

Social, Biological And Demographic Attributes Of Females Suffering From Polycystic Ovarian Syndrome.

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INTRODUCTION

Polycystic ovary syndrome is the name given to a condition in which women with polycystic ovaries also have one or more additional symptoms. It was first 'discovered' in 1935 by Doctors Stein and Leventhal, so for many years it was known as the Stein-Leventhal syndrome.

Polycystic ovary syndrome (PCOS) is recognized as one of the most common endocrine/metabolic disorders in women. Its prevalence depends in part upon the diagnostic criteria used to define the disorder. As an example, in a report of 827 women with World Health Organization (WHO) class II oligoovulation (euestrogenic normogonadotropic ovulatory dysfunction), 456 (55 percent) were classified as having PCOS by the National Institutes of Health (NIH) 1990 criteria (irregular menses, biochemical and/or clinical hyperandrogenism, and other causes of hyperandrogenism excluded). In contrast, 754 (91 percent) women were considered to have PCOS using the broader Rotterdam 2003 criteria (which requires two out of three of the following: oligo- and/or anovulation, clinical and/or biochemical signs of hyperandrogenism, and polycystic ovaries [by ultrasound]). Other causes of hyperandrogenism must also be excluded.

How common is it?

PCOS affects millions of women in the UK. About one in five women in the UK have polycystic ovaries, and approximately one in 10 have PCOS to some degree.

Who is affected?

Many women with PCOS are overweight or obese and have an acquired form of PCOS. They may have excessive body hair and hair loss from the head. PCOS also tends to run in families. If you have PCOS but are not overweight, you probably have a history of PCOS in your family.

Women with PCOS may also have a family history of diabetes and high cholesterol.

Outlook

PCOS cannot be cured, but the symptoms can be treated. Treatment options include lifestyle advice (losing weight) and the combined contraceptive pill.

If PCOS is not properly managed, it can lead to problems in later life, such as type 2 diabetes and high cholesterol level.

OBJECTIVES

- To determine frequency of other co-morbidities present in patients of PCOD attending Allama Iqbal Memorial Teaching Hospital, Sialkot..
- To identify predictors of PCOD on the basis of information collected by the study subjects.
- To evaluate the effect of PCOD on routine and social life of study subjects.

SUBJECT AND METHOD

Study Design:

Cross sectional study in which questionnaire based survey is conducted.

Study Site:

Medical and gynecological OPDs of Allama Iqbal Memorial Teaching Hospital and some private hospitals of Sialkot, Pakistan.

Sample Size:

40 females

Study Population:

Females suffering from PCOD attending some health care facility of Sialkot

Sampling Technique:

NON-probability purposive sampling

Inclusion Criteria:

All women of reproductive age group who have been diagnosed by a competent doctor as a case of PCOD.

Exclusion Criteria:

- Females with suspected PCOD
- Females with malignancies with PCOD

Data Collection Tools:

A structured performa was used per data collection.

- **ETHICAL CONSIDERATION**

Verbal consent taken from respondents and confidentiality of the subjects is assured.

Data Analysis:

- **STUDY VARIABLES:**

- Age group
- Marital status
- Residence
- Socioeconomic status
- Educational status
- Diet including intake of fast food, vegetables or meat and carbohydrates.
- Obesity
- Menstrual irregularities
- Skin problems like acne and excessive facial hair growth
- Stress and other psychological conditions
- Smoking
- Co-morbidities
- Family history
- Social problems faced by the subjects

Statistical analysis was done using **SPSS**

RESULTS

Table 1 : Age of patient

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	11-20 yrs	5	12.5	12.5	12.5
	21-30 yrs	20	50.0	50.0	62.5
	31-40 yrs	13	32.5	32.5	95.0
	41-50yrs	2	5.0	5.0	100.0
	Total	40	100.0	100.0	

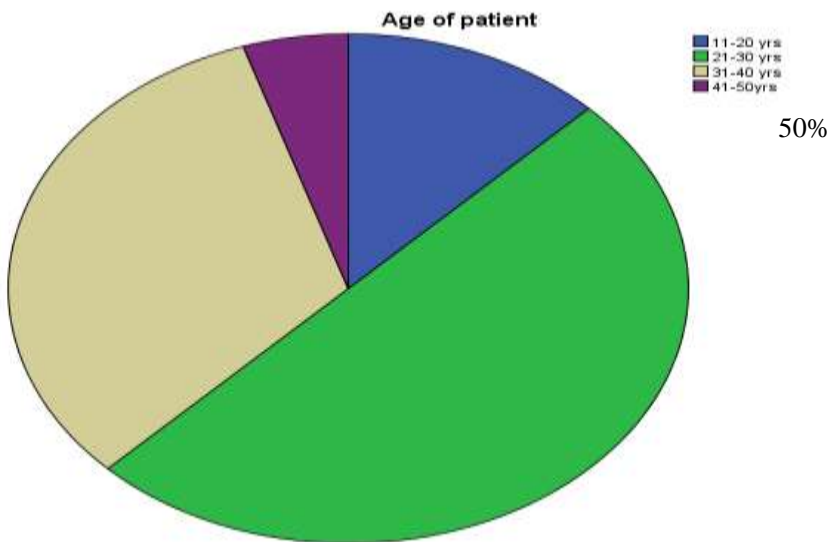


Table 2 Educational Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Middle	1	2.5	2.5	2.5
	Matric	9	22.5	22.5	25.0
	Inter	8	20.0	20.0	45.0
	bachelor	18	45.0	45.0	90.0
	Others	4	10.0	10.0	100.0
	Total	40	100.0	100.0	

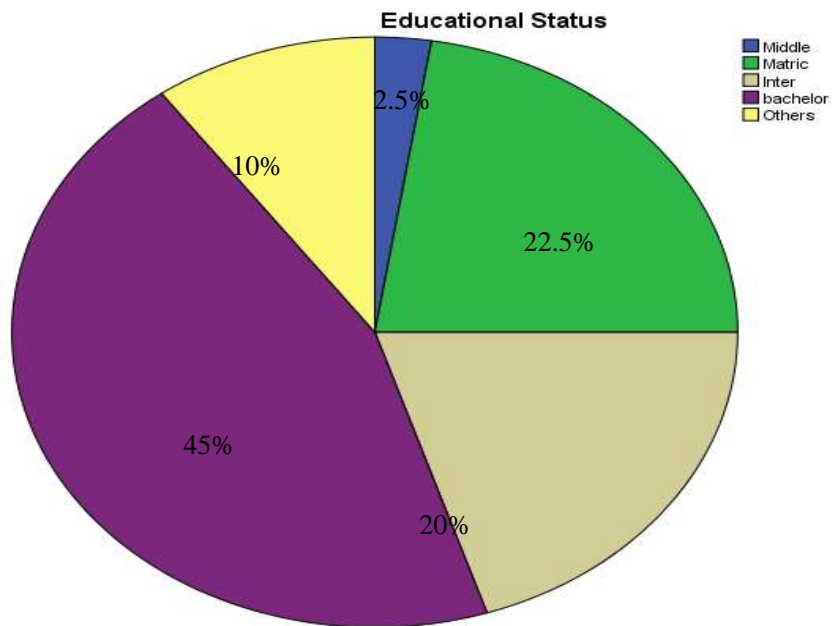


Table 3 : Socioeconomic Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	1	2.5	2.5	2.5
	Middle	32	80.0	80.0	82.5
	High	7	17.5	17.5	100.0
	Total	40	100.0	100.0	

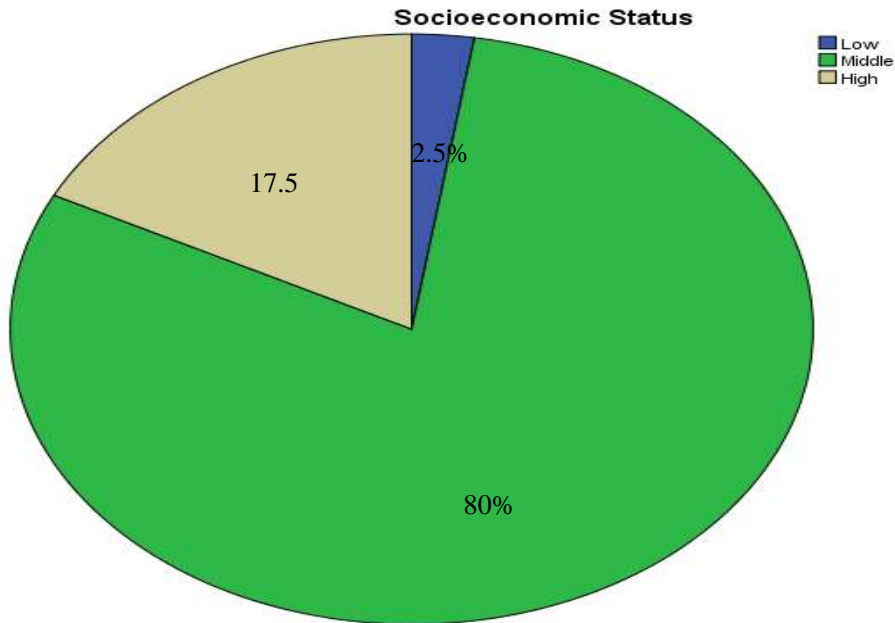


Table 4 : Apparent Height

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Short	5	12.5	12.5	12.5
	Medium	24	60.0	60.0	72.5
	Tall	11	27.5	27.5	100.0
Total		40	100.0	100.0	

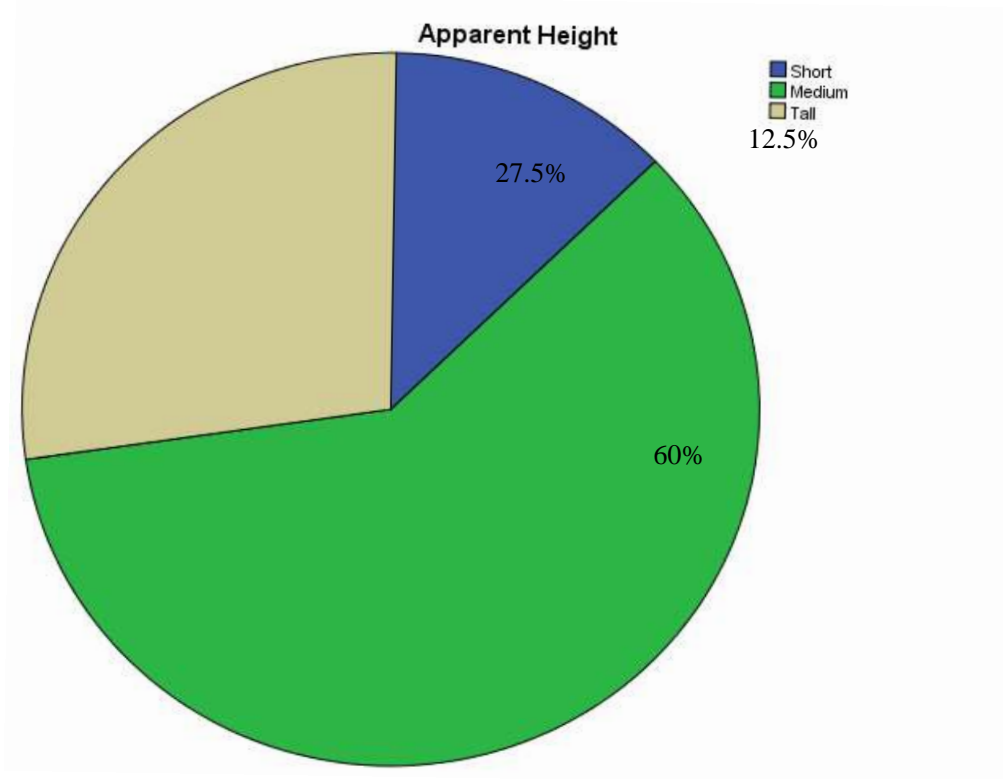


Table 5 Physical activity

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Exercise	3	7.5	7.5	7.5
Walk	10	25.0	25.0	32.5
Household	12	30.0	30.0	62.5
None	15	37.5	37.5	100.0
Total	40	100.0	100.0	

