

Evaluation of risk factors and bring awareness among young women with poly-cystic ovarian syndrome

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Abstract— Polycystic ovarian syndrome is widely prevalent endocrine disorder in women, accompanied by various symptoms and implications. It has been known for decades to have incidence of 8-13% in all reproductive age groups, respectively An ovulation and hypothalamic pituitary ovarian axis dysfunction characteristic PCOS, although it varies from other types of ovulation failure, marked by inadequate ovarian follicle development or reduced gonadotropin production not detected by routine examination PCOS patients are more likely to have endometrial hyperplasia. Insulin resistance (IR), metabolic syndrome (MS), and persistent low grade inflammation are some of the other reproductive symptoms of PCOS. Our understanding of pathophysiological process, diagnosis, therapy of PCOS has advanced recently. In this study we focus on life style modifications, treatment regimen, prevention methods, comorbidities in PCOS.

Keywords: Poly-cystic ovarian syndrome, risk factors, awareness, Insulin resistance (IR), Follicular stimulating hormone (FSH), luteinizing hormone (LH), Sex Hormone Binding Globulin (SHBG)

I. INTRODUCTION

Poly-cystic ovarian syndrome (PCOS) is a most common endocrine disorder which produces symptoms in approximately 5-10% of women of child bearing age (15 to 44 years old) in the developed world and it is thought to be one of the leading cause of female infertility [1,2]. Most of the women will recognize they have PCOS at the age of 20s or 30s, when they were face difficulty in getting pregnant and consults gynecologist for further treatments. The word 'poly-cystic' means the presence of multiple or many cysts in the ovaries that each one containing an immature egg and it leads to an-ovulation. An-ovulation causes changes in the levels of estrogen, progesterone, FSH, and LH, and there will be excess Androgen levels, while estrogen and progesterone levels will be lower than usual.

Poly cystic ovarian syndrome was first described by Stein and Leventhal in 1935 and the incidence of PCOS is increases rapidly due to life style changes and stress in the present days. PCOS is developed due to the influence of multiple factors among adolescents and signs of menstrual instability begins soon after menarche because of immature hypothalamic pituitary axis which makes complications in the early diagnosis of PCOS [3]. Women with PCOS are at increased risk of developing complications such as metabolic abnormalities (insulin resistance, hyper-insulinemia and diabetes mellitus type II), psychological disorders (anxiety and mood disorders), miscarriages, pregnancy related complication, cardiovascular diseases (CVD), breast cancer and endometrial cancer [3,4].

For the proper treatment of PCOS may require the collaborative efforts of various health care professionals such as primary care physicians, gynecologist, reproductive specialists, endocrinologists, diabetologists, dermatologists, dietitians and psychologists.

PCOS is characterized by various clinical features including irregular menstrual cycle, obesity, infertility, hirsutism, alopecia, acne, type II diabetes mellitus, dyslipidemia, hypertension, heart disease and endometrial cancer. So it is very important to know the awareness of normal population about PCOS for early detection and management of women with PCOS [5].

The real cause of PCOS is idiopathic but thought to be associated with multiple factors. And most of the cases, PCOS is developed due to hormonal changes that is increased levels of luteinizing hormone(LH) and normal/decreased levels of follicular stimulating hormone (FSH) leads to changes in LH/FSH ratio [6]. The alteration in the levels of these hormones can make the ovaries to produce more eggs which results into the ovulatory dysfunction and appearance of poly-cysts in the ovaries. Women with PCOS have an increased risk of developing metabolic diseases associated with hyperandrogenism, obesity and insulin resistance. The development of metabolic diseases in PCOS is associated with prominent defects in secretion of insulin and β -cell dysfunction that lead to an increased risk of glucose intolerance and diabetes mellitus. At present days, eating habits, life style changes, exposure to environmental toxins and stress have also related with risk of developing PCOS [7].

The excessive ovarian Androgen production is found in most of the women with PCOS and the increased levels of androgen suppress Sex Hormone Binding Globulin (SHBG) concentration which leads to an elevation of the testosterone concentration. The disease obtained its name because of the presence of poly cystic ovaries on ultrasonographic examination which represents an immature ovarian follicles. Actually the follicles are developed from primordial follicles ,but the maturation of these follicle has ceased at pre-antral follicular development stage due to ovulatory dysfunction. Women with PCOS presents with an increased levels of gonadotrophin releasing hormone which leads to an elevation of LH/FSH ratio. Obesity and insulin resistance is observed in most of the women with PCOS. The Hyperinsulinemia may leads to disturbance in the hypo-thalamic pituitary axis, excessive androgen secretion from ovaries, decline in the binding of SHBG ,decline in maturation of follicles, elevated pulse and frequency of GnRH and LH over FSH dominance [8]. COS has also been related with a specific fragile X mental retardation 1 (FMR1) sub-genotype [7]. According to studies shows that women who have heterozygous- normal/low FMR1 have symptoms of polycystic ovarian syndrome such as excessive follicle-activity and hyperactive ovarian function [9].

Adipose tissue consists of an enzyme called aromatase which is responsible for the conversion of androestenedione to estrone and testosterone to estradiol [7]. Obese patients with an increased size of adipocyte which leads to hyperandrogenism and excessive secretion estrogen which responsible for the inhibition of FSH through a negative feedback mechanism. The excessive accumulation of adipocyte in obese women with PCOS leads to development of features of hyper-androgenism. Obese patients with an increased size of adipocyte which leads to hyperandrogenism and excessive secretion estrogen which responsible for the inhibition of FSH through a negative feedback mechanism. The excessive accumulation of adipocyte in obese women with PCOS leads to development of features of hyper-androgenism. PCOS can be diagnosed by using ultrasonography is a major diagnostic tool, apart from that three other diagnostic criteria were used followed by National Institutes of Health(NIH) criteria , Rotterdam criteria and Androgen Excess PCOS Society criteria. According to NIH criteria, defined in 1990 and include only presence of clinical and/ or biochemical hyperandrogenism and chronic an-ovulation, documented by oligo-or amenorrhoea. The Rotterdam criteria(2003) requires the presence of two of the following symptoms such as oligo/an-ovulation, hyperandrogenism or poly cystic ovaries on ultrasound. According to Androgen Excess PCOS Society criteria(2006), the PCOS can be diagnosed by the presence of clinical/biochemical hyperandrogenism, ovarian dysfunction(oligo/an-ovulation and/or poly cystic ovaries).

The non-pharmacological treatment for PCOS may include weight loss, diet and exercise. The weight reduction in PCOS boosts endocrine system activity and facilitates the process in which a mature egg released from the ovary and pregnancy. The healthy BMI should be maintained in PCOS patients [8]. The studies shows that use of Flax seed in the treatment of PCOS may helps in reduction of androgen and testosterone levels and to effective in treatment of hirsutism also. Turmeric is found to be effective in the treatment of PCOS which has different pharmacological actions such as estrogenic, lipid lowering properties,anti diabetic agent and antioxidant

properties which effective in preventing ovulatory dysfunction and effect of turmeric is similar to that of Clomiphene citrate. The flower extract of coconut is effective in the treatment of PCOS and the studies found that it have various pharmacological effects such as anti hyper lipidemic agent, antioxidants and hypoglycemic agent thereby it is effective in the treatment of PCOS. These plants are improving hyperandrogenism, insulin sensitivity, improving fertility and improving menstrual cycle[9].

