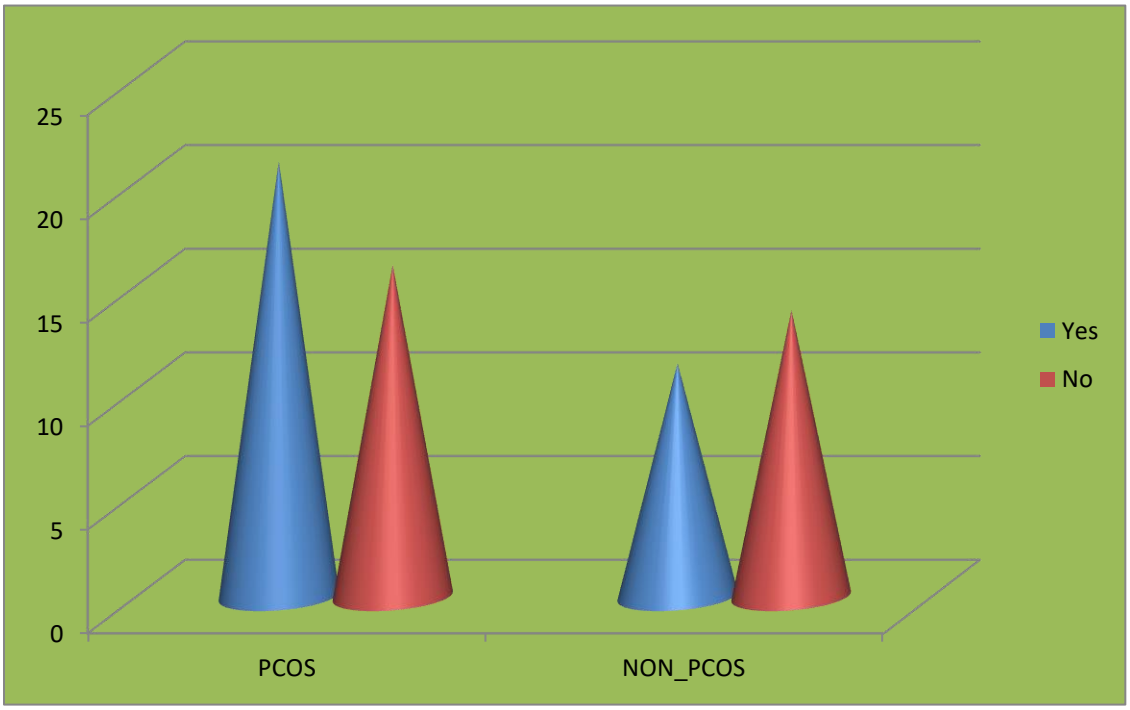


TABLE -4.5.6: Showing stress of women /girls with and without PCOS on the basis of hyper tension.

		Women with PCOS						Women without PCOS					
		T.N	T.S	Mean	df	X_2	Sign	T.N	T.S	Mean	df	X_2	Sign
Hyper tension	Yes	18	378	21	1	53.40	Sig.at both	6	90	15	1	124.20	Sig.at both
	No	12	202	16.83				24	314	13.08			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of Hyper Tension result of the table showed that---

- Stress level of PCOS women was higher than the Non-PCOS group on the basis of hypertension.
- The total score and mean result of this table showed that both PCOS and Non-PCOS women who had hypertension had more stress than who had no hypertension.
- Due to sample number difference chi-square test was done only in the case of PCOS.

4.5.6.1: GRAPHICAL REPRESENTATION OF STRESS OF WOMEN/GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF HYPERTENSION.