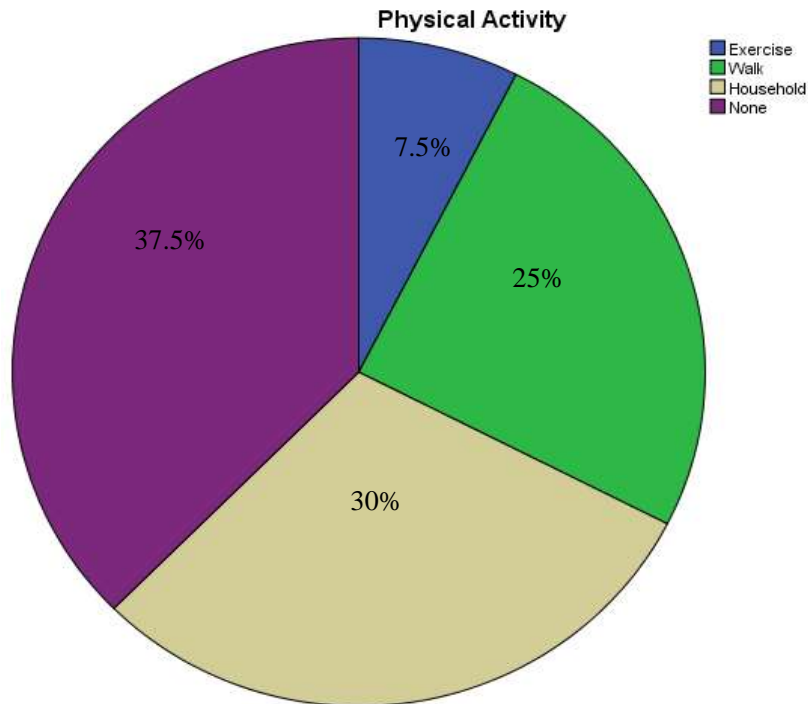


Table 6 Dietary Habits

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Vegetarian	13	32.5	32.5	32.5
Meat Lover	27	67.5	67.5	100.0
Total	40	100.0	100.0	

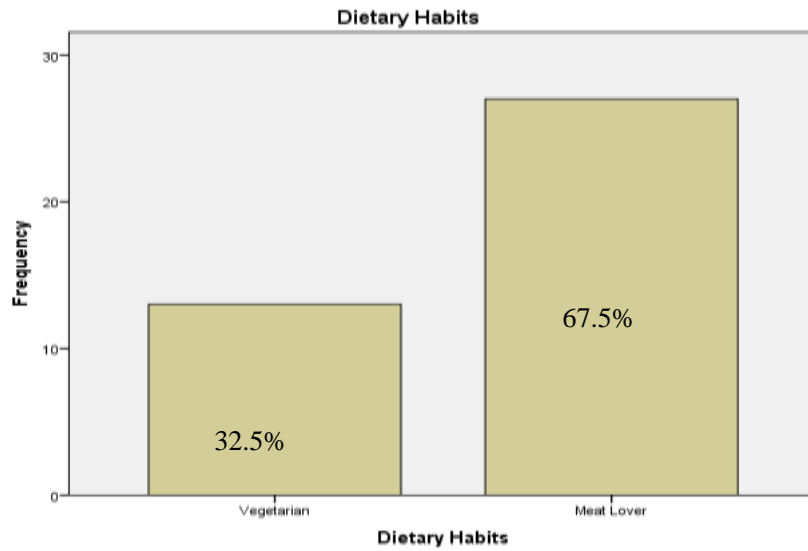


Table 7: Fast Food Lover

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Y	26	65.0	65.0	65.0
N	14	35.0	35.0	100.0
Total	40	100.0	100.0	

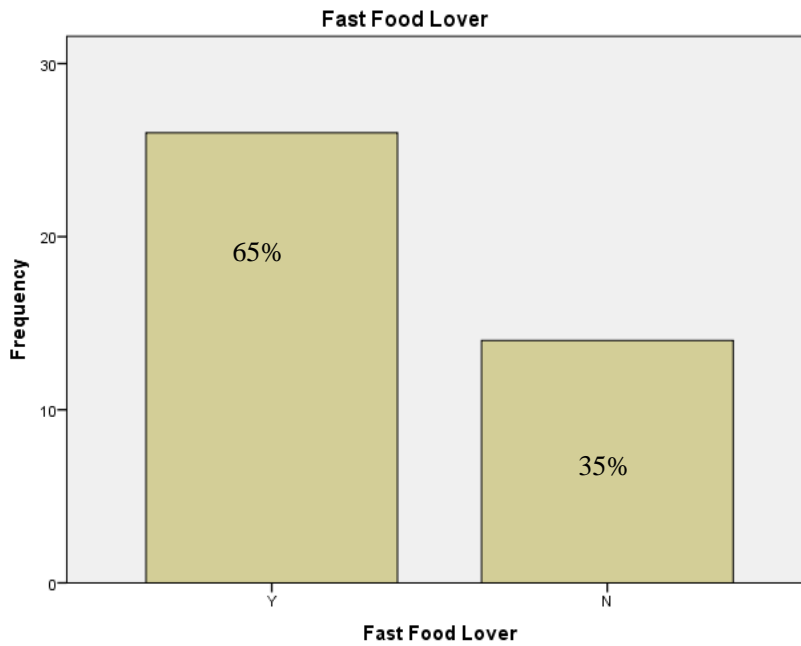


Table 8: Carbohydrate Craving

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	15	37.5	37.5	37.5
	N	25	62.5	62.5	100.0
	Total	40	100.0	100.0	

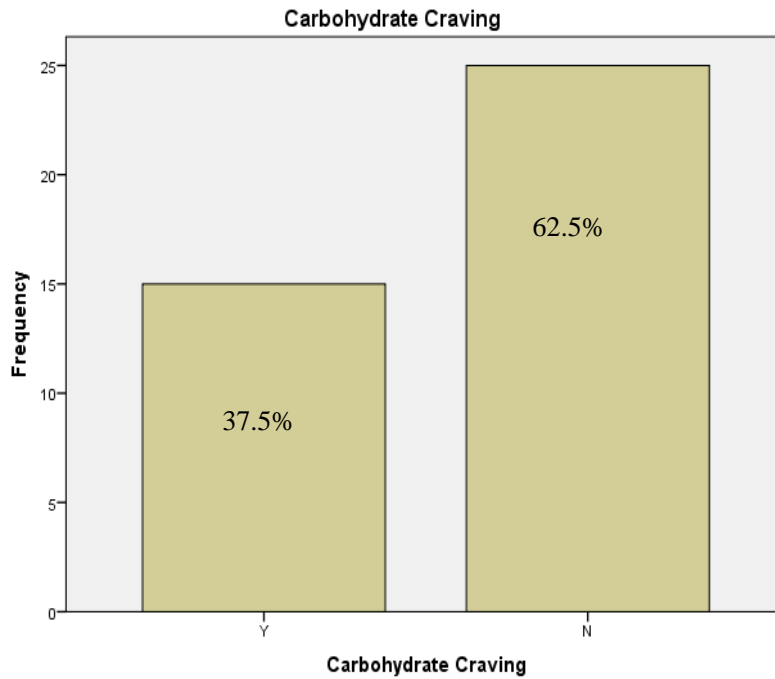


Table 9: Smoking

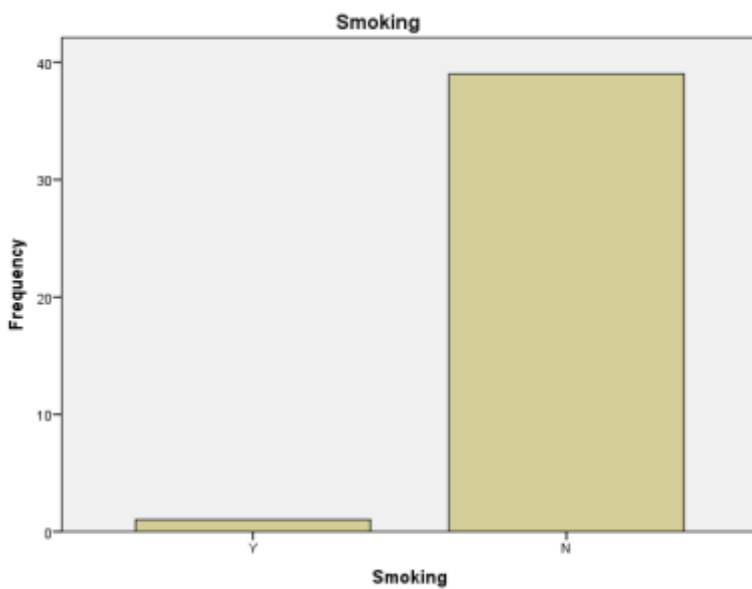
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	1	2.5	2.5	2.5
	N	39	97.5	97.5	100.0
Total		40	100.0	100.0	

97.5%

2.5%

Table 10 Stress

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	28	70.0	70.0	70.0
	N	12	30.0	30.0	100.0
Total		40	100.0	100.0	



