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OBSERVATIONAL STUDY ON PCOS PATIENTS IN AND AROUND HARIDWAR

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ABSTRACT

Polycystic ovarian syndrome (PCOS) is a prevalent hormonal condition that affects more and more women between puberty and menopause characterized by hormonal imbalance, chronic anovulation, signs of multiple small ovarian cysts and excess androgen levels. According to Ayurvedic prospective, it might be correlated with *Artava Kshaya* because of the similarity of main cardinal symptom i.e., menstrual irregularity (*Yathochitakala Adarshanam, Alpata and Yoni Vedana)*. A prospective observational study was conducted on 50 PCOS women of reproductive age (16-40 years) fulfilling the revised Rotterdam 2003 criteria were studied. The data was noted on self-designed proforma including patient demographics, symptoms, menstrual pattern, diagnostic test results and current medication related to management of PCOS. Observational studies do not require a large group of people to be effective, and they can be performed relatively quickly at a low cost. They are important in healthcare as they can provide real-world evidence, such as how a particular therapy works in a certain group ofpeople.

KEYWORDS: PCOS, *Artava Kshaya*, Observational study, Rotterdam 2003 criteria.

INTRODUCTION

Polycystic ovarian syndrome (PCOS) was first described in the USA by stein and Leventhal in 1935. Because several symptoms are present at the same time, it is referred to as a "syndrome" manifested by menstrual irregularities, Hirsutism and Obesity associated with enlarged polycystic ovaries.

Artava Kshaya has a main clinical feature of PCOS i.e., menstrual irregularity [*Yathochitakala Adarshanam* (menstruation does not appear in its appropriate time or is delayed); *Alpata (*menstrual blood is scanty) and *Yoni Vedana* (menstrual pain)].[1]

According to *Ashtang Sangraha*, menstrual blood is not properly discharged because of aggravated *Vata* and *Kapha Dosha* which obstruct the passage of *Artava.*

According to WHO data, one in every forty women experience this health risk, and the prevalence is dangerously rising.[2] According to a study conducted in India, the prevalence ofPCOS was 50–60%[3] in urban adult females of reproductive age, 9.13%[4] in adolescents (16– 20 years), and 26.7% in premenopausal women with Type II DM.[5]

The prevalence of PCOS in the general population cannot be exactly estimated because thereis no industry-accepted gold standard for diagnosis. According to the symptomatology, the syndrome is present in[6]

- 90% of women with anovulatory infertility,
- 30–40% of women with amenorrhea, and 75–90% of women with oligomenorrhoea.
- Up to 80% of PCOS-afflicted women also had hirsutism.[7]
- 75% of the Pelvic USG data.
- Insulin resistance in 50–70% of females.[8]
- 20% of women who are asymptomatic.

According to the affected age group[9], the syndrome is prevalent in.

- Teenage girls (15–18 years old): 9.13%.
- Women in reproductive age: 30%.
- Age group 4–10% peri-menopausal.

Women seeking help from health care professionals to resolve issues of obesity, acne, amenorrhea, excessive hair growth, and infertility often receive a diagnosis of PCOS. Women with PCOS have higher rates of endometrial cancer, cardiovascular disease,

dyslipidaemia,and type-2 diabetes mellitus.[10]

MATERIALS AND METHODS

The study was conducted on 50 patients of PCOS from OPD and IPD of Gurukul hospital, Haridwar after receiving Institutional ethical committee approval (UAU/RC/IEC/ 2022/PG/1-67) and CTRI registration (CTRI/2022/07/043894). The observational study was assessed by using specially prepared proforma. The data was collected and results were analysed.

Inclusion criteria

- Age between 16-40 years
- *Yathochitakala Adarshanam*
- *Alpata*
- *Yoni Vedana*
- Diagnosed cases of polycystic ovarian syndrome as defined by ROTTERDAMcriteria

Exclusion Criteria

- CAH (Congenital Adrenal Hyperplasia)
- Cushing's syndrome
- Thyroid dysfunction
- Hyperprolactinemia
- Known case of any organic lesions of reproductive tract like tuberculosis, carcinoma and congenital deformities, or any pelvic pathology.
- Any complicated or severe Systemic illness.

Outcome measurements

The study starts with a proforma (self-made questionnaire) on patient details.