PCOS is an endocrine disorders in women and the prevalence of PCOS found to be 2.2% to 26% while considering the endocrine disorders. There are many risk factors which contributing to development of clinical and/or biochemical hyperandrogenism. The presenting complaints of PCOS starts very slowly and these signs and symptoms are equivalent with the changes occurs in puberty and these signs and symptoms is not identified in an early stage and leads failure in diagnosis of PCOS in young women. The PCOS patients are at high risk of developing complications such as metabolic abnormalities, obstructive sleep apnoea, abnormal bleeding from the uterus, diabetes mellitus type II, depression and heart diseases in future and the preventive measures such as physical activity, healthy diet plan meditation and exercise for reducing stress are adopted for limiting the complications of PCOS[10].

II. MATERIALS AND METHOD

A questionnaire based pre-experimental one group (pre test study) and post survey were conducted among young between ages of 18-25 years old. The questionnaire consist of five parts. Part 1 is concerned with demographic details of the respondents such as age, marital status, education, religion, diet pattern. Part 2 contains 20 questions about PCOS knowledge. Part 3 consist of 12 questions for the evaluation of presenting complaints of PCOS. Part 4 is concerned with identification of currently using therapeutic regimens in PCOS. Part 5 is concerned with assessment of risk factors associated with PCOS. King cut off value 11. The score 11 was considered as poor knowledge while score >12 was considered as adequate knowledge. For evaluation of Presenting complaints of PCOS a total of 12 signs and symptoms were given and study participants having greater than or equal to 8 symptoms (scores) are at high risk of getting PCOS, study participants having 6-8 symptoms (score) were considered as participants with chances of getting PCOS. And study participants with less than 6 symptoms (score) were considered as participants who were unpredictable to PCOS.

Ethical considerations:

Ethical clearance was obtained from institutional ethics committee of Karnataka college, Bangalore to conduct the study.

Study procedure:

After obtaining permission from the concerned authorities and informed consent from study subjects, data collection will be carried out from young women in the selected area. The questionnaire is distributed among young women between ages of 18-25 year old. After collecting the filled questionnaire from young women awareness will be provided regarding the prevention of PCOS. After one month, the response from young women will be collected through direct conversation.

III. RESULT

A total of 200 young women participated in the study. The presenting complaints of PCOS such as abnormal menstruation, hirsutism, hyperpigmentation, alopecia, mood swings, acne and weight gain was analysed in both pre and post tests. The current study found that the most of the study participants with PCOS were using treatment regimens like Ethinyl estradiol+ drospirenone (pre test=5%, post test=6%), Northiosterone (pre test=6%, post test=6.5%), Diane-35 (pre test=4.5%, post test=4.5%), Metformin (pre test=6.5%, post test=7%), Herbal medicines (pre and post test=3.5%), Ethinyl estradiol+Levonorgestrel (pre and post test=4%), Oziva herbalance (pre and post test=7%) and Dydrogesterone (pre and post test=2.5%). The current study also evaluated the various risk factors associated with PCOS. (BMI, family history of PCOS, family history of diabetes Mellitus, family history of CVD family history of thyroid diseases, physical activity, age of menarche and fast food intake. A total of 200 participants, 110 participants with high risk of getting PCOS or with chances of getting PCOS were provided awareness regarding PCOS.

Table no. 1; The percentage distribution of presenting complaints of PCOS among both pre and post test on the basis of score.

Presenting complaints	Number of individuals, n (%) Scores					
	≥8		6-8		≤6	
	<i>Pre test</i>	<i>Post test</i>	<i>Pre test</i>	<i>Post test</i>	<i>Pre test</i>	<i>Post test</i>
Abnormal menstruation	85(98.83)	87(96.6)	22(91.6)	18(90)	11(12.2)	11(12.2)
Hirsutism	82(95.3)	86(95.5)	15(62.2)	11(55)	8(8.8)	8(8.8)
Hyper pigmentation	75(87.2)	79(87.7)	17(70.8)	13(65)	36(40)	36(40)
Alopecia	74(86.04)	78(86.6)	16(66.6)	12(60)	39(43.3)	39(43.3)
Mood swings	72(83.7)	76(84.4)	10(41.6)	6(30)	10(11.1)	10(11.1)
Acne	63(73.2)	67(74.4)	19(79.1)	15(75)	18(20)	18(20)
Weight gain	63(73.2)	66(73.3)	9(37.5)	5 (25)	9(10)	9(10)

Out of 86 participants with high risk of getting PCOS (Score greater than or equal to (95.3%) with hirsutism, 75 participants (87.2%) with hyperpigmentation, 74 participants (86.04%) with alopecia, 72 participants (83.7%) with mood swings, 63 participants(73.2%) with acne and 63 participants(73.2%) with weight gain in pre test.

Out of a 90 participants with high risk of getting PCOS (Score greater than or equal to 8), 87 participants (96.6%) had abnormal menstruation, followed by 86 participants (95.5%) with hirsutism ,79 participants (87.7) with hyperpigmentation’s, 78 participants (86.6%) with alopecia, 76 participants (84.4%) with mood swings, 67 participants (74.4%)with acne and 66 participants (73.3)with weight gain in post test.

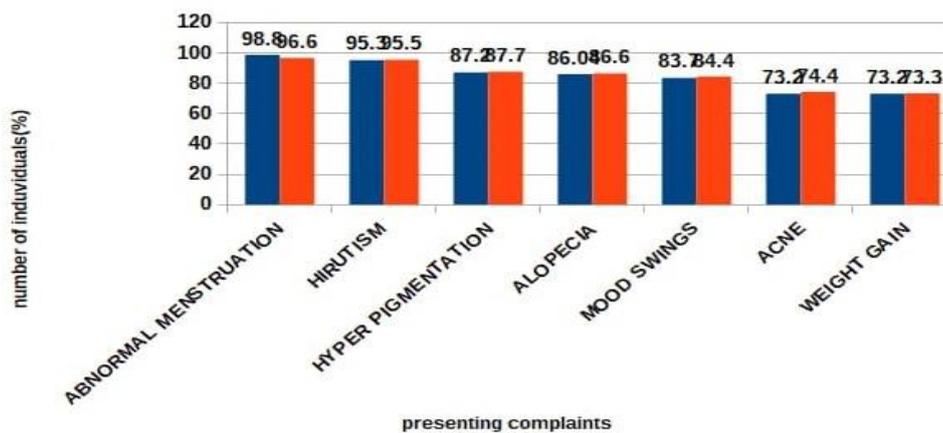


Fig no. 1: A bar diagram representing the presenting complaints vs percentage distribution of study participants (≥8) in both pre and post.

Out of a 24 participants with chances of getting PCOS (Score 6-8), 22 participants (91.6%) had abnormal menstruation, followed by 15 participants (62.5%) with hirsutism, 17 participants (70.8%) with hyperpigmentation, 16 participants(66.6%) with alopecia, 10 participants (41.6%) with mood swings, 19 participants(79.1%) with acne and 9 participants (37.5%) with weight gain in pre-test. Out of a 20 participants with chances of getting PCOS (Score 6-8), 18 participants (90%) had abnormal menstruation, followed by 11 participants(55%) with hirutism, 13 participants(65%) with hyperpigmentation, 12 participants (60%) with alopecia, 6 participants (30%) with mood swings, 15 participants (75%) with acne and 5 participants (25%) with weight gain in post test.