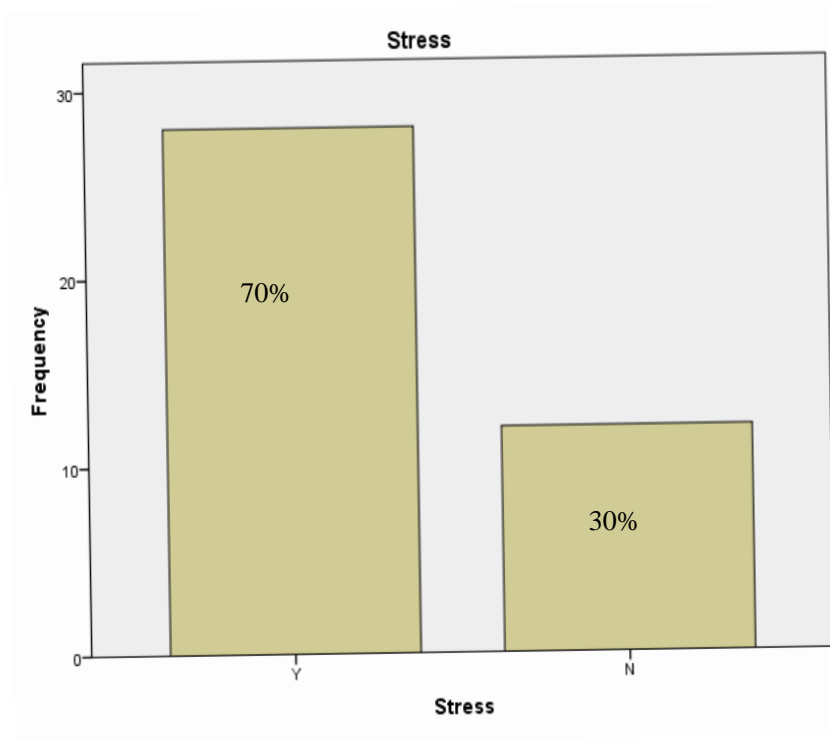


Table 11: Continuous Weight Gain

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	38	95.0	95.0	95.0
	N	2	5.0	5.0	100.0
	Total	40	100.0	100.0	

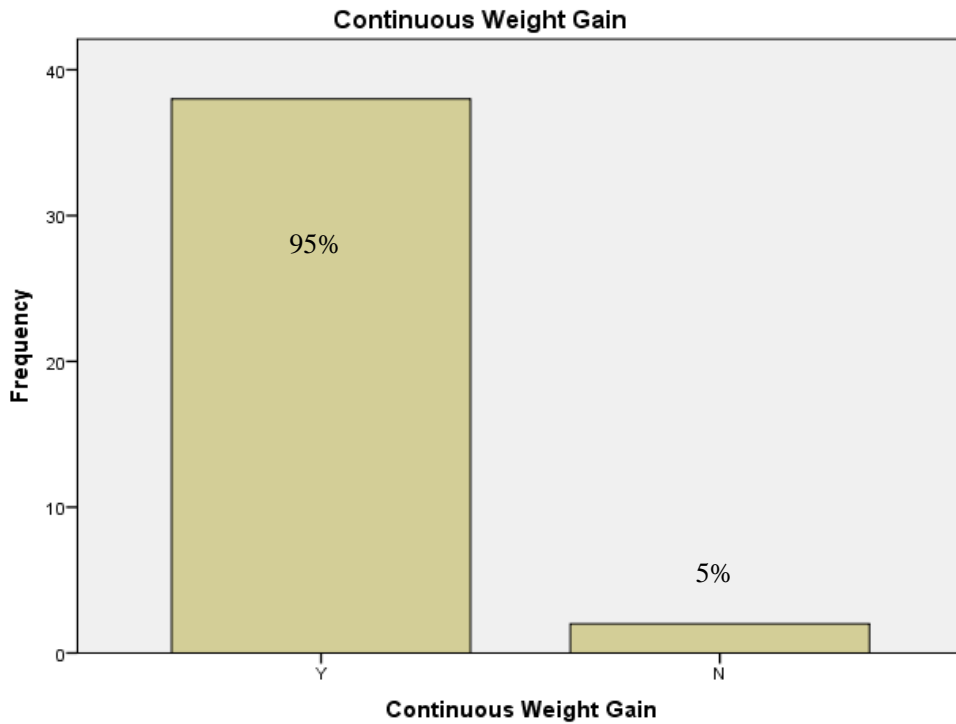


Table 12 Difficulty In Weight Loss

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	26	65.0	65.0	65.0
	N	14	35.0	35.0	100.0
Total		40	100.0	100.0	

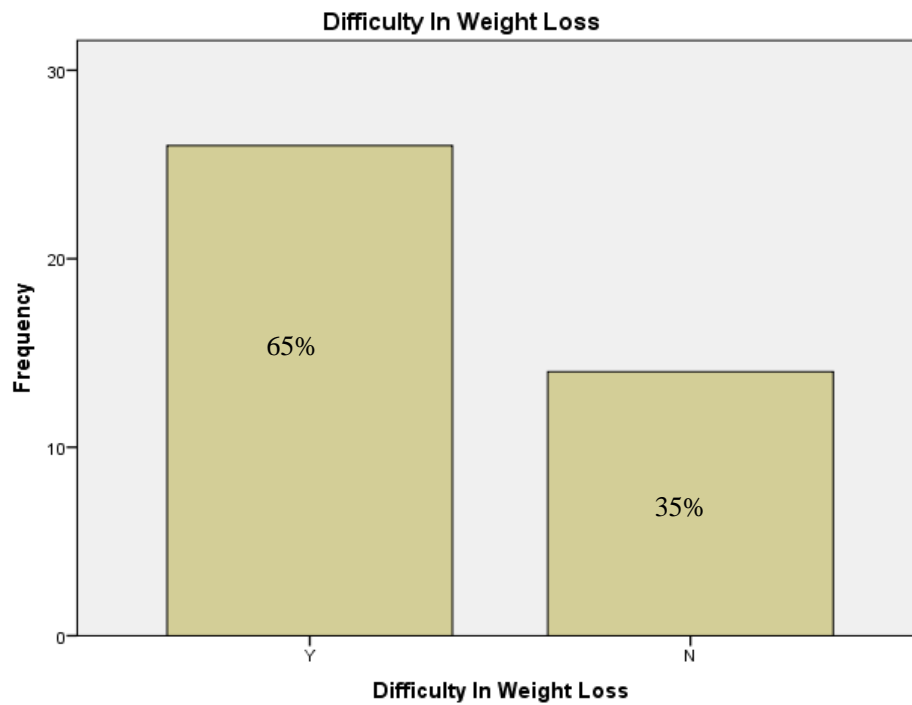


Table 13 Waistline

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid > 35 inches	18	45.0	45.0	45.0
< 35 Inches	22	55.0	55.0	100.0
Total	40	100.0	100.0	

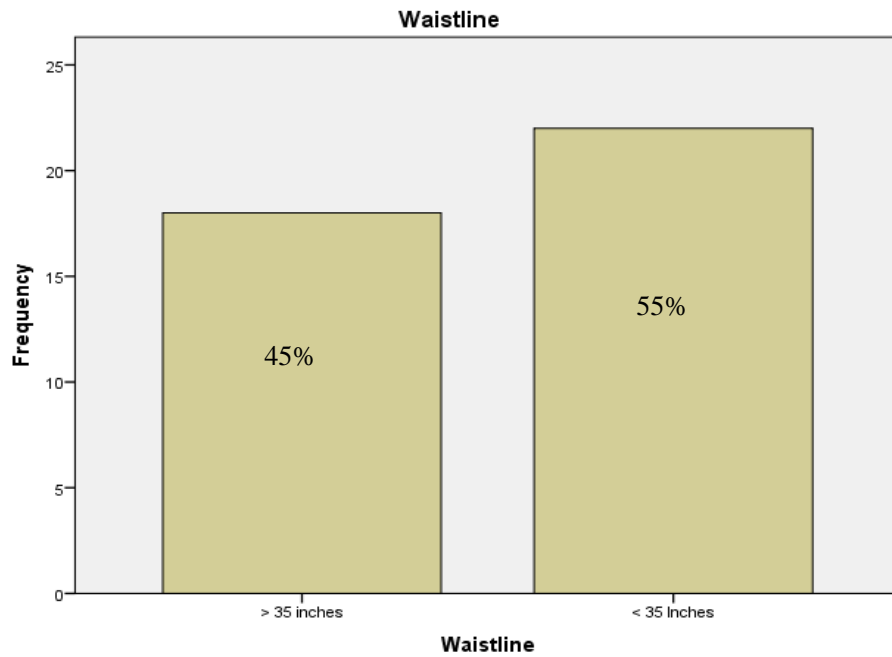


Table 14 Obese Before Diagnosis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	22	55.0	55.0	55.0
	N	18	45.0	45.0	100.0
Total		40	100.0	100.0	

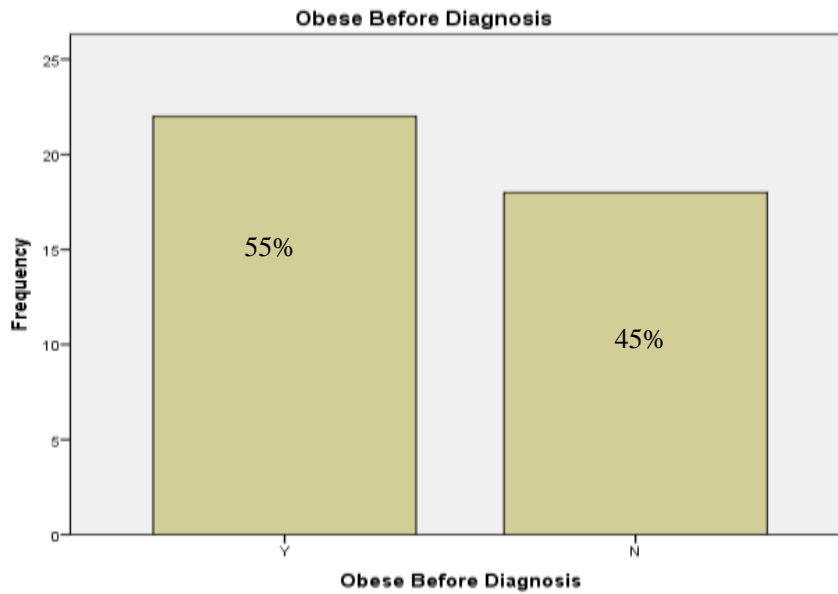


Table 15: Duration of Periods

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid > week	25	62.5	62.5	62.5
< Week	15	37.5	37.5	100.0
Total	40	100.0	100.0	

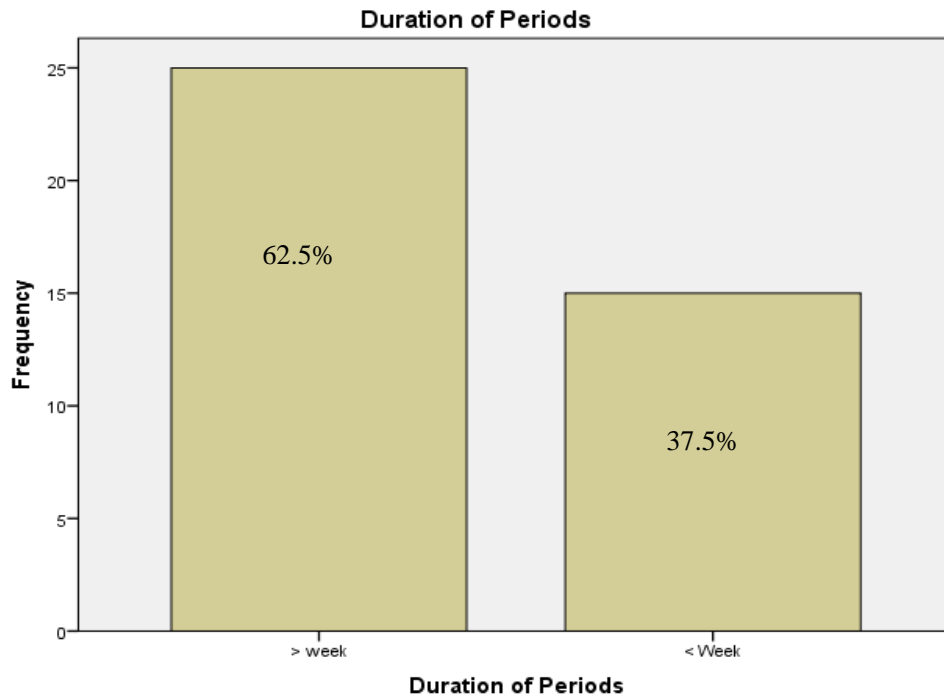


Table 16 Unpredictable Periods

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	27	67.5	67.5	67.5
	N	13	32.5	32.5	100.0
	Total	40	100.0	100.0	