- **Rotterdam scale:** Explains the symptoms which state the severity of the syndrome.The Rotterdam Criteria require the presence of two of the following: oligo/anovulation, hyperandrogenism or polycystic ovaries on ultrasound.[11]

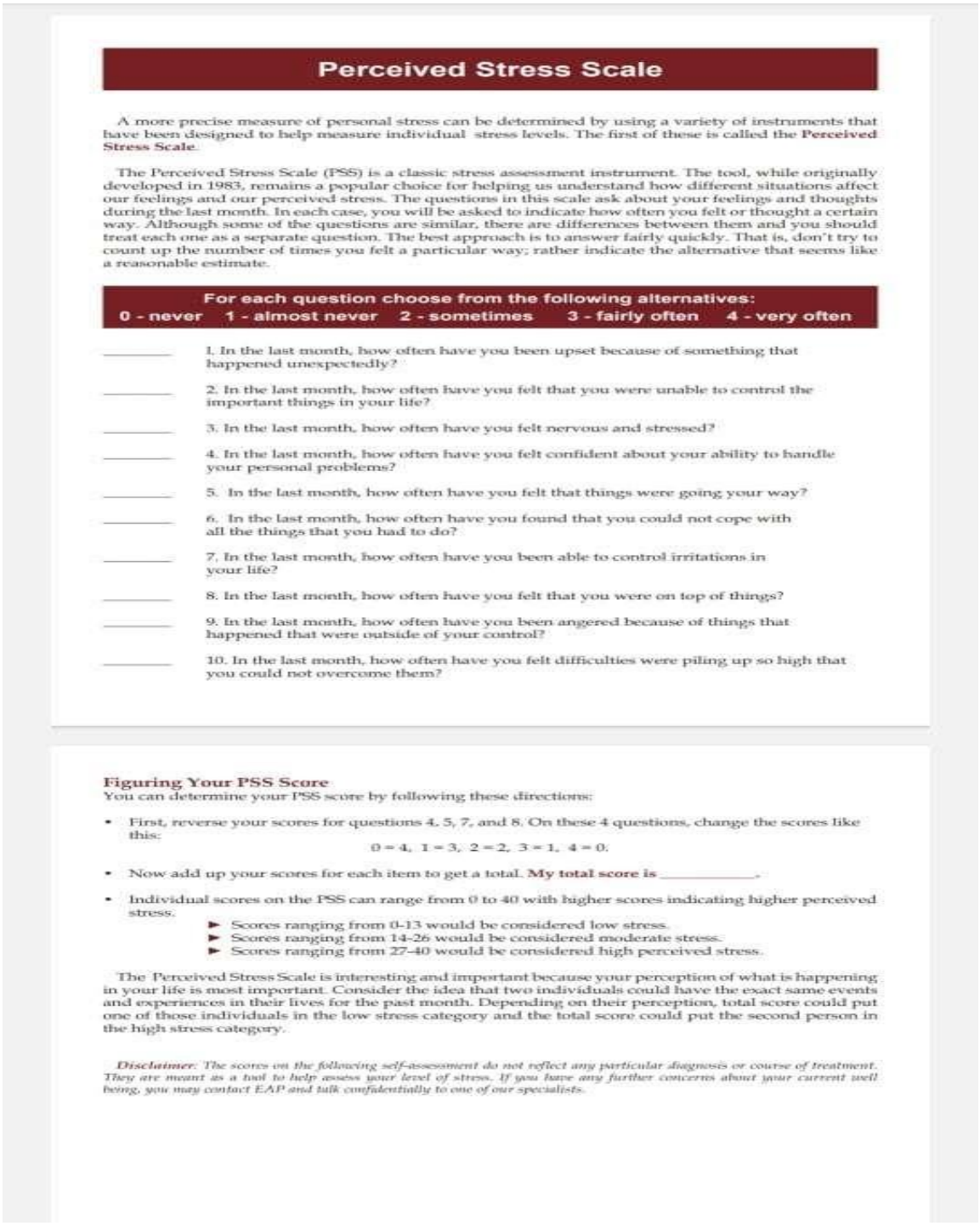
Two of the following five criteria are required

- Oligo/anovulation
- Hyperandrogenism
- Clinical hirsutism or less commonly male pattern alopecia

- Raised free testosterone
- Polycystic ovaries on ultrasound

Scale used

One standard questionnaire was used for assessing stress in general population are listed below.