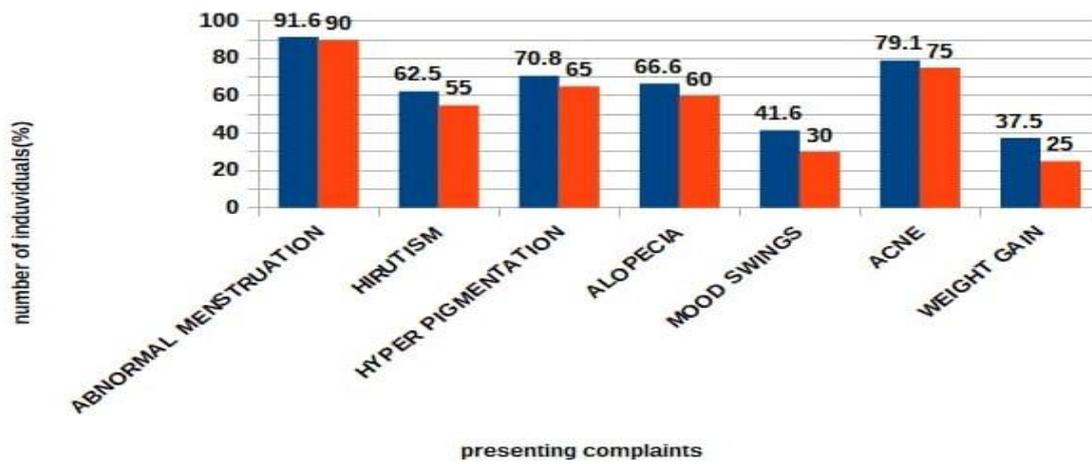


Fig no. 2: Presenting complaints vs percentage distribution of study participants (6-8 score) in both pre and post test.

Out of a 90 participants who were unpredictable to PCOS (Score less than 6), 11 participants (12.2%) had abnormal menstruation, followed by 8 participants (8.8%) with hirsutism, 36 participants (40%) with hyperpigmentation, 39 participants (43.3%) with alopecia, 10 participants (11.1%) with mood swings, 18 participants (20%) With acne and 9 participants (10%) with weight gain in pretest. Out of a 90 participants who were unpredictable to PCOS (Score less than 6), 11 participants (12.2%) had abnormal menstruation, followed by 8 participants (8.8%) with hirsutism, 36 participants (40%) with hyperpigmentation, 39 participants (43.3%) with alopecia, 10 participants (11.1%) with mood swings, 18 participants (20%) With acne and 9 participants (10%) with weight gain in post test.

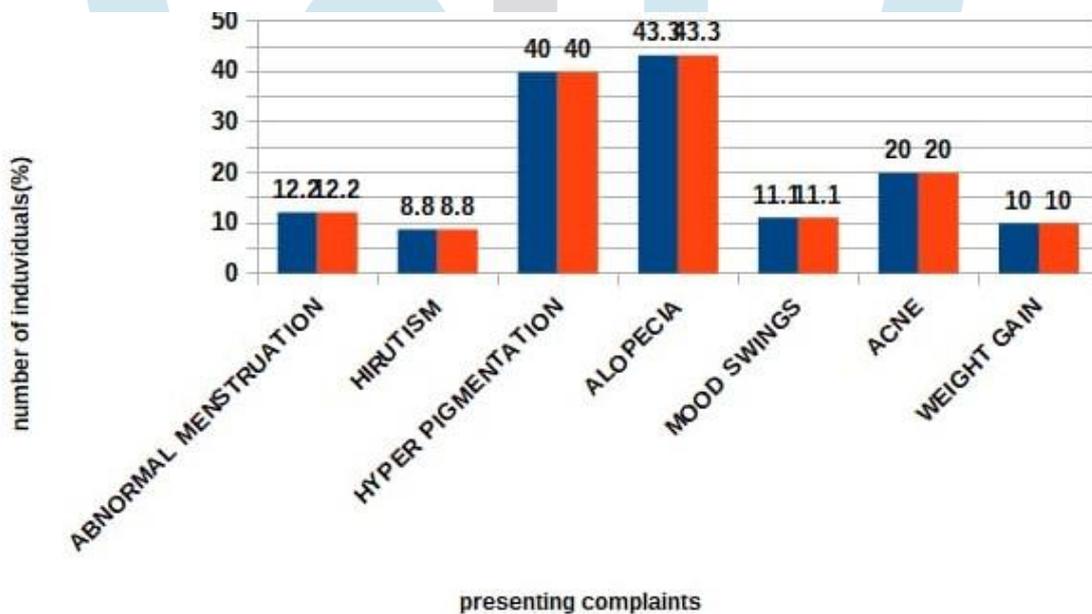


Fig no. 3: Presenting complaints Vs percentage distribution of study participants (<6 score) in both pre and post.

Table no. 2 : The percentage distribution of currently used treatment regimen among study participants in both pre and post test.

Treatment used	Number of individuals (%)	
	Pre test	Post test
Ethinyl estradiol+drosiprenone	10 (5%)	12(6%)
Northiosterone	12(6%)	13(6.5%)

Diane-35	9(4.5%)	9(4.5%)
Metformin	13(6.5%)	14(7%)
Herbal Medicine	7(3.5%)	7(3.5%)
Ethinyl estradiol+Levonorgestrel	8(4%)	8(4%)
Oziva Herbalance	14(7%)	14(7%)
Dydrogesterone	5(2.5%)	5(2.5%)

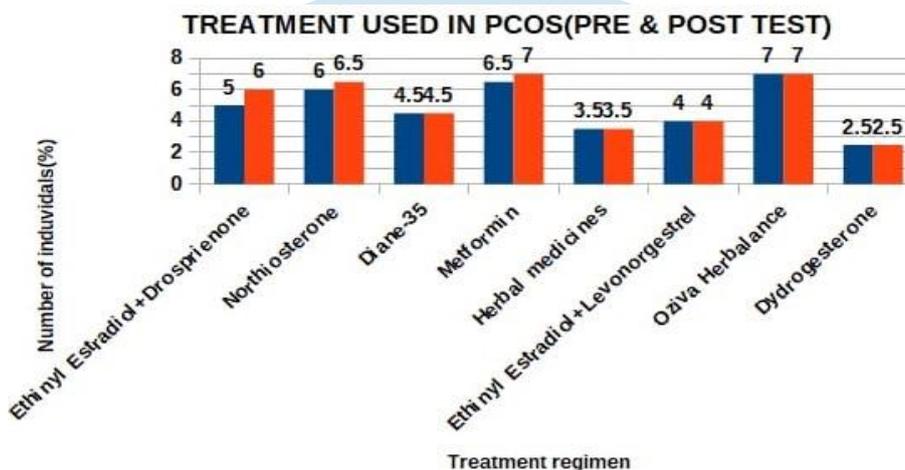


Fig no. 4: The percentage distribution of currently used treatment regimens among study participants in both pre and post test.

The above table 2 and figure 4 represents that 14 (7%) students were using Oziva Herbalance for the treatment of PCOS, 13 (6.5%) were using Metformin, 12(6%) students were using Northiosterone, 10 (5%) were using Ethinyl estradiol+ Drospirenone, 9 (4.5%) students were using Diane-35, 7(3.5%) students were using herbal medicines, and 5 (2.5%) students were using Dydrogesterone in pre test. 14 (7%) students were using Oziva Herbalance and Metformin for the treatment of PCOS, 13 (6.5%) students were using Northiosterone, 12 (6%) were using Ethinyl estradiol+ Drospirenone, 9 (4.5%) students were using Diane- 35, 7 (3.5%) students were using herbal medicines, and 5 (2.5%) students were using Dydrogesterone in post test.