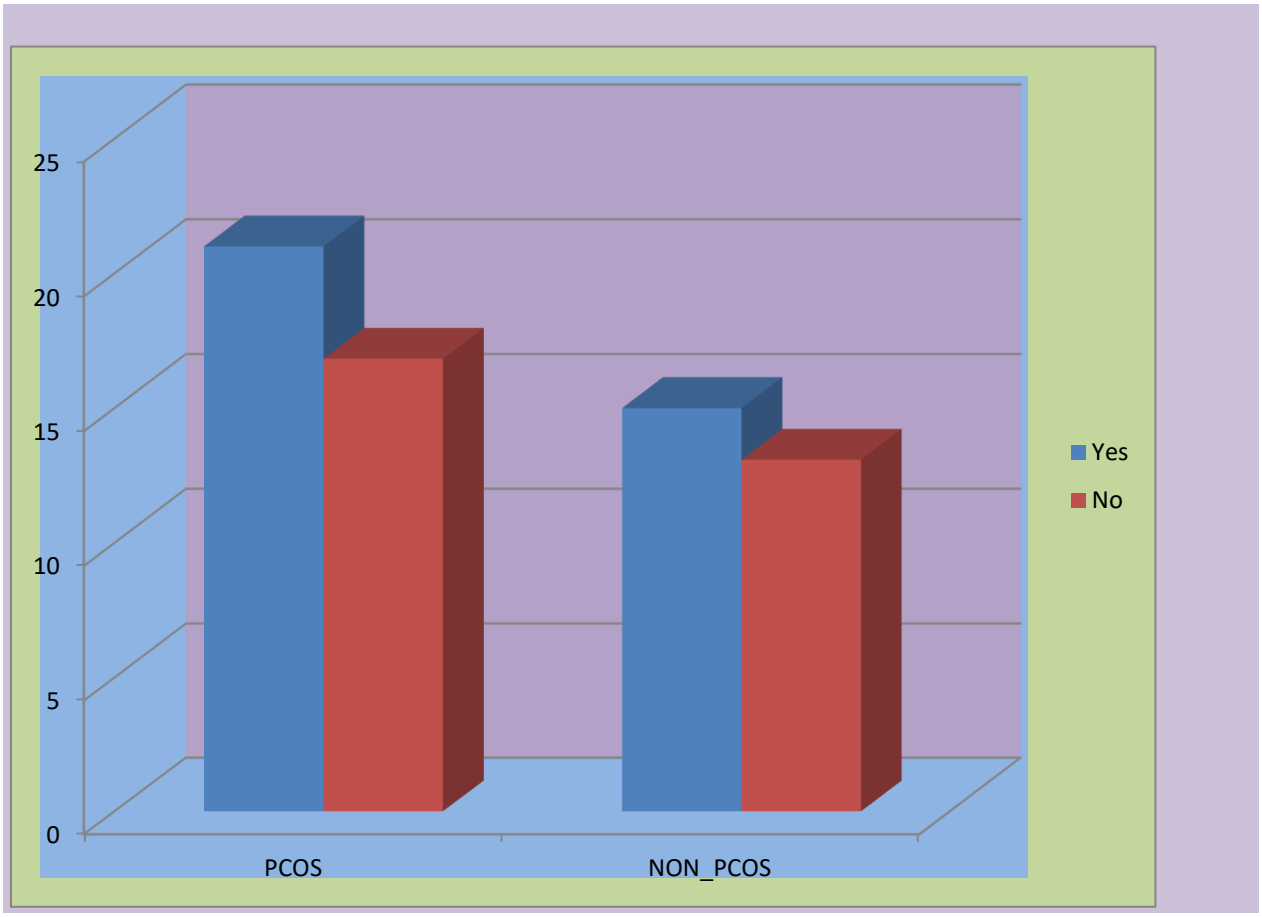


TABLE -4.5.7: Showing stress of women /girls with and without PCOS on the basis of Flowing of bloods.

Women with PCOS								Women without PCOS					
		T.N	T.S	Mean	df	X_2	Sign	T.N	T.S	Mean	df	X_2	Sign
Flowing of bloods	Sufficient	8	119	14.88	2	115	Sig.at both	27	345	12.78			
	Insufficient	15	314	20.93				2	39	19.5			
	Profound	7	147	21				1	20	20			

Here the T.N indicates the Total Number, T.S indicates the Total Score, df indicates that Degree of Freedom, sign indicates that Significant level at 0.01% and 0.05%.

On the basis of result of the table showed that---

- Stress level of PCOS women was higher than the Non-PCOS group on the basis of Flowing of bloods.
- The total score and mean result of this table showed that both PCOS and Non-PCOS women who had profound menstruation blood flow possess more stress.
- The result of chi-square test of both PCOS and Non-PCOS women were significant at both 0.01 and 0.05 level.
- The table also showed that stress level increased step by step on the basis of Flowing of bloods.