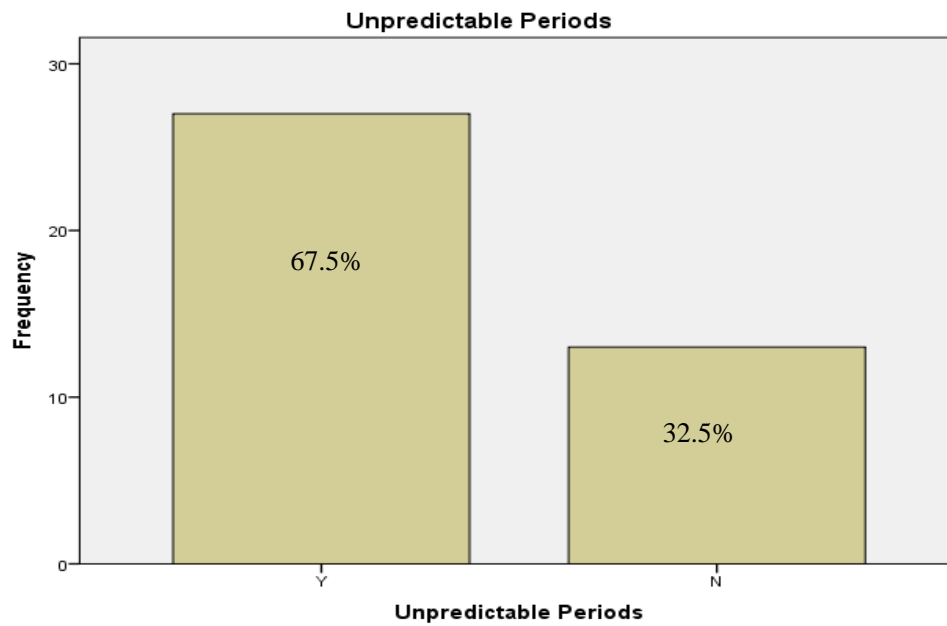


Table 17: Menorrhagia

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Y	19	47.5	47.5	47.5
N	21	52.5	52.5	100.0
Total	40	100.0	100.0	

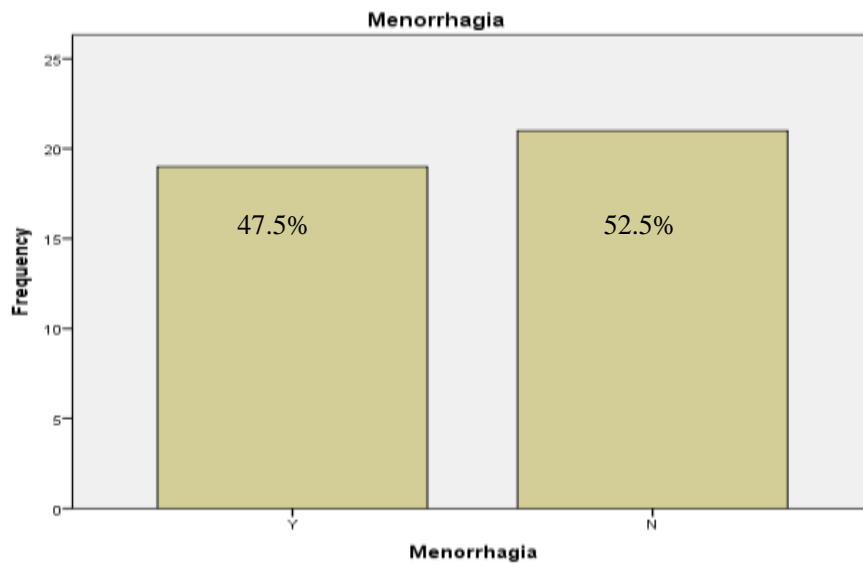


Table 18: Oligomenorrhea

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	17	42.5	42.5	42.5
	N	23	57.5	57.5	100.0
Total		40	100.0	100.0	

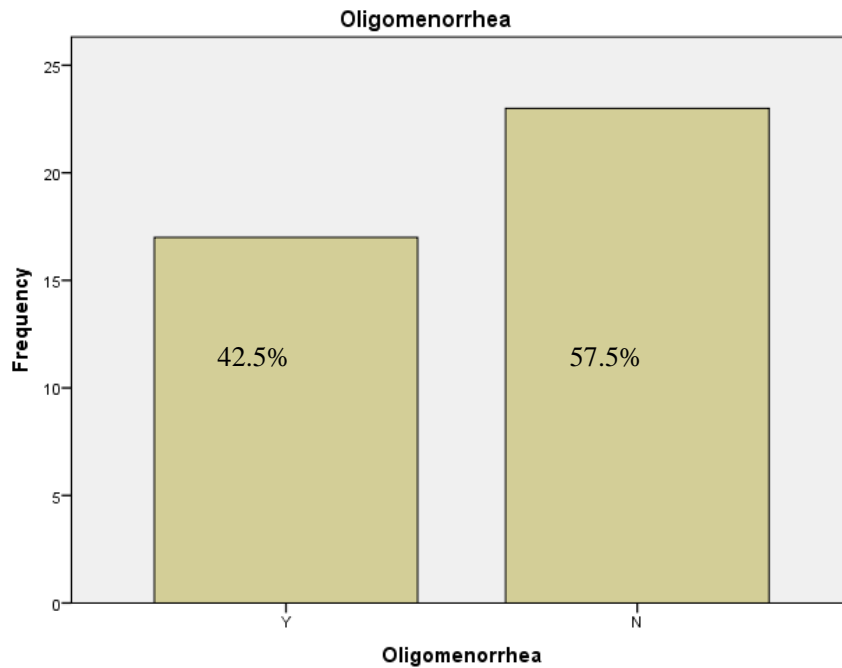


Table 19: Period Irregularity before Diagnosis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	31	77.5	77.5	77.5
	N	9	22.5	22.5	100.0
Total		40	100.0	100.0	

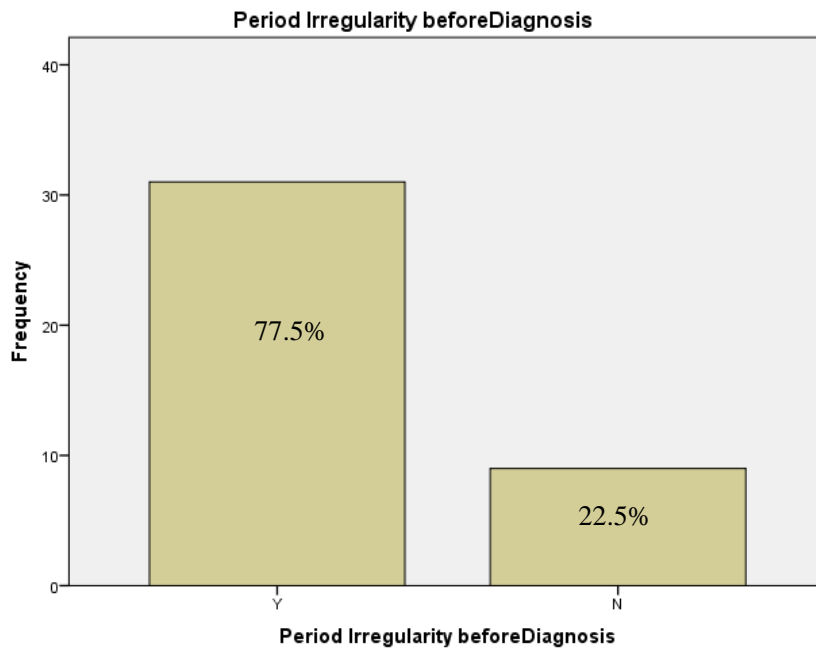


Table 20: Acne

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Y	27	67.5	67.5	67.5
N	13	32.5	32.5	100.0
Total	40	100.0	100.0	

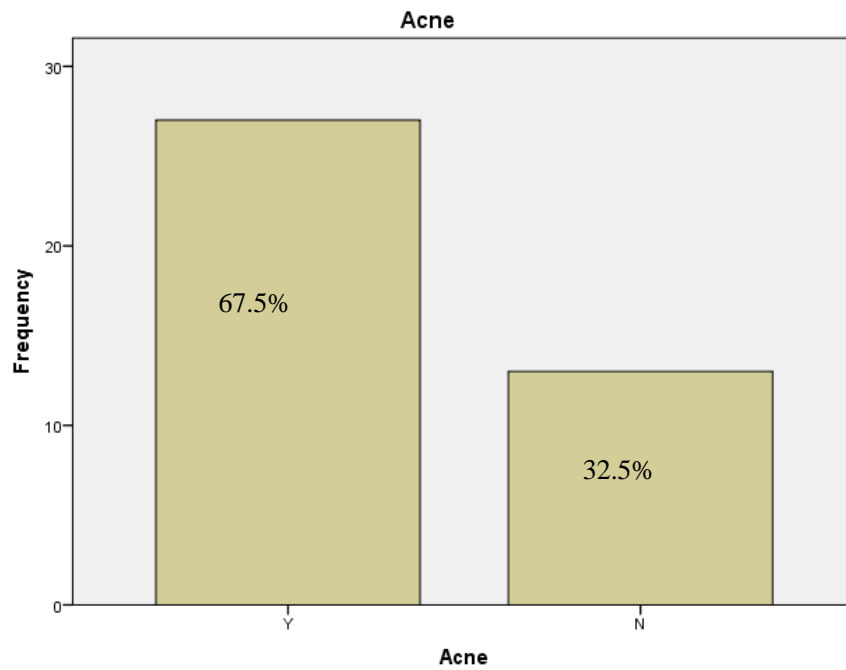


Table21: Hirsutism

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Y	27	67.5	67.5	67.5
N	13	32.5	32.5	100.0
Total	40	100.0	100.0	