Table no. 3: The percentage distribution of risk factors among PCOS and non-PCOS study participants in both pre and post test.

Risk factors	Number of individuals (%)				
		Pre test		Post test	
		PCOS	NON PCOS	PCOS	NON PCOS
BMI ≤ 18.5 (underweight)	1(1.16)	13(11.40)	1(1.11)	13(11.8)	
18-24.9 (normal weight)	54(62.7)	87(76.3)	56(62.2)	85(77.2)	
25-29.9 (over weight)	26(30.23)	12(10.52)	28(31.1)	10(0.9)	
30-34.9 (obese)	4(4.6)	1(0.87)	4(4.4)	1(0.9)	
≥35 (morbidly obese)	1(1.16)	1(0.87)	1(1.1)	1(0.9)	
Family history of PCOS	Yes	38(44.1)	7(6.1)	40(44.4)	5(4.5)
	No	48(55.8)	107(93.8)	50(55.5)	105(95.4)
Family history of diabetes	Yes	50(58.1)	18(15.7)	52(57.7)	16(14.5)
	No	36(41.8)	96(84.2)	38(42.2)	94(85.4)
Family history of CVD	Yes	12(13.9)	3(2.6)	12(13.3)	3(2.7)
	No	74(86.04)	111(97.3)	78(86.6)	107(97.2)
	Yes	18(20.9)	5(4.3)	19(21.1)	17(15.4)

Family history of thyroid disease	No	68(79.06)	109(95.6)	71(78.8)	93(84.5)
Physical activity	Yes	11(12.7)	20(17.5)	11(12.2)	20(18.1)
	No	75(87.2)	94(82.4)	79(87.7)	90(81.8)
Fast food intake	Yes	86(100)	113(99.1)	90(100)	109(99.09)
	No	0(0)	1(0.87)	0(0)	1(0.9)
Age of Menarche (in years)	8	0 (0)	1(0.87)	0(0)	1(0.9)
	9	0 (0)	1(0.89)	0 0	1(0.9)
	10	0 (0)	5(4.38)	0 0	5(4.5)
	11	0 (0)	19(16.6)	0 0	19(17.2)
	12	25(29.06)	50(43.8)	29(32.2)	42(38.1)
	13	45(52.3)	38(33.3)	51(56.6)	28(25.4)
	14	12(13.9)	0 (0)	12(13.3)	0(0)
	15	4(4.65)	0(0)	4(4.4)	0(0)

With regards to BMI out of 86 PCOS participants 1(1.16%) were found to be under weight, 54, (62.7%) were found to be normal weight, 26(30.2%) was found to be overweight, 4 (4.65%) were found to be obese and 1(1.16%) were found to be morbid obese in pretest. out of 86 PCOS participants, 38(44.1%) had positive family history of PCOS in pretest.

Out of 86 PCOS participants, 50(58.1%) had positive family history of Diabetes in pretest. Out of 86 PCOS participants, 12(13.9%) has positive family history of CVD in pretest. Out of 86 PCOS participants, 18(20.9%) had positive family history of thyroid diseases in pretest. Out of 86 PCOS participants, 11(12.7%) were performing physical activity in pretest.

With regards to age at menarche, out of 86 PCOS participants, 25(29.06%) was included in 12 years old, 45(52.3%) was included in 13 years old, 12(13.9%) was included in 14 years old, and 4(4.65%) were included in 15 years old in pretest. Out of 86 PCOS participants 86(100%) participants were taking fast food in pretest.

With regards to BMI out of 86 PCOS participants 1(1.11%) were found to be under weight, 56, (62.2%) were found to be normal weight, 28(31.1%) was found to be overweight, 4 (4.4%) were found to be obese and 1(1.11%) were found to be morbid obese in post test. Out of 86 PCOS participants, 40(44.4%) had positive family history of PCOS in post test. Out of 86 PCOS participants, 52(57.7%) had positive family history of Diabetes in post test. Out of 86 PCOS participants, 12(13.3%) has positive family history of CVD in post test. Out of 86 PCOS participants, 19(21.1%) had positive family history of thyroid diseases in post test. Out of 86 PCOS participants, 11(12.2%) were performing physical activity in post test with regards to age at menarche, out of 86 PCOS participants, 29(32.2%) was included in 12 years old, 51(56.6%) was included in 13 years old, 12 (13.3%) was included in 14 years old, and 4(4.4%) were included in 15 years old in post test. Out of 86 PCOS participants 90 (100%) participants were taking fast food in post test.

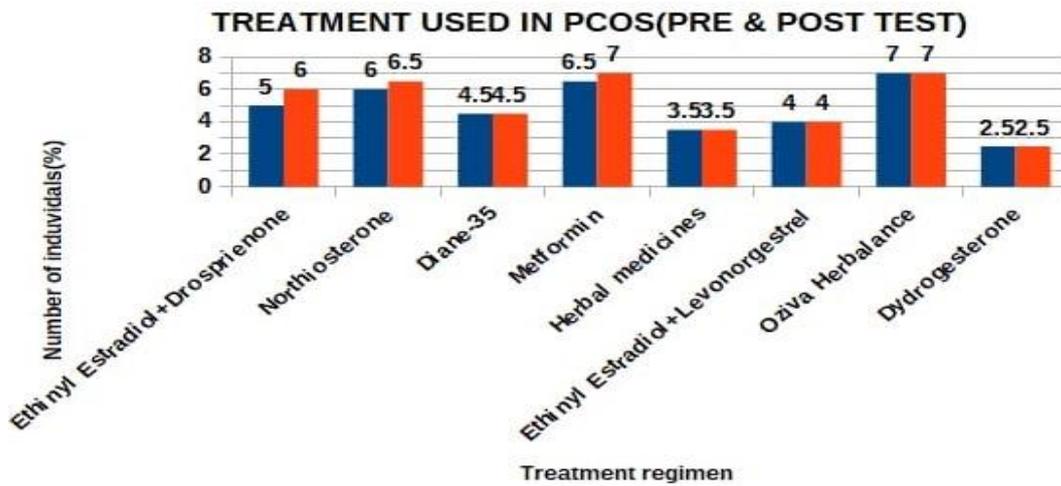


Fig no. 5: The percentage distribution of BMI status of PCOS study participants in both pre and post

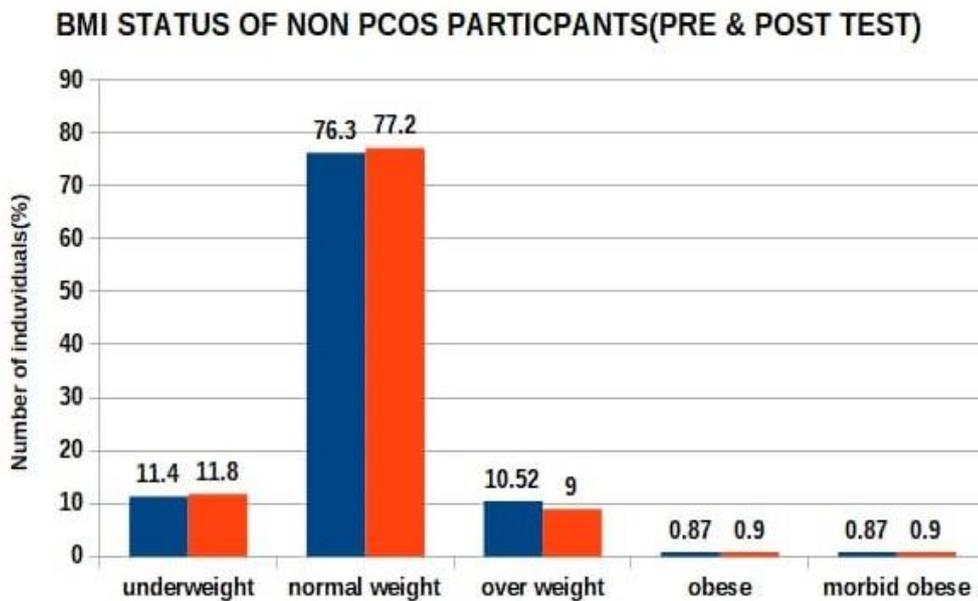


Fig no. 6: The percentage distribution of BMI status of NON PCOS participants in both pre and post test