Perceived Stress Scale

A more precise measure of personal stress can be determined by using a variety of instruments that have been designed to help measure individual stress levels. The first of these is called the **Perceived Stress Scale**.

The Perceived Stress Scale (PSS) is a classic stress assessment instrument. The tool, while originally developed in 1983, remains a popular choice for helping us understand how different situations affect our feelings and our perceived stress. The questions in this scale ask about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer fairly quickly. That is, don't try to count up the number of times you felt a particular way; rather indicate the alternative that seems like a reasonable estimate.

For each question choose from the following alternatives:
0 - never 1 - almost never 2 - sometimes 3 - fairly often 4 - very often

_____ 1. In the last month, how often have you been upset because of something that happened unexpectedly?

_____ 2. In the last month, how often have you felt that you were unable to control the important things in your life?

_____ 3. In the last month, how often have you felt nervous and stressed?

_____ 4. In the last month, how often have you felt confident about your ability to handle your personal problems?

_____ 5. In the last month, how often have you felt that things were going your way?

_____ 6. In the last month, how often have you found that you could not cope with all the things that you had to do?

_____ 7. In the last month, how often have you been able to control irritations in your life?

_____ 8. In the last month, how often have you felt that you were on top of things?

_____ 9. In the last month, how often have you been angered because of things that happened that were outside of your control?

_____ 10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

Figuring Your PSS Score
You can determine your PSS score by following these directions:

- First, reverse your scores for questions 4, 5, 7, and 8. On these 4 questions, change the scores like this:
  0 = 4, 1 = 3, 2 = 2, 3 = 1, 4 = 0.
- Now add up your scores for each item to get a total. **My total score is** _____.
- Individual scores on the PSS can range from 0 to 40 with higher scores indicating higher perceived stress.
  - Scores ranging from 0-13 would be considered low stress.
  - Scores ranging from 14-26 would be considered moderate stress.
  - Scores ranging from 27-40 would be considered high perceived stress.

The Perceived Stress Scale is interesting and important because your perception of what is happening in your life is most important. Consider the idea that two individuals could have the exact same events and experiences in their lives for the past month. Depending on their perception, total score could put one of those individuals in the low stress category and the total score could put the second person in the high stress category.

Disclaimer: The scores on the following self-assessment do not reflect any particular diagnosis or course of treatment. They are meant as a tool to help assess your level of stress. If you have any further concerns about your current well being, you may contact EAP and talk confidentially to one of our specialists.

Fig 1: Perceived stress scale.

OBSERVATION

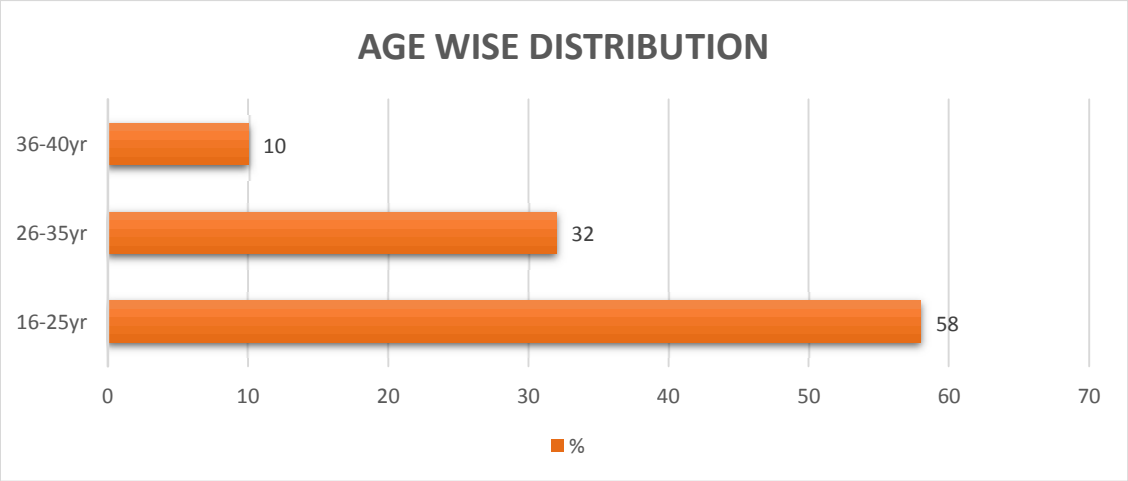


Fig 2: Maximum patients (58%) were found in the age group of 16-25 years.