4.5.7.1: GRAPHICAL REPRESENTATION OF STRESS OF WOMEN/GIRLS WITH AND WITHOUT PCOS ON THE BASIS OF FLOWING OF BLOODS.

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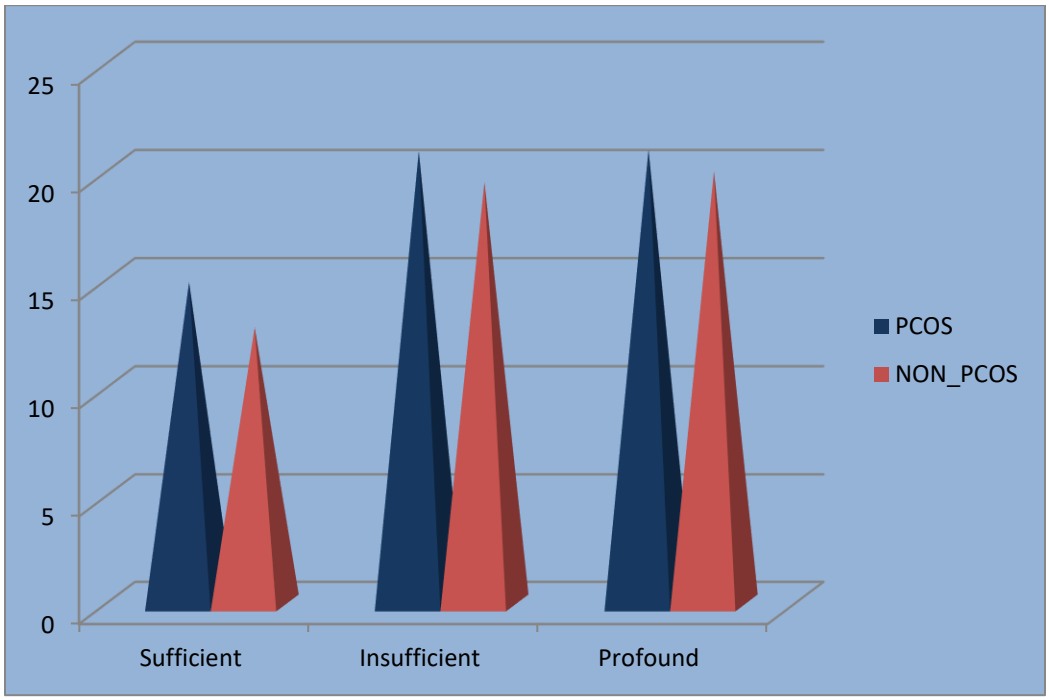

CHAPTER- V

FINDINGS AND DISCUSSION

5.1 FINDINGS OF DEPRESSION LEVEL OF PCOS WOMEN COMPARE WITH NON-PCOS WOMEN:

- When we compare the non-PCOS girls/women with the PCOS it was observed that the depression, anxiety, and stress in non-PCOS are remarkably less than PCOS.
- PCOS women in the age group 33-40 years poses more depression where as non-PCOS group women in the age group 25-32 years possess more depression.
- Both the PCOS and non-PCOS women whose menstrual cycle is irregular possess more depression and the same is applicable to both the groups who feel a painful menstruation.
- Hyper tensed PCOS and non-PCOS women possess more depression and the same is applicable whose blood flow is profound during the periods.
- Higher level of depression of PCOS women is related with the higher study group and the same is the result for non-PCOS women also.
- Depression level is high for unmarried PCOS women and the same result is obtained for non-PCOS women also.

5.2 FINDINGS OF ANXIETY LEVEL OF PCOS WOMEN COMPARE WITH NON-PCOS WOMEN:

- From the study it was observed that anxiety level of PCOS women/girls is more than non-PCOS women/girls. Both PCOS and non-PCOS women/girls in the age group of 17-24 years women/girls possess more anxiety.
- In this study on the basis of education it was observed that PCOS women/girls possess more anxiety than non-PCOS. Anxiety level is higher in both PCOS and non-PCOS women/girls who are doing higher studies.
- Anxiety level is high for unmarried PCOS women/girls and the result is applicable for unmarried non-PCOS women/girls.