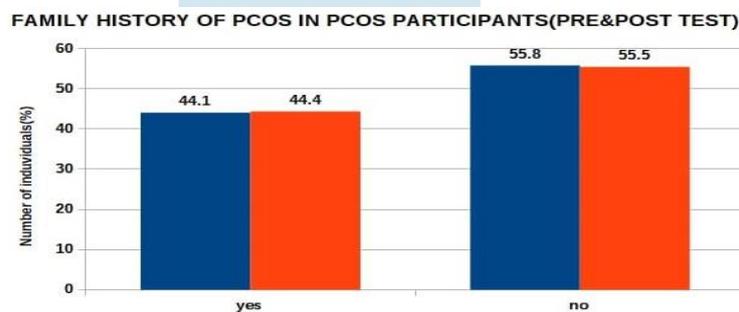


Fig no. 7: The percentage distribution of family history of PCOS among PCOS participants in both pre and post test.

FAMILY HISTORY OF PCOS IN PCOS PARTICIPANTS(PRE&POST TEST)

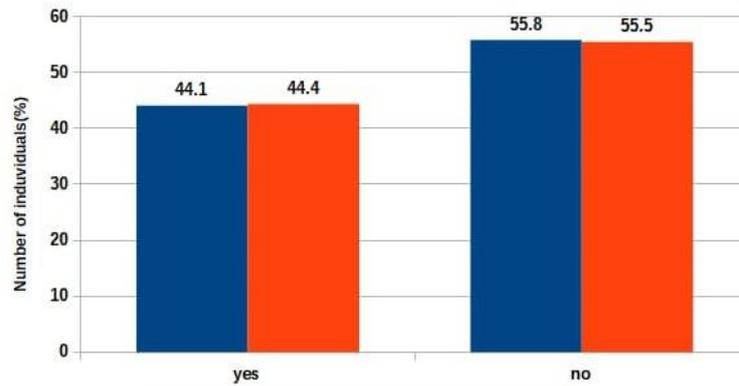


Fig no. 8: The percentage distribution of family history of PCOS among NON PCOS participants in both pre and post test

FAMILY HISTORY OF DIABETES IN PCOS PARTICIPANTS(PRE&POST TEST)

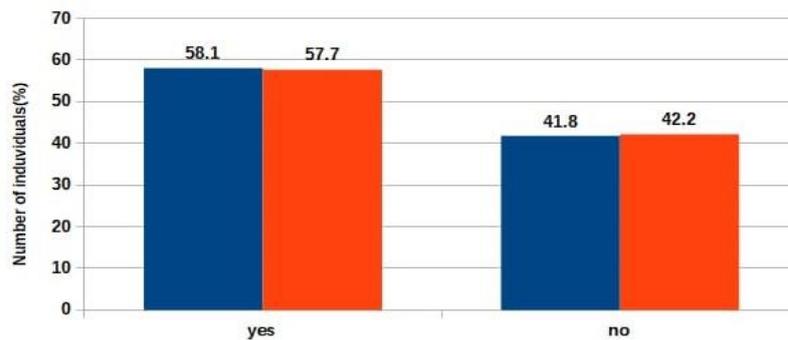


Fig no. 9: The percentage distribution of family history of Diabetes mellitus among PCOS participants in both pre and post test.

FAMILY HISTORY OF DIABETES IN NON PCOS PARTICIPANTS (PRE&POST TEST)

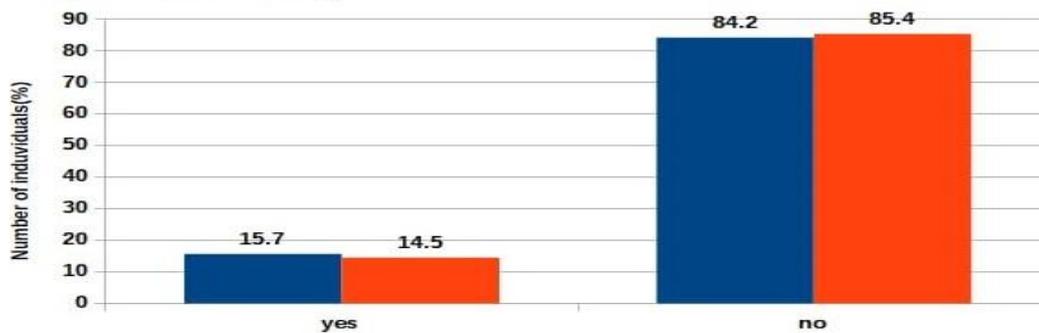


Fig no.10: The percentage distribution of family history of diabetes among NON PCOS participants in both pre and post test.

FAMILY HISTORY OF CVD IN PCOS PARTICIPANTS (PRE&POST TEST)

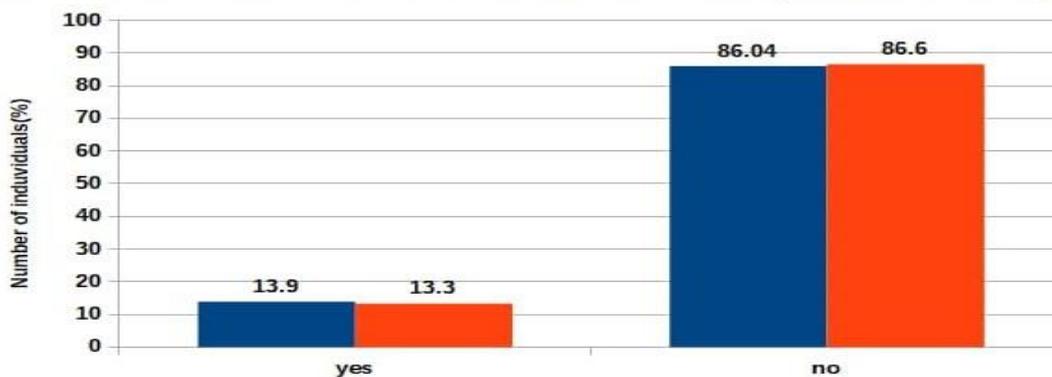


Fig no. 11: The percentage distribution of family history of CVD among PCOS participants in both pre and post test

FAMILY HISTORY OF CVD IN NON PCOS PARTICIPANTS (PRE&POST TEST)