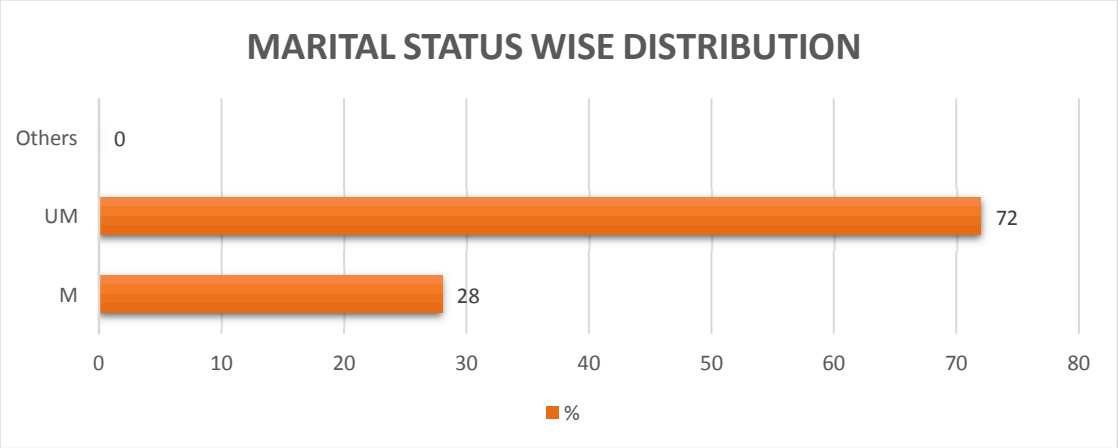


Fig 3: Maximum patients (72%) were found unmarried.

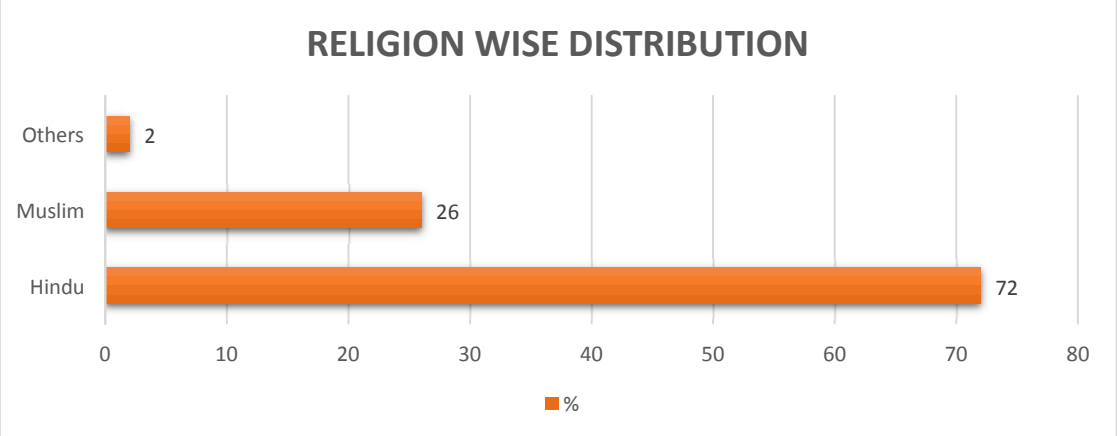


Fig 4: Maximum patients (72%) were found Hindu.