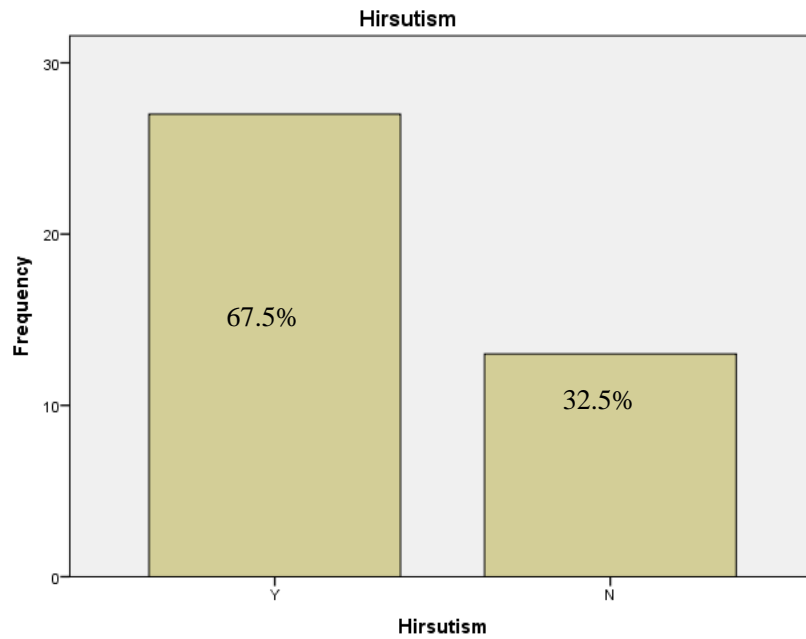


Table 22 :Skin Pigmentation

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Y	15	37.5	37.5	37.5
N	25	62.5	62.5	100.0
Total	40	100.0	100.0	

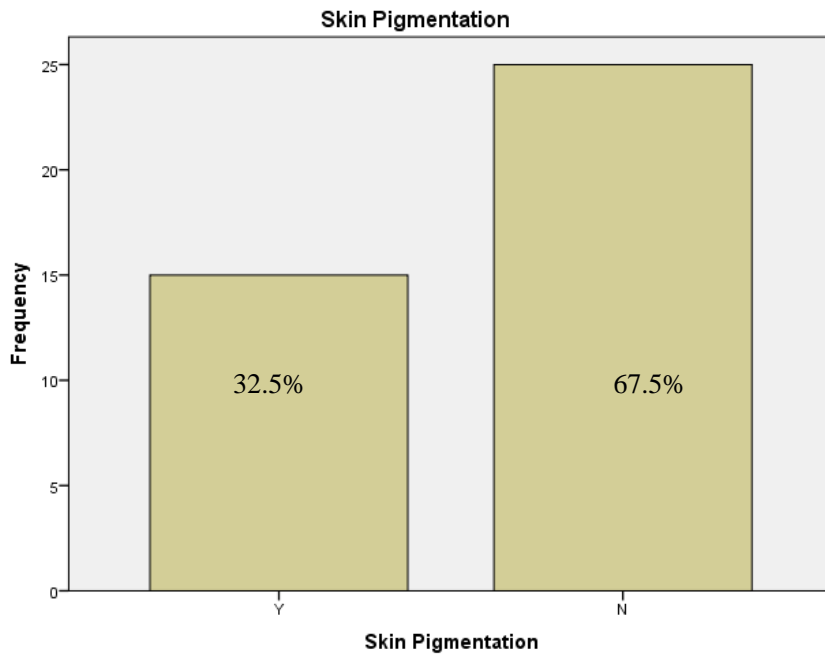


Table 23: Difficulty In Getting Pregnant

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	13	32.5	32.5	32.5
	N	9	22.5	22.5	55.0
	Not applicable	18	45.0	45.0	100.0
Total		40	100.0	100.0	

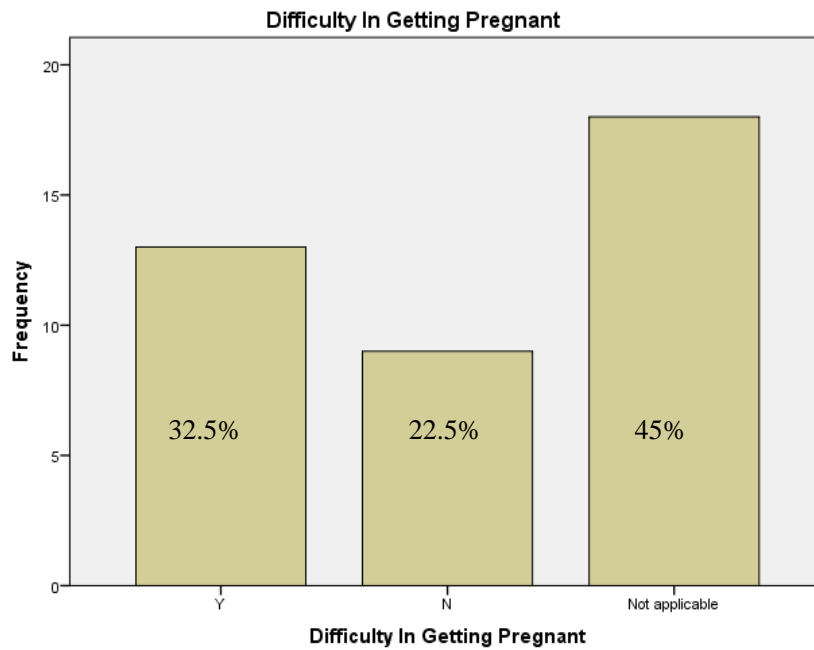


Table 24: Already Hypertensive

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Y	17	42.5	42.5	42.5
N	23	57.5	57.5	100.0
Total	40	100.0	100.0	

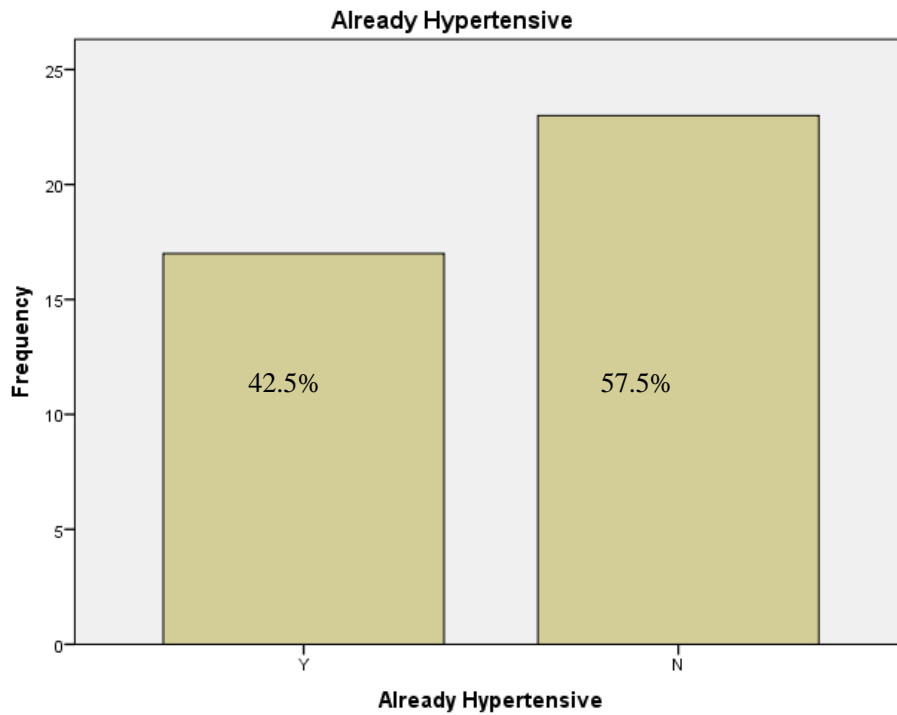


Table 25: Already Diabetic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	8	20.0	20.0	20.0
	N	32	80.0	80.0	100.0
Total		40	100.0	100.0	

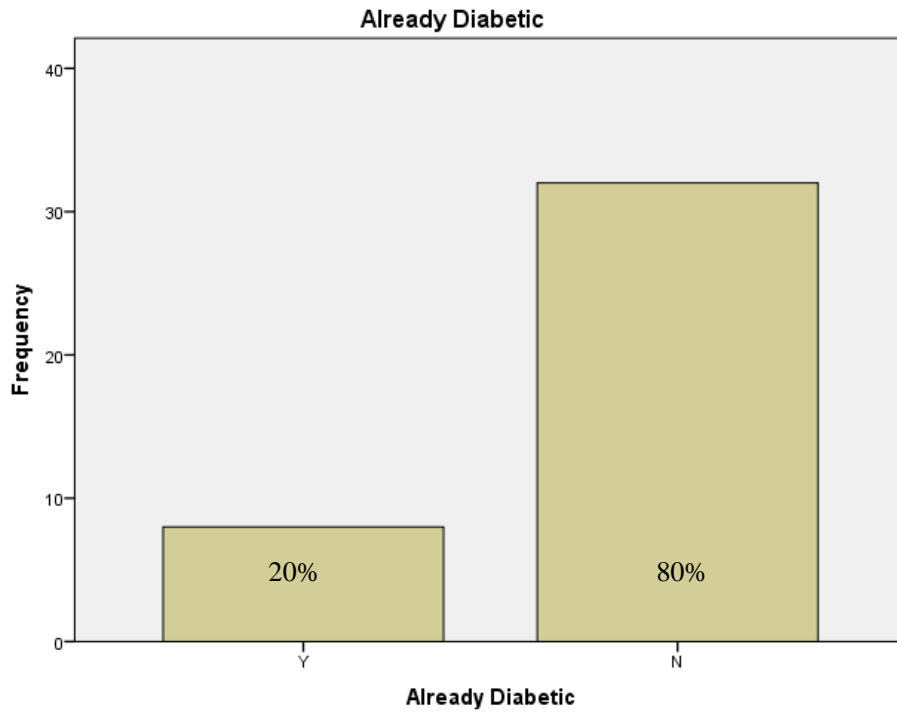


Table 26: Already Cardiac Patient

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Y	3	7.5	7.5	7.5
N	37	92.5	92.5	100.0
Total	40	100.0	100.0	