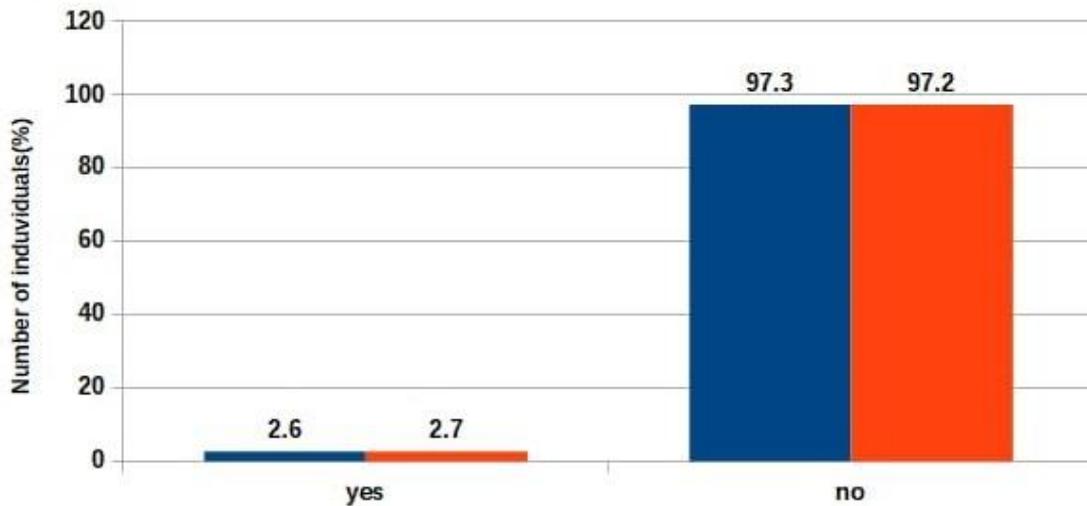


Fig no. 12: The percentage distribution of family history CVD in NON PCOS participants in both pre and post test.

FAMILY HISTORY OF THYROID DISEASES IN PCOS PARTICIPANTS (PRE&POST TEST)

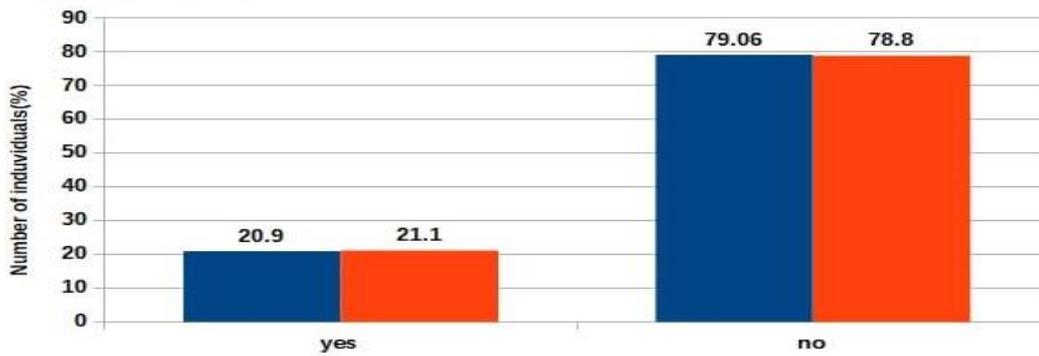


Fig no. 13: The percentage distribution of family history of thyroid disease among PCOS participants in both pre and post test.

FAMILY HISTORY OF THYROID DISEASES IN NON PCOS PARTICIPANTS(PRE&POST TEST)

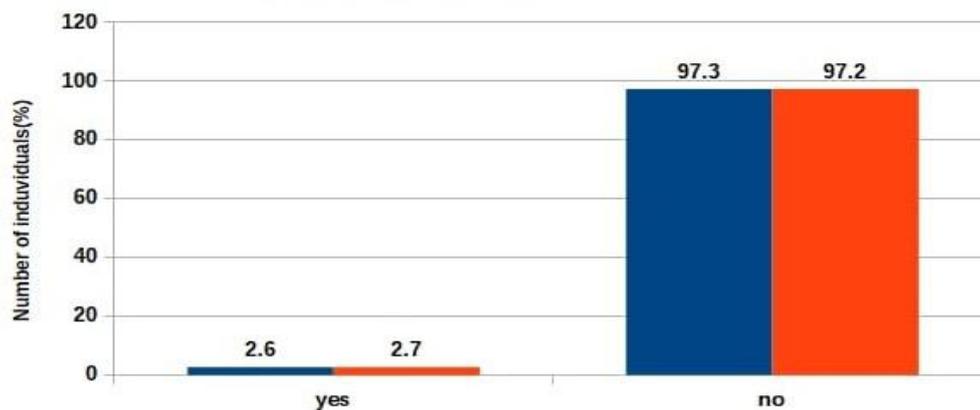


Fig no.14: The percentage distribution of family history of thyroid diseases among NON PCOS participants in both pre and post test.

PHYSICAL ACTIVITY STATUS OF PCOS PARTICIPANTS(PRE&POST TEST)

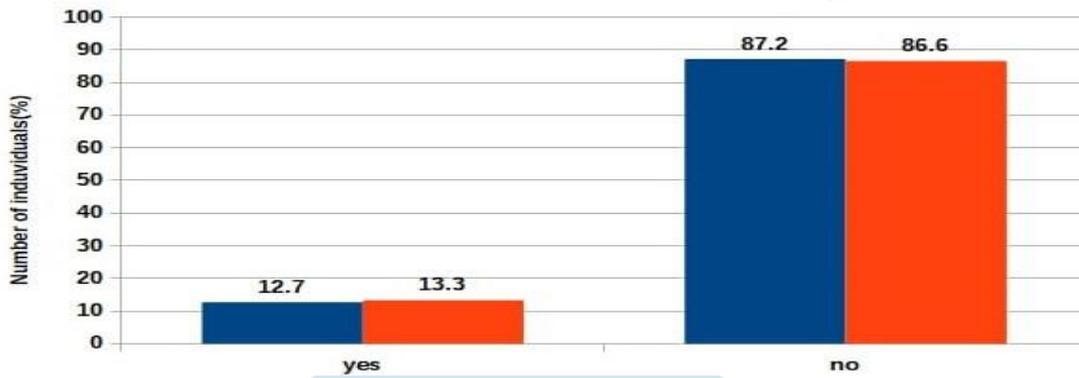


Fig no. 15: The percentage distribution of physical activity status of PCOS participants in both pre and post test.

PHYSICAL ACTIVITY STATUS OF NON PCOS PARTICIPANTS(PRE&POST TEST)

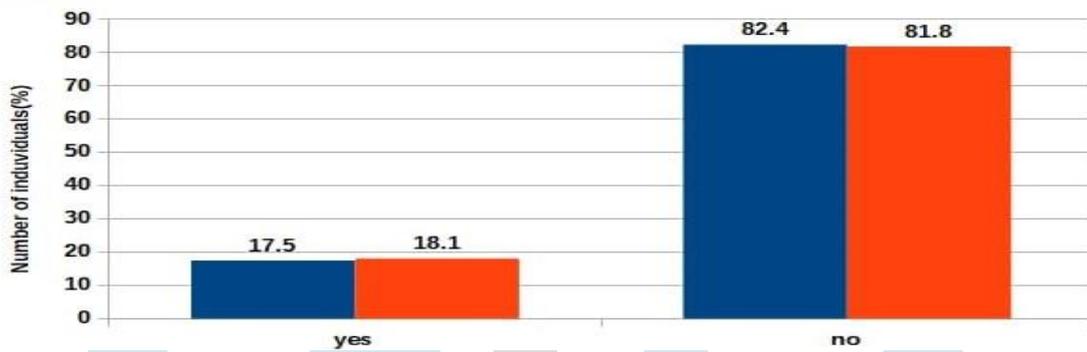


Fig no. 16: The percentage distribution of physical activity status of NON PCOS participants in both pre and post test.