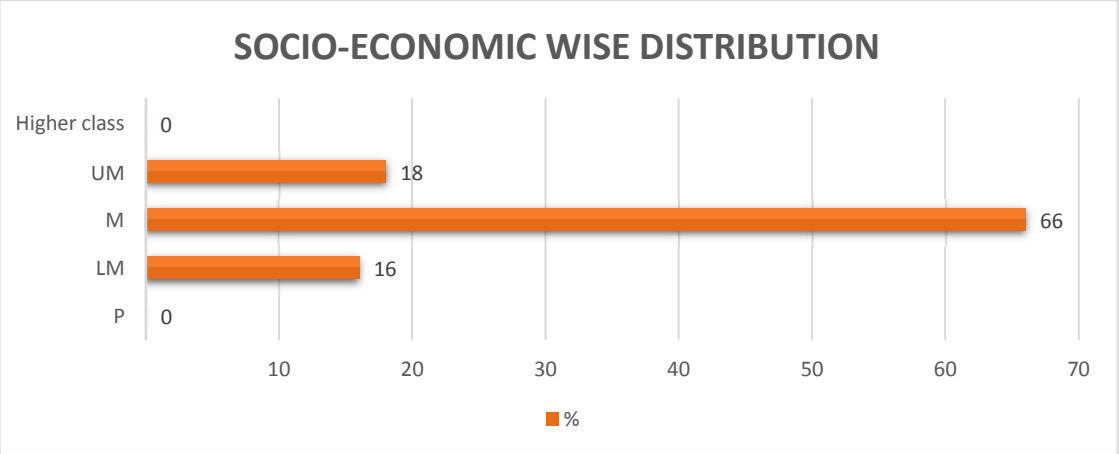


Fig 5: Maximum patients (66%) were from middle class.

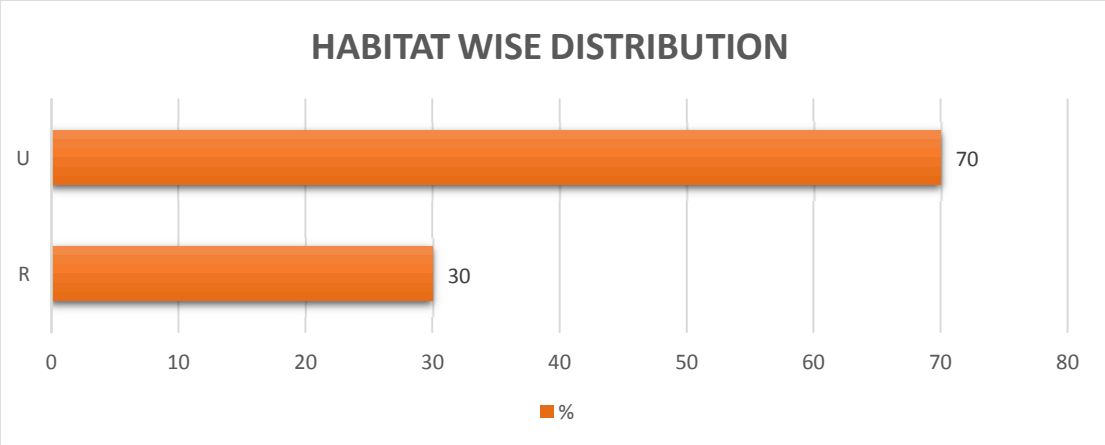


Fig 6: Maximum patients (70%) were from urban area.

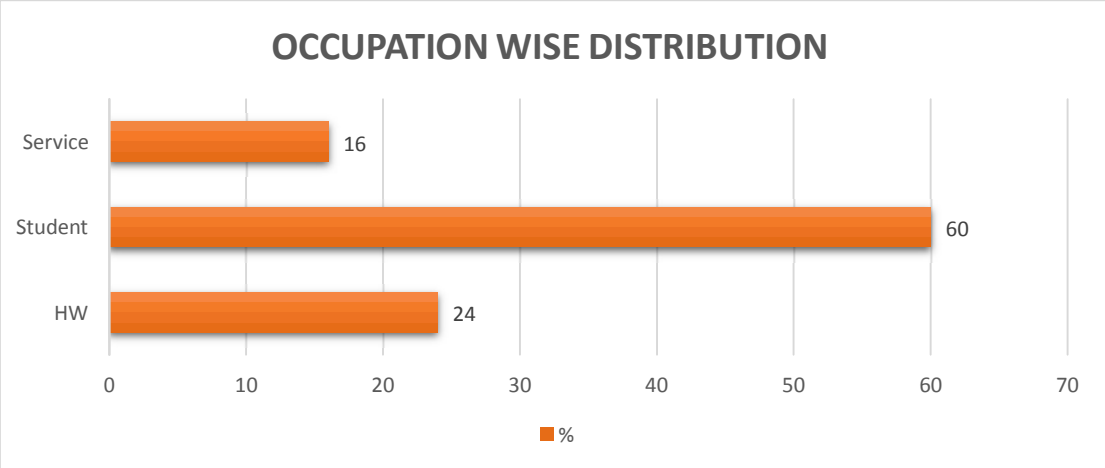


Fig 7: Maximum patients (60%) were found student.

Fig 8: In menstrual irregularity, oligomenorrhea was found in 90% and amenorrhea was found in 10% of the patients, while hirsutism was present in 66%, obesity in 48%, acne in 20% and acanthosis nigricans in 0%.