- Both PCOS and non-PCOS women/girls possess more anxiety whose menstrual cycle is irregular and painful.
- This study shows that PCOS and non-PCOS women/girls possess more anxiety who are hyper tensed and the same is applicable whose blood flow is profound during periods.

5.3 FINDINGS OF STRESS LEVEL OF PCOS WOMEN COMPARE WITH NON-PCOS WOMEN:

- The PCOS women in the age group of 33-40 years possess more stress whereas non PCOS women/girls in the age group of 25-32 years possess more stress.
- Stress of PCOS women/girls is related with the higher study had more stress and the same is applicable for non-PCOS women/girls also.
- Both the PCOS and non-PCOS women unmarried women/girls possess more stress.
- Stress level is high in both PCOS and non-PCOS women/girls whose menstrual cycle is irregular and painful.
- This study shows that PCOS and non-PCOS women/girls possess more stress who are hyper tensed and the same is applicable whose blood flow is profound during periods.
- The findings in this study established that the women with PCOS pauses higher levels of depression, anxiety, and stress. Earlier studies have also reported similar findings.

5.4 DISCUSSION:

Clinically hyperandrogenism is manifested by unwanted hair growth (hirsutism), seborrhea and or acne and male pattern balding. But it was noticed that masculinization of body musculature, severe or extreme male pattern balding and hirsutism is rarely a sign of PCOS (Azziz et.al., 2009).

In the study of Nanda and Mondal (2013) it was found that PCOS sample pauses more depression than those without PCOS. In their study it was again observed that women with and without PCOS are both affected from high level of anxiety in the age group 24-35 years and who have post graduate degree and those who are divorcee.

In the study of Sayyah-Nelli et.al. (2015) it was observed that PCOS increases the probability of chronic anxiety, anxiety disorders, depressions, personality and other psychiatric disorders.

The present results are in agreement with the studies of Bhattacharya and Jha (2010) who found higher rate of depression in women with PCOS.

Dokras et.al. (2011) in their study found abnormal depression among women with PCOS compared with those in the non-PCOS group. Cinar et.al. (2011) also noticed more depression and anxiety among women with PCOS.

Nanda (2017) quoted that, "PCOS is a disease which destroy and theft the glory of womanhood. Both clinical and subclinical levels of psychiatric distress are very common in PCOS patients and can have profound effects on quality of life……..."

Sonino et.al. (2004) found that in Italy 31% of treated women with PCOS are attacked by one or more psychiatric disorders.

In the study of Shulman et.al. (1992) it was noticed that the women with PCOS have higher levels of depression and psychological distress and went to the severe hyperandrogenism.

Nanda (2017) and Bhattacharya and Jha (2010) also found that the patients with PCOS are affected from health and quality of life because these patients experiences different types of stressful life events that can increase their depression, anxiety, and stress.

EDUCATIONAL IMPLICATION:

Now a days a large number of girls affected by PCOS in their school life. This number increase day by day when girls/women of the college and universities were consider. School or college going girls, now a days are habituate up to late night study, their days started at 9 p.m or so, they consume first food and junk food and sometimes they are addicted by different drugs. They are habituate in soft drinks and sometimes hard drinks also. Some of them regularly use pills also. According to doctors PCOS is a life style disorder that is closely related with the malpractices of normal life of adolescence and adult girls. Therefore, there is a question how PCOS affects the girls/women psychological life. In this study it was noticed that girls/women in educational institutions possess severe level of stress, anxiety, and depression that affects their academic performance. Therefore, it can be said that, in the school/colleges all the girls must be aware of their mental health as well as total lifestyle. They also should be assessed by the gynaechologists regarding their possibilities of PCOS. Dieticians and clinical nutrition specialists should also assess and aware each girl/woman regarding their food habit and lifestyle.

Now a day's formal academic institutions are not only responsible to complete the curriculum, neither to obtain a good percentage of marks or just enhance their knowledge, rather the institutions must support all the boys and girls about their practice and food habits as well as their lifestyle also.

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APPENDICES

M.Phil RESEARCH SURVEY

QUESTIONNAIRE

ON

Depression Anxiety and Stress of Women/Girls with and without Polycystic Ovary Syndrome.