AGE OF MENARCHE IN PCOS PARTICIPANTS(PRE&POST TEST)

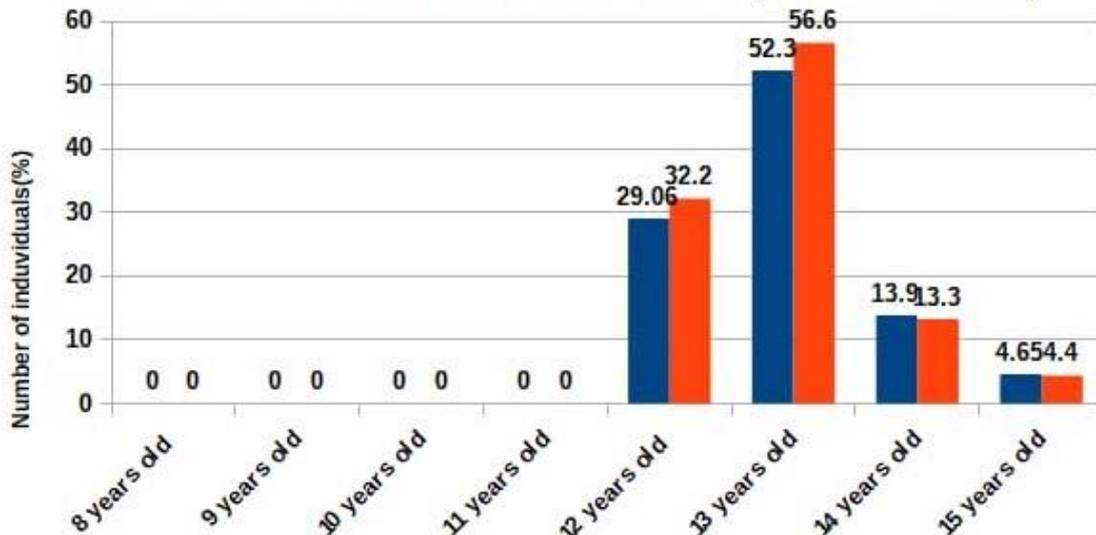


Fig no. 17: The percentage distribution of age of menarche among PCOS participants in both Pre And post test.

AGE OF MENARCHE IN NON PCOS PARTICIPANTS(PRE&POST TEST)

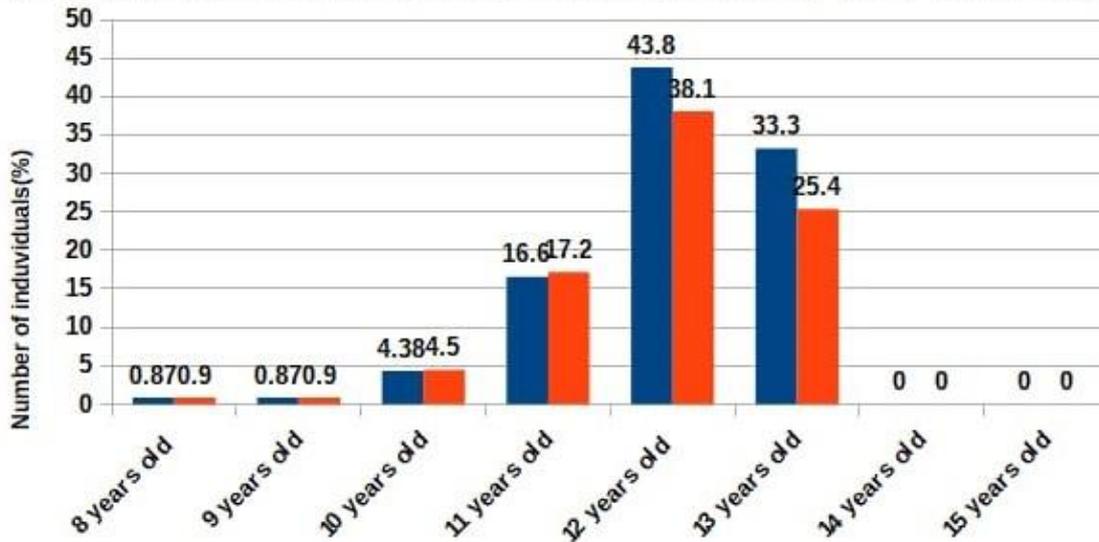


Fig no. 18: The percentage distribution of age of menarche among NON PCOS participants in both pre And post test.

FAST FOOD INTAKE IN PCOS PARTICIPANTS(PRE&POST TEST)

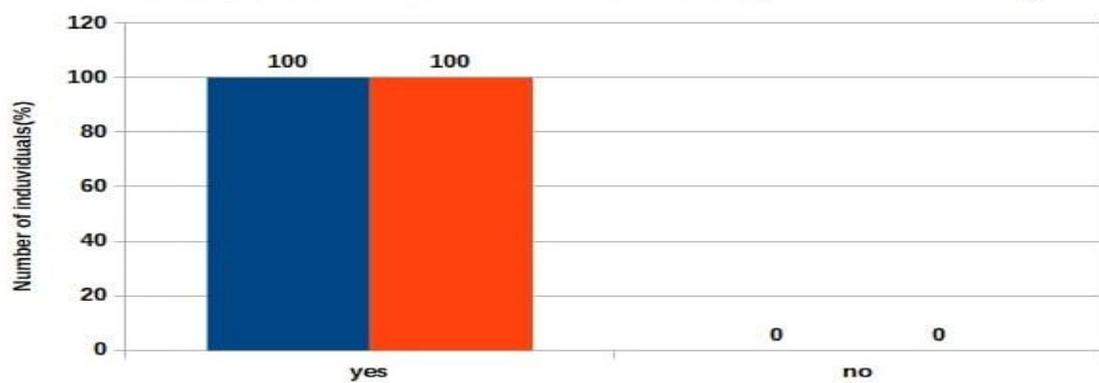


Fig no. 19: The percentage distribution of fast food in take among PCOS participants in both pre and post test

FAST FOOD INTAKE IN NON PCOS PARTICIPANTS(PRE&POST TEST)

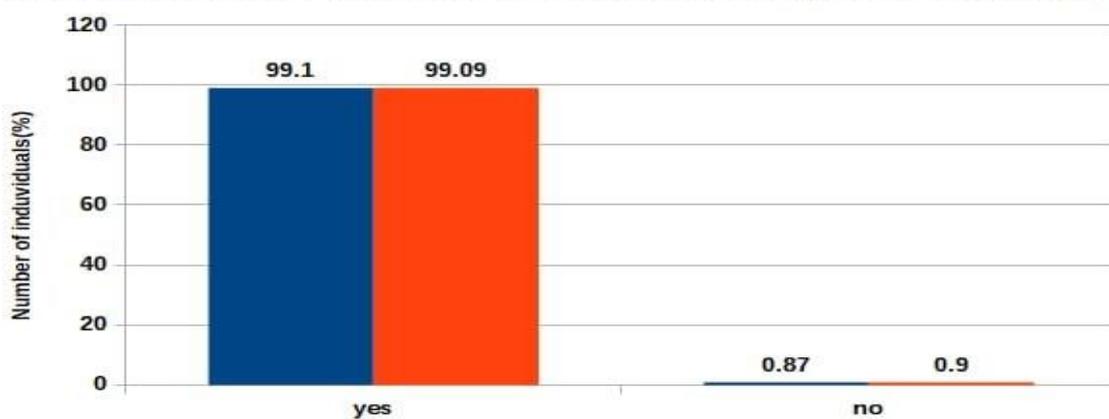


Fig no. 20: The percentage distribution of fast food in take among NON PCOS participants in both pre and post test.