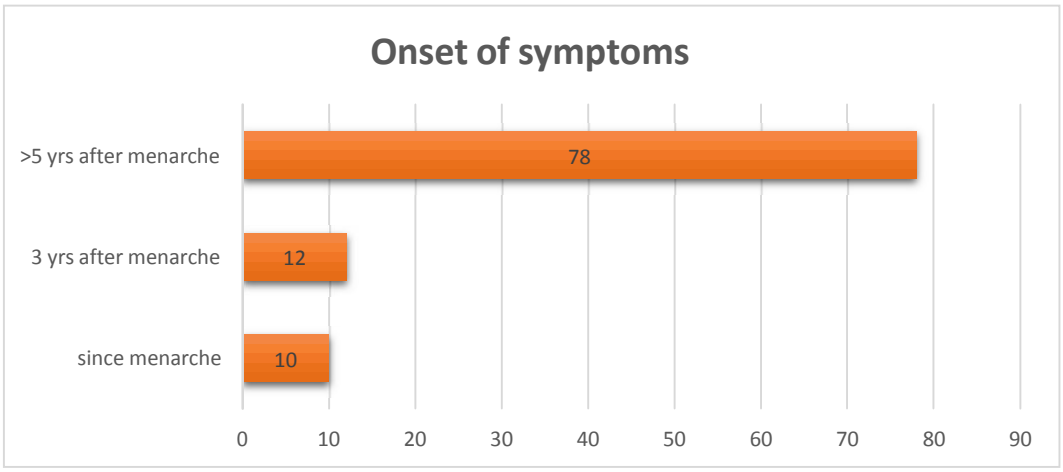


Fig 9: Maximum patients (78%) had onset of symptoms >5 years after menarche.

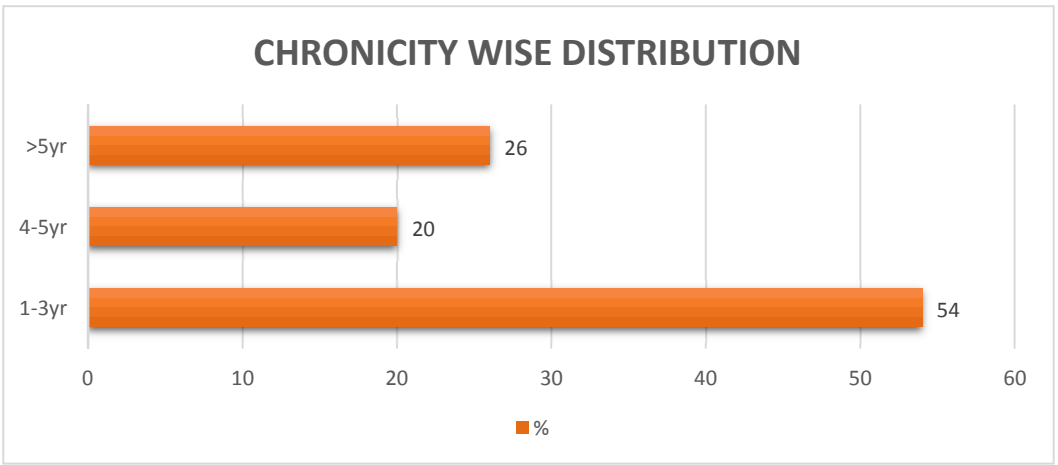


Fig 10: Maximum patients 54% were having the chronicity in between 1-3 years.