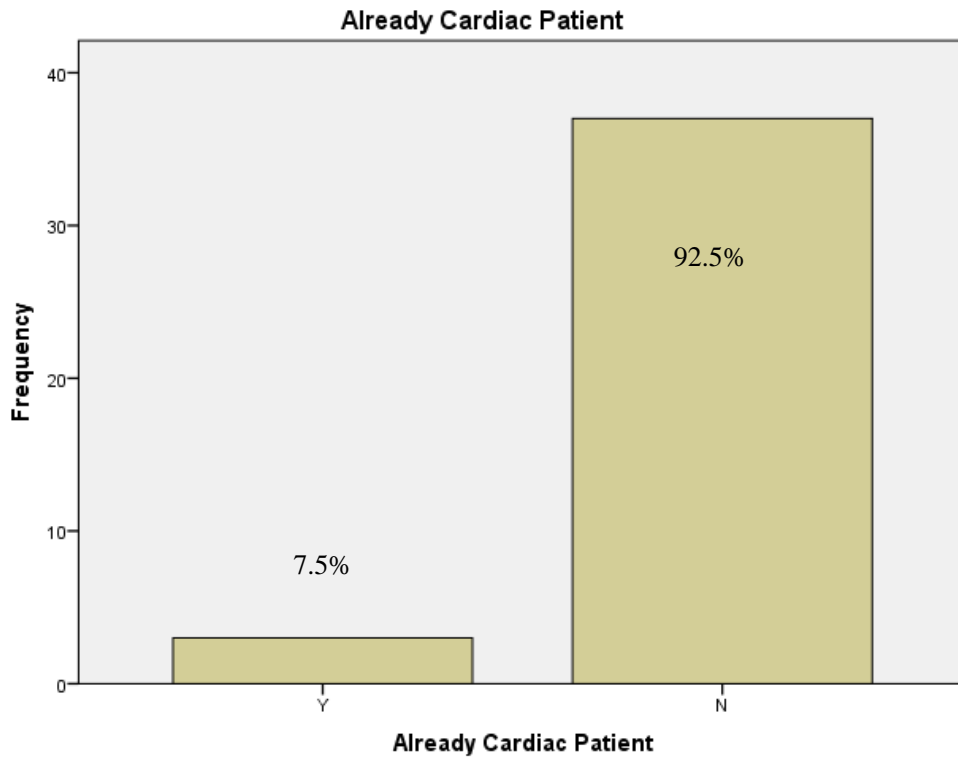


Table 27: Already Asthmatic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	1	2.5	2.5	2.5
	N	39	97.5	97.5	100.0
Total		40	100.0	100.0	

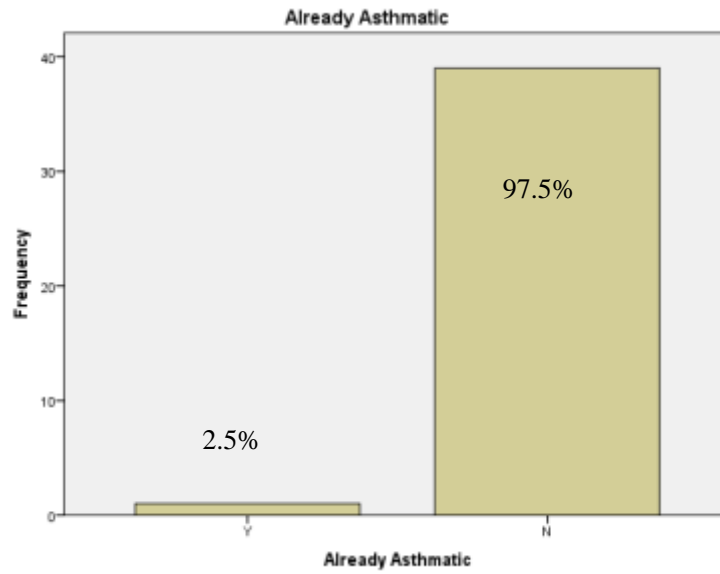


Table 28: Irregular Bowel Habits

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Irregular	18	45.0	45.0	45.0
Regular	22	55.0	55.0	100.0
Total	40	100.0	100.0	

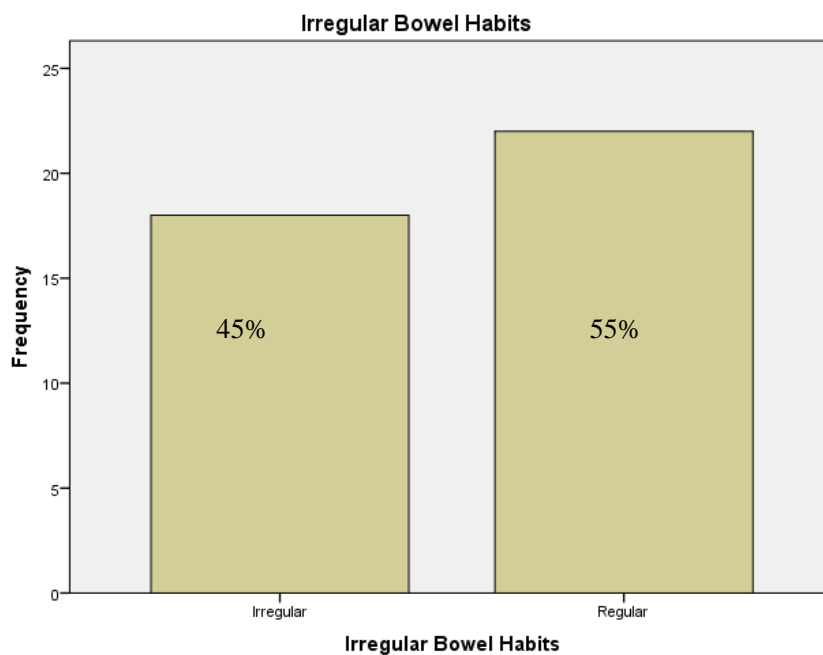


Table 29: Family History of Period Irregularities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	12	30.0	30.0	30.0
	N	28	70.0	70.0	100.0
Total		40	100.0	100.0	

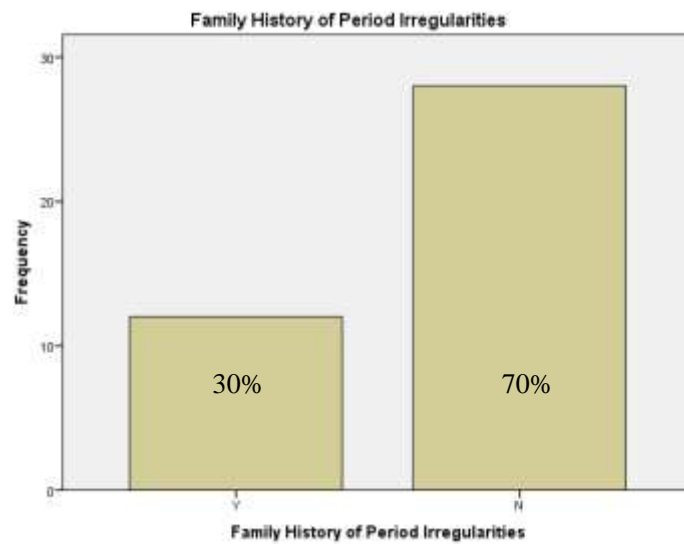


Table 30: Family History Of Hirsutism

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	10	25.0	25.0	25.0
	N	30	75.0	75.0	100.0
Total		40	100.0	100.0	

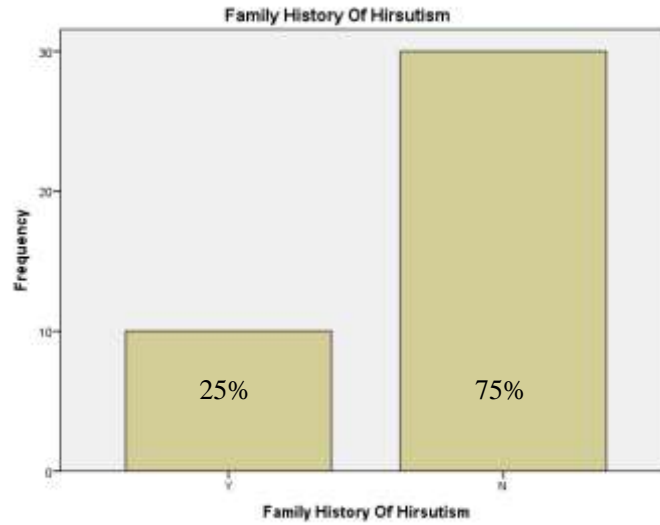


Table 31: Social Problem due to disease

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	19	47.5	47.5	47.5
	N	21	52.5	52.5	100.0
Total		40	100.0	100.0	

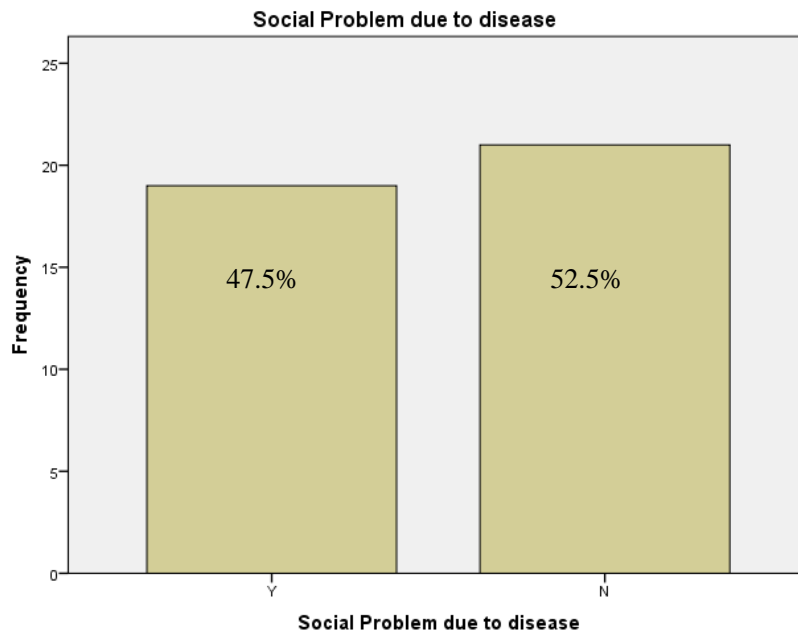


Table 31: Is treatment successful

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	19	47.5	47.5	47.5
	N	21	52.5	52.5	100.0
	Total	40	100.0	100.0	

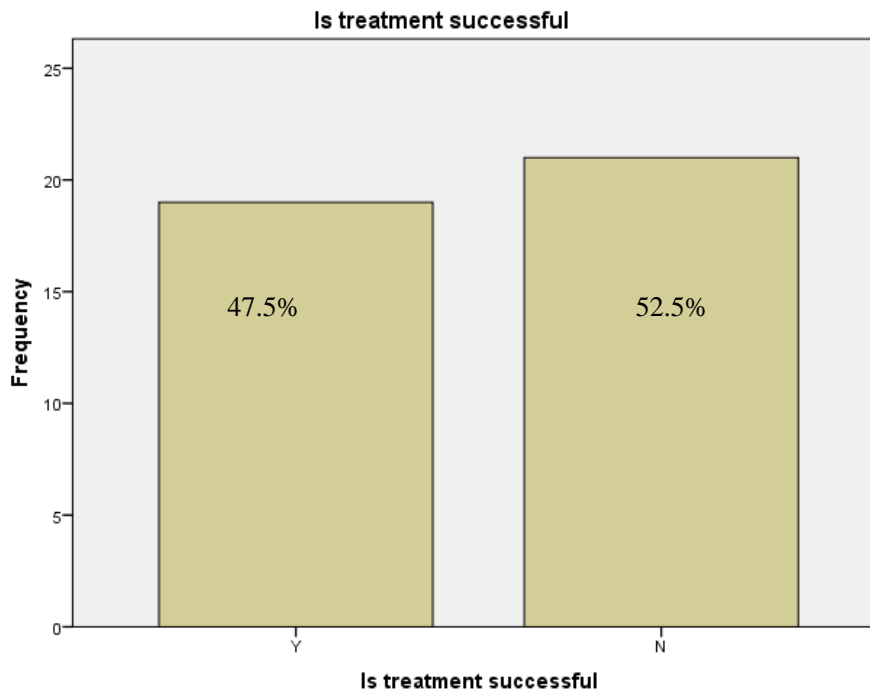


Table 32: Menarche

valid	Frequency	Percent	Valid Percent	Cumulative Percent
11	1	2.5	2.5	2.5
12	4	10.0	10.0	12.5
13	11	27.5	27.5	40.0
14	10	25.0	25.0	65.0
15	9	22.5	22.5	87.5
16	5	12.5	12.5	100.0
Total	40	100.0	100.0	