Guide & Supervisor

Dr. BISHNUPADA NANDA

(Prof. & HOD) Department of Education

Jadavpur University

Research Scholar

MILI MAITY

M.Phil Scholar in Education

Jadavpur University

To,

Dear Sir/ Madam

This questionnaire is a prepared to collect primary data in respect of the topic "**Depression Anxiety and Stress of Women/Girls with and without Polycystic Ovary Syndrome".** Towards my M.Phil programme. Hence, I request you to kindly response to all the issues asked. Your response well be kept confidential and will be used only for the purpose of academic research.

I request your earnest and heartiest co-operation in this endeavor.

Thanking You

Yours Sincerely

MILI MAITY

DEMOGRAPHIC DATA SHEET

1. AGE:
2. EDUCATION QUALIFICATION:
3. MARITAL STATUS:
4. NUMBER OF CHILDREN:
5. BODY HIEGHT:
6. BODY WEIGHT:
7. FAMILY STRUCTURE:
8. INCOME:
9. RELIGON:
10. OBESITY:
11. HYPER-TENSION: YES/NO
12. HIGH BLOOD PRESSURE: YES/NO
13. HORSE VOICE/ CHORCE VOICE: YES/NO
14. HAIR IN MUSTACH: : YES/NO
15. HAIR IN BODY: YES/NO
16. HAIR IN BEARED: YES/NO
17. SEXUAL LIFE : SATISFIED/ DISSATISFIED/ NEUTRAL
18. HIRSUTISM: YES/NO
19. MENSTRUAL REGULARITY: REGULAR/ IRRAGULAR
20. FLOWING OF BLOODS: NORMAL/ PROFOUND/ MINIMUM
21. MENSTRUAL CYLE : PAINFUL/ NORMAL
22. SEXUAL INTERCOURSE: PAINFUL/ NORMAL

OUESTIONNAIRE

DASS21

Name: _____ Date: _____

Please read each statement and circle a number 0, 1, 2, or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (e.g., in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

LIST OF THE INSTITUTIONS

SCHOOLS

1. Debra Harimati Saraswat Vidyamandir (Paschim Medinipur),
2. Dhamtore B. B Vidyabhaban (Paschim Medinipur) ,
3. Maratala Satyeswar Secondary and Higher Secondary Institution (Paschim Medinipur),
4. Jadavpur Vidyapith (Kolkata),

COLLEGES

- Debra Thana S.K.S Mahavidyalaya (Paschim Medinipur),
- Sabang Sajanikanta Mahavidyalaya (Paschim Medinipur),
- Pingla College (Paschim Medinipur),

UNIVERSITY

- Jadavpur University

CERTIFICATE OF PAPER SUBMITTED IN SEMINAR

2 - Days International Seminar on

Peace, Well-being & Education: A Pedagogical Discourse

Organised by

Department of Education, Jadavpur University

in collaboration with

Department of Education, Bhatter College, Dantan & National Service Scheme, Jadavpur University

Date: 28th & 29th December, 2018 **Venue: Jadavpur University**

This is to certify that Sri/Smt./Dr. Mili Maity,

of Department of Education, Jadavpur University,

participated and presented the paper entitled Depression Increase by Polycystic Ovary Syndrome: An Obstacle in the Way of Women's Wellbeing,

in the 2-Days International Seminar on 'Peace, Well-being & Education: A Pedagogical Discourse', organised by the Department of Education, Jadavpur University, in collaboration with Bhatter College, Dantan, Pachim Medinipur and National Service Scheme, Jadavpur University, on 28th and 29th December, 2018, at Jadavpur University Main Campus.

(Prof. Bishnupada Nanda)	*(Dr. Pabitra Kumar Mishra)*	*(Dr. Anupam Debsarkar)*	*(Dr. Lalit Lalitav Mohakud)*	*(Smt. Ananya Mukhopadhyay)*
Head, Department of Education	Principal	Secretary, N.S.S.	Jt. Coordinator	Jt. Coordinator
Jadavpur University	Bhatter College	Jadavpur University	ISPWEPD, 2018	ISPWEPD, 2018