Table no. 4: The percentage distribution awareness provided to study participants regarding PCOS.

AWARENESS	FREQUENCY	PERCENTAGE (%)
Provided	110	55
Not Provided	90	45

A total of 200 participants, 110 participants (55%) were provided awareness regarding PCOS and 90 participants (45%) were not provided awareness regarding PCOS. The awareness was provided to study participants who had scored greater than or equal to 8 and who had scored between 6-8.

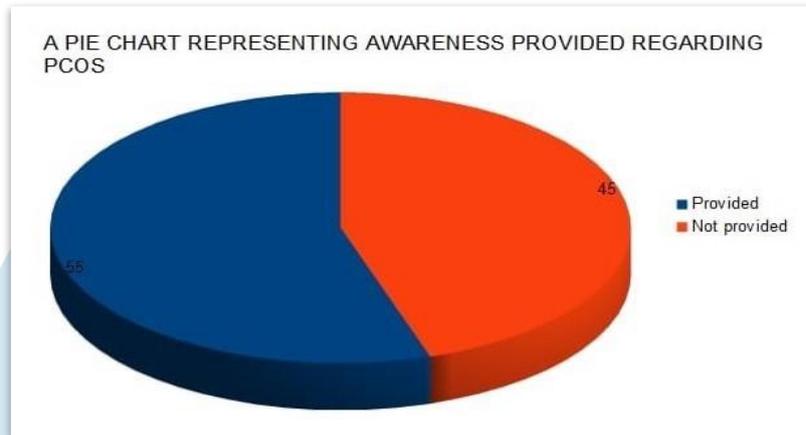


Fig no. 21: The percentage distribution of awareness provided to the study participants regarding PCOS.

IV. DISCUSSION

Poly cystic ovarian syndrome (PCOS) is common endocrine disorder with a global prevalence of 5-10% and is a leading cause of infertility among women of reproductive age. The PCOS is characterized by abnormal menstruation, signs of hyperandrogenism such as acne, hirsutism, alopecia and infertility. Also PCOS is closely associated with developing long term complications such as cardiovascular disease, obesity, insulin, obesity, insulin resistance, glucose intolerances, and type 2 diabetes mellitus (7,8). Among 200 samples, our study had a greater impact in bringing awareness on PCOS, at baseline 193(96.5%) had poor knowledge compared to post test that is 197 (98.5%). The result of our study was supported by Haq N et al conducted a study showed that most of the participants were not aware of PCOS and its signs and symptoms before educational intervention .after educational intervention, majority of the study subject had adequate knowledge about PCOS. The current study showed that majority of study participants with high risk of getting PCOS (score greater than or equal to 8) had abnormal menstruation, hirsutism hyperpigmentation, alopecia, mood swings, and acne.

Our present study has shown that PCOS have been associated with abnormal menstruation among study participants. the result of our study was supported by Nair et al found that 72.6% of women with oligomenorrhea of more than 3 months may be related with endometrial hyperplasia and proper diagnosis and treatment should be given to them.

The present study reveals that most of the women with PCOS had hirsutism due to the elevated activity of 5 alpha reductase in the hair follicles of women with hirsutism the findings of our study was supported by Aggarwal et al conducted a study report that 75%of the women with PCOS had hirsutism and psychological distress.

The current study shows that women with PCOS had acne, hyperpigmentation and alopecia due to excess androgen levels. The results of our study were supported by Fatema K et al. shows that signs of hyperandrogenism such as acne, alopecia, hyperpigmentation were present in most of study participants with PCOS.The present study reveals that study participants with PCOS were using Oziva Herbalance , Metformin, Northiosterone , Ethinyl estradiol+ Drospirenone, Diane-35, herbal medicines, and Dydrogesterone in both pre-test And post test respectively. The influence of genetic components and family history of

reproductive and metabolic abnormalities results in increased risk of PCOS among first degree relatives of PCOS participants (7). This is evident from our study results where participants with positive family history of PCOS, diabetes mellitus, and obesity are at high risk of developing PCOS.

The present study reveals that PCOS women with obesity are at high risk of developing PCOS. The result of our study was supported by Begum, et al. found that obese participants are at high risk of developing PCOS when compared to participants with normal BMI. This is probably due to the influence of various factors such as lack of physical activity and unhealthy eating habits. with more frequent consumption of fast food which containing high amounts of saturated fats and steroids and irregular eating habits leads to alteration in glucose levels, insulin resistance, hormonal changes such as signs of hyper androgenism (acne, alopecia ,and hyperpigmentation closely associated with risk of developing PCOS .So the PCOS can be controlled by avoiding fast food intake and performing physical activities.

PCOS is the most common endocrine disorder that affects both physical and mental well-being of the young women, hence there is a need for increased awareness, comprehensive screening as well only diagnosis and treatment is required to prevent the long-term complication associated with PCOS.PCOS can managed by adopting simple solution such as physical activity, yoga, healthy diet will helps preventing future complications.

V. CONCLUSIONS

The study was done to assess the level of knowledge regarding prevention of PCOS among young women. The study reveals that majority of the among 200 samples, majority of them 193 (96.5%) had poor knowledge, 7 (3.5%). The post test among 200 samples reveals that majority of them 197 (98.5%) had adequate knowledge, 3(1.5%) had poor knowledge regarding PCOS.we found that after providing awareness regarding PCOS, the level of knowledge among young women was increased significantly. Next the present study was focusing on the evaluation of the presenting complaints among young women with PCOS. The current study showed that majority of study participants with high risk of getting PCOS (Score greater than or equal to 8) had abnormal menstruation, hirsutism, hyper pigmentation, alopecia, mood swings, acne and weight gain in both pre test and post test. The study was done to identify the currently used therapeutic regimen for the treatment of PCOS. The present study reveals that study participants were using Oziva Herbalance for the treatment of PCOS ,13(6.5%) were using Metformin, 12(6%) students were using Northiosterone ,10(5%) were using Ethinyl estradiol+ Drospirenone, 9(4.5%) students were using Diane-35, 7(3.5%) students were using herbal medicines,and 5(2.5%) students were using Dydrogesterone in pre-test. And 14 (7%) students were using Oziva Herbalance and Metformin for the treatment of pcos, 13(6.5%) students were using Northiosterone ,12(6%) were using Ethinyl estradiol+ Drospirenone, 9(4.5%) students were using Diane-35, 7(3.5%) students were using herbal medicines, and 5(2.5%) students were using Dydrogesterone in post-test. The present study was mainly focusing on the assessment of risk factors associated with PCOS among young women. The study reveals that study participants with PCOS had a positive family history of diabetes mellitus, PCOS, obesity and thyroid disease The present study was also focusing on providing awareness to young women about symptoms of PCOS for understanding more about the diseases, long term complication and the life style modification for the prevention of PCOS.

Limitation:

- Long term follow up of study participants cannot be carried due to lack of time
- The study is limited in between age group of 18-25 years old.
- Clinical evaluation was not available

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