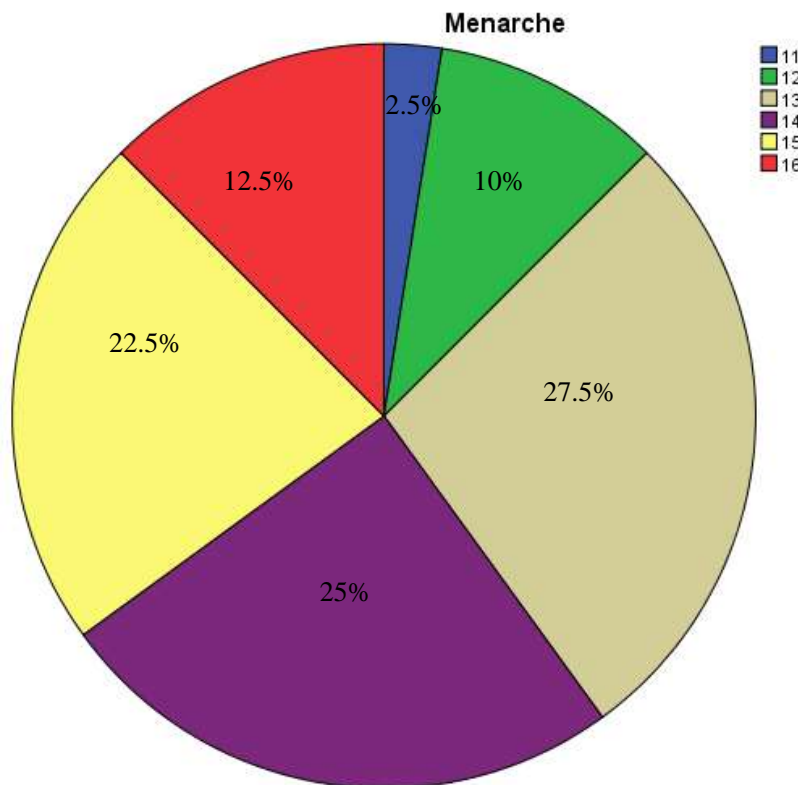


Table 33: Period related problems

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Abdominal pain	1	2.5	2.5	2.5
Ddysmenorrhea	1	2.5	2.5	5.0
Dysmenorrheal	1	2.5	2.5	7.5
Dysmenorrhea	7	17.5	17.5	25.0
Dysmenorrhea and dizziness	1	2.5	2.5	27.5
Dysmenorrhea,lethargy	1	2.5	2.5	30.0
Dysmenorrhea,Oligomenorrhea sometimes	1	2.5	2.5	32.5
Dysmenorrhea,weakness	2	5.0	5.0	37.5
Foul Vaginal Discharge	1	2.5	2.5	40.0
Lower abdominal pain	1	2.5	2.5	42.5
Nil	19	47.5	47.5	90.0
Weakness	3	7.5	7.5	97.5
Weakness,headache	1	2.5	2.5	100.0
Total	40	100.0	100.0	

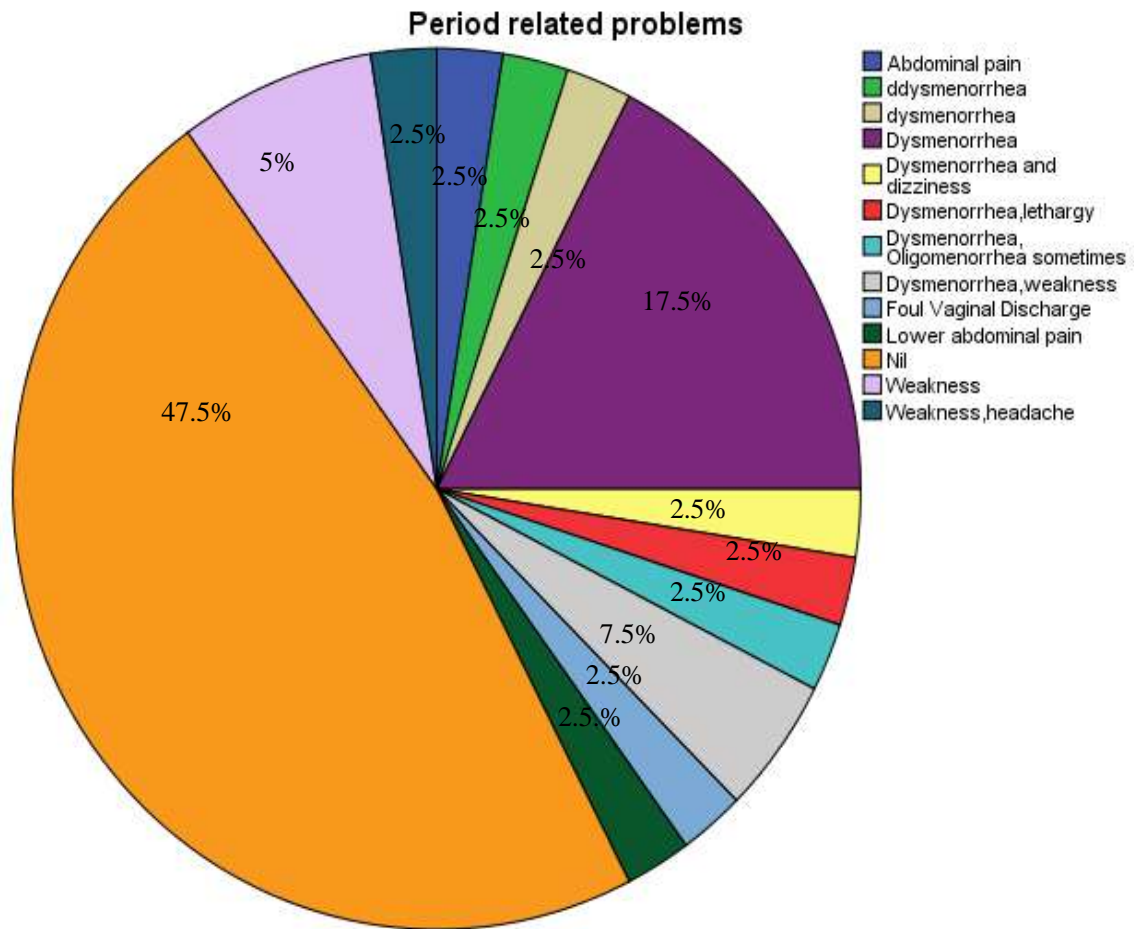
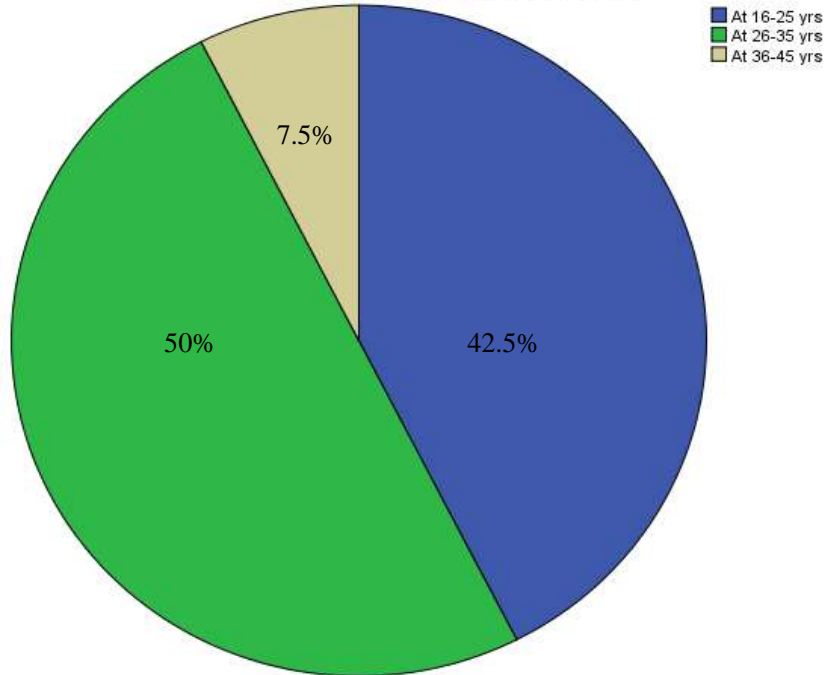


Table 34: Age Of Diagnosis of Disease

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid At 16-25 yrs	17	42.5	42.5	42.5
At 26-35 yrs	20	50.0	50.0	92.5
At 36-45 yrs	3	7.5	7.5	100.0
Total	40	100.0	100.0	

Age Of Diagnosis of Disease



Comorbidity

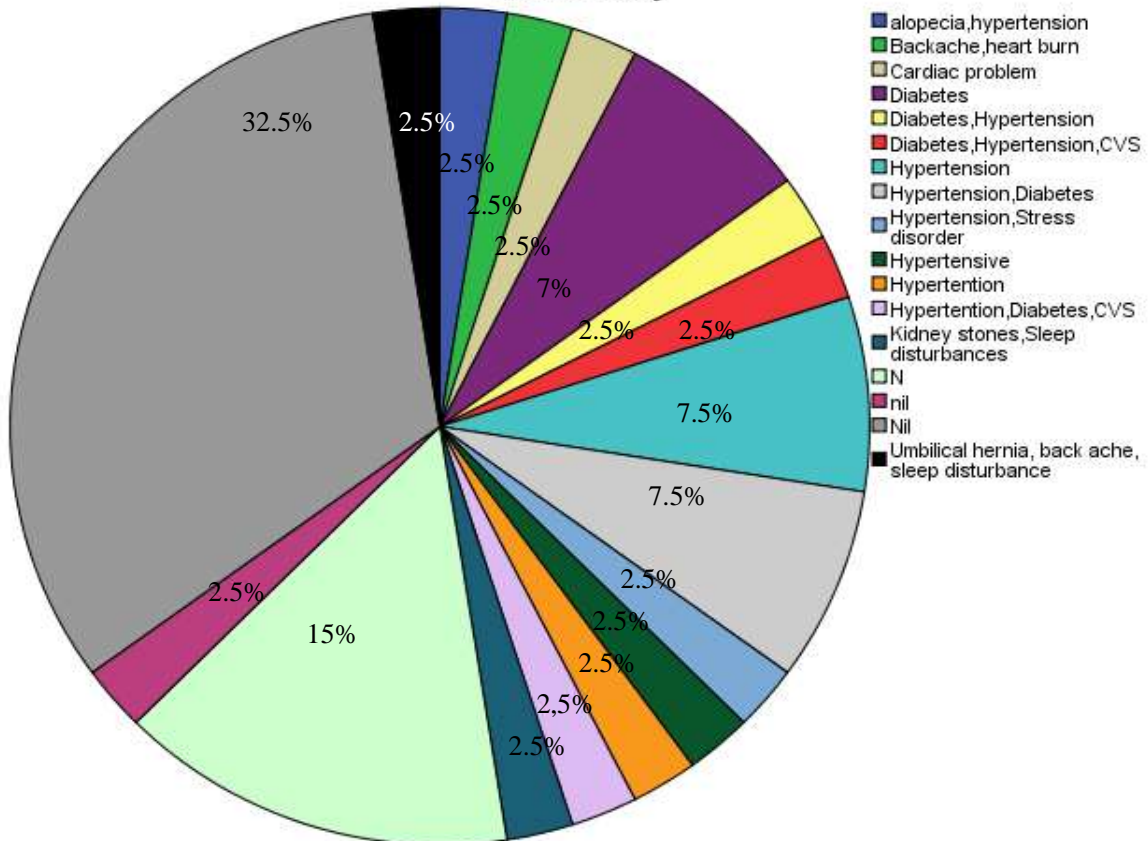


Table 36: Actual age of menarche

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 11	1	2.5	2.5	2.5
12	4	10.0	10.0	12.5
13	11	27.5	27.5	40.0
14	10	25.0	25.0	65.0
15	9	22.5	22.5	87.5
16	5	12.5	12.5	100.0
Total	40	100.0	100.0	

Table 37 :Actual Age Of Patients:

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 19	2	5.0	5.0	5.0
20	3	7.5	7.5	12.5
21	3	7.5	7.5	20.0
22	4	10.0	10.0	30.0
23	2	5.0	5.0	35.0
25	1	2.5	2.5	37.5
27	2	5.0	5.0	42.5
28	1	2.5	2.5	45.0
29	1	2.5	2.5	47.5
30	6	15.0	15.0	62.5
31	1	2.5	2.5	65.0
32	1	2.5	2.5	67.5
33	3	7.5	7.5	75.0
34	1	2.5	2.5	77.5
35	1	2.5	2.5	80.0
36	1	2.5	2.5	82.5
38	1	2.5	2.5	85.0
39	1	2.5	2.5	87.5
40	3	7.5	7.5	95.0
43	1	2.5	2.5	97.5
45	1	2.5	2.5	100.0

Total	40	100.0	100.0
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Statistics

	Actual age of patient	Actual age of menarche	Actual age of diagnosis
Valid	40	40	40
N Missing	0	0	0
Mean			27.00
Median			27.00
Mode			21

Table 39 : Actual age of diagnosis

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 18	1	2.5	2.5	2.5
19	2	5.0	5.0	7.5
20	5	12.5	12.5	20.0
21	6	15.0	15.0	35.0
23	1	2.5	2.5	37.5
25	2	5.0	5.0	42.5
26	1	2.5	2.5	45.0
27	3	7.5	7.5	52.5
28	1	2.5	2.5	55.0
29	4	10.0	10.0	65.0
30	4	10.0	10.0	75.0
32	3	7.5	7.5	82.5
33	1	2.5	2.5	85.0
34	2	5.0	5.0	90.0
35	1	2.5	2.5	92.5
39	1	2.5	2.5	95.0
40	1	2.5	2.5	97.5
43	1	2.5	2.5	100.0
Total	40	100.0	100.0	

DISCUSSION

According to our research, 50 % and 32.5% of the women belonged to age groups 21-30 years and 31-40 years respectively. The expected cause of this frequency consistent with

corresponding age groups is that these are the reproductive years with drastic hormonal changes, induced by pregnancy or contraceptives etc.

According to a research published in Indian Journal of Endocrinology and Metabolism named as Prevalence of polycystic ovary syndrome in young women from North India: A Community-based study: Calculated prevalence of PCOS in women between the ages of 18-25 years from Lucknow, north India, is 3.7%. Majority of these girls were lean but have abdominal obesity.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3603088/>

DEMOGRAPHIC ATTRIBUTES

Moreover, 35 out of total 40 women were from urban areas while majority of the total women that makes 40%, were housewives by profession. Most (15 out of 40) of these women are found to have no specific physical activity on regular basis while only 12 out of 40 were involved in general household work. This shows sedentary life style is somehow associated with the disease, indirectly via obesity or other factors.

SOCIOECONOMIC STATUS

As far as the socioeconomic status is concerned, 80% of the women in our study were found to belong from middle class. This may be due to the availability of the comparatively cheaper broiler chicken to them.

DIET AND PCOS

Diet is seen to have a profound relation with the Polycystic Ovarian Disease. Out of 40, 27 were meat lovers while only 13 were vegetarians. Moreover, majority i.e., 65% females had fast food preferentially in the diet. Fast food includes fried items and broiler chicken as the

main component, which is known to cause early puberty and hormonal imbalances in females of reproductive age group.

37.5% women are also found to have a craving for carbohydrates and sweets. It may be due to the fact that such patients have high serum insulin levels due to its non-utilization in body, making patient feel lethargic and hypoglycemic. Supported by grants R01-HD29364 and K24-HD011346 from the National Institutes of Health, Bethesda, Maryland; M01-RR00032 to the General Clinical Research Center, Birmingham, Alabama; and P30-DK56336 to the Clinical Nutrition Research Unit, Birmingham, Alabama.

Compared with matched control women, women with PCOS exhibited a dietary pattern that was marked by consumption of a greater amount of specific foods with a high glycemic index; however, diet composition was not associated with the greater fasting insulin concentration or with lower glucose-to-insulin ratio that was observed in the PCOS group.

<http://www.sciencedirect.com/science/article/pii/S0015028206006479>

IMPACT OF OBESITY ON PCOS

Our research also showed a strong association of obesity with the disease as 95% of the females were having continuous weight gain and 65% have had difficulty in losing weight in the past. It is due to the reason that obesity is linked with metabolic syndrome and increased androgen production, the features that are consistent with the Polycystic Ovarian Syndrome.

According to a research conducted by Renato Pasquali, M.D., Division of Endocrinology, Department of Internal Medicine, S. Orsola-Malpighi Hospital, Via Massarenti 9, 40138

Bologna, Italy

HYPERANDROGENISM and hyperinsulinemia are the cardinal features of most women with polycystic ovary syndrome (PCOS) (1). Moreover, obesity is frequently associated with the syndrome (1). All these features contribute in different ways to its phenotypic expression, including metabolic disturbances. This is emphasized by the different spectrum of benefits obtained by treating PCOS women with a hypocaloric diet (2, 3), insulin-sensitizing (4, 5, 6, 7), or antiandrogen agents (8, 9, 10).

-See more at:
<http://press.endocrine.org/doi/full/10.1210/jc.2005-2250#sthash.DA0NWSAY.dpuf>

MENSTRUAL IRREGULARITIES

As per our study, majority of the females had menarche at the normal age. However, irregularities and problems are seen later on. Out of total 40, we found 27 women who complaint of unpredictable periods. 47.5% and 42.5% of the females presented with menorrhagia and oligomenorrhea, respectively. Moreover, 77% of the women suffering from the disease were having menstrual irregularities in the past. All these abnormal trends in cycles may be due to hormonal changes, induced by multiple factors like diet, stress, obesity etc., as discussed earlier.

89 PCOS women were evaluated cross-sectionally at the age of 25 years. In 49 subjects menstrual irregularities were present from menarche, whereas in 40 women the irregularities appeared at least 3 years post menarche.

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SKIN PROBLEMS ASSOCIATED WITH PCOS

67.5% of the females suffering from the disease were also seen to have skin problems like acne and hirsutism. It is due to hormonal disturbance in the form of increased androgens that causes excessive facial hair growth and acne, one of the features of the Polycystic Ovarian Syndrome. Moreover skin pigmentation may also due to perturbation in pituitary or thyroid hormones, since the disease involves multiple systems

FERTILITY PROBLEMS

In our study, 55% women were married, 32.5% of which were facing problems in getting pregnant. Pregnancy requires timely interplay of appropriate hormones but the hormonal imbalance associated with the disease makes the process difficult and sometimes impossible, leading to infertility.

PSYCHOLOGICAL STRESS AND PCOS

Mental and emotional health are just as important as physical health. Depression and anxiety are common in women with PCOS but are often overlooked and left untreated. 70% of the females in our study were going through some psychological stress conditions in their lives.

Research shows that experiencing symptoms of PCOS like excess facial hair growth, changes in weight and fertility problems also negatively affects moods, self-confidence and body image. 47.5% subjects are found to have social problems like inferiority complex due to cosmetic reasons.

According to research conducted by

Department of Medical Psychology (S.E., M.S.) and Division of Endocrinology, Department of Medicine (S.H., D.K., K.M., O.E.J.), University of Essen, 45122 Essen, Germany; and Division of Angiology, Department of Medicine (A.H.Ö.), Hospital Schwabing, 80804 Munich, Germany

. Patients showed greater psychological disturbances on the symptom checklist revised dimensions, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, aggression, and psychoticism, along with a lower degree of life satisfaction in the life satisfaction questionnaire scales health, self, and sex. Health-related quality of life measured with the 36-item short-form health survey revealed significantly decreased scores for physical role function, bodily pain, vitality, social function, emotional role function, and mental health in patients with PCOS. Although patients had the same partner status and frequency of sexual intercourse, they were significantly less satisfied with their sex life and found themselves less attractive. Most of the differences were not affected by correction for body weight. In conclusion, PCOS causes a major reduction in the quality of life and severely limits sexual satisfaction.

- See more at:
<http://press.endocrine.org/doi/abs/10.1210/jc.2003-030562#sthash.0blf6i8G.dpuf>

COMORBIDITIES

Majority of the women were also having comorbidities as well. 42.5% were already hypertensive patients. The association can be well defined as the main risk factor i.e, obesity of both hypertension and PCOS is the same. Moreover, 45% females had irregular bowel habits. We can think of imbalance of thyroid hormones, seen in PCOS, leading to diarrhea, constipation and appetite alterations.

According to research conducted by Department of Obstetrics and Gynecology (J.S., M.B., E.D.) and Department of Internal Medicine (K.L.-W.), Section for Endocrinology, Sahlgrenska University Hospital at Sahlgrenska Academy, University of Gothenburg, SE-41345 Göteborg, Sweden

PCOS women had a higher prevalence of hypertension ($P = 0.008$) and higher triglyceride levels ($P = 0.012$) than controls. MI, stroke, diabetes, cancer, and mortality prevalence was similar in the two cohorts with similar body mass index.

- See more at:
<http://press.endocrine.org/doi/abs/10.1210/jc.2011-1677#sthash.JsCUiZgo.dpuf>

FAMILY HISTORY

In our research 30% and 25% females were found to have a positive family history of menstrual irregularities and hirsutism, respectively. It shows that the disease may be having some genetic association as well.

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