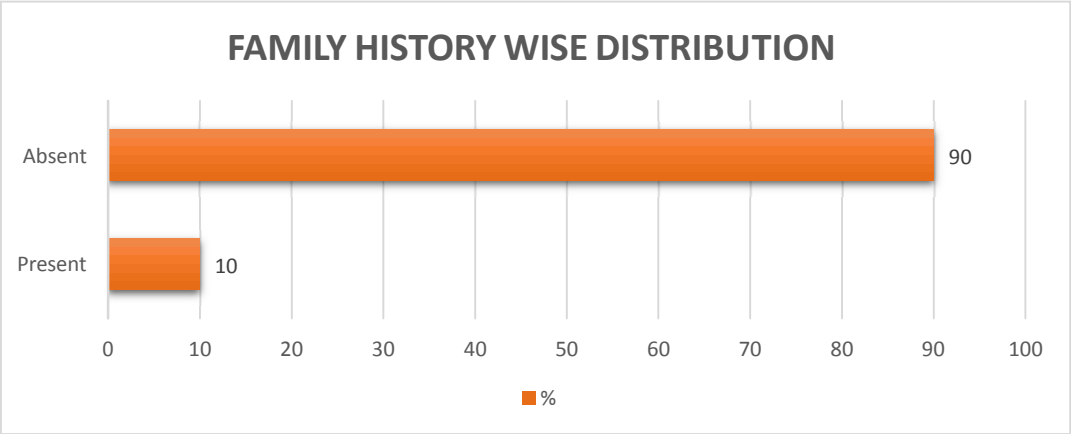


Fig 11: Maximum patients (90%) were found negative family history.

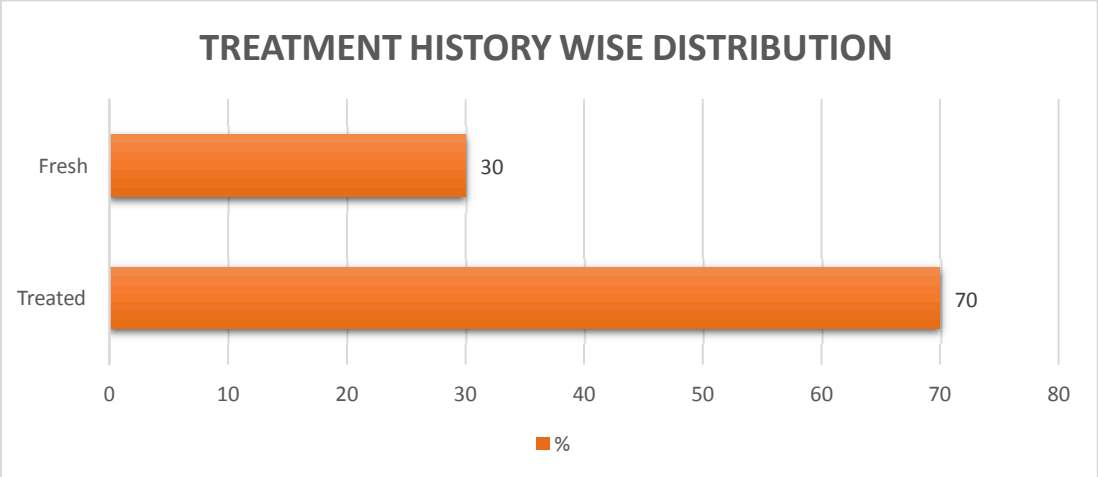


Fig 12: Maximum patients (70%) were already treated.

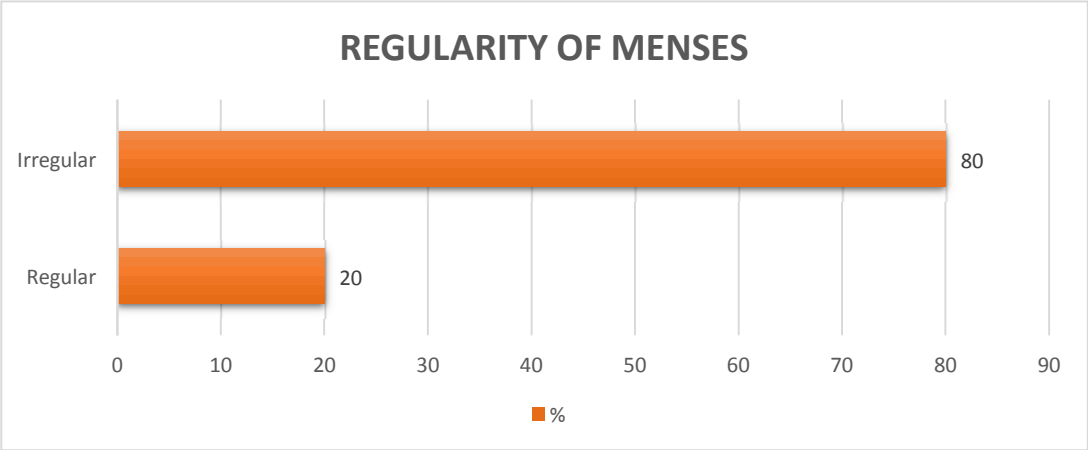


Fig 13: Maximum patients (80%) were having irregular menstrual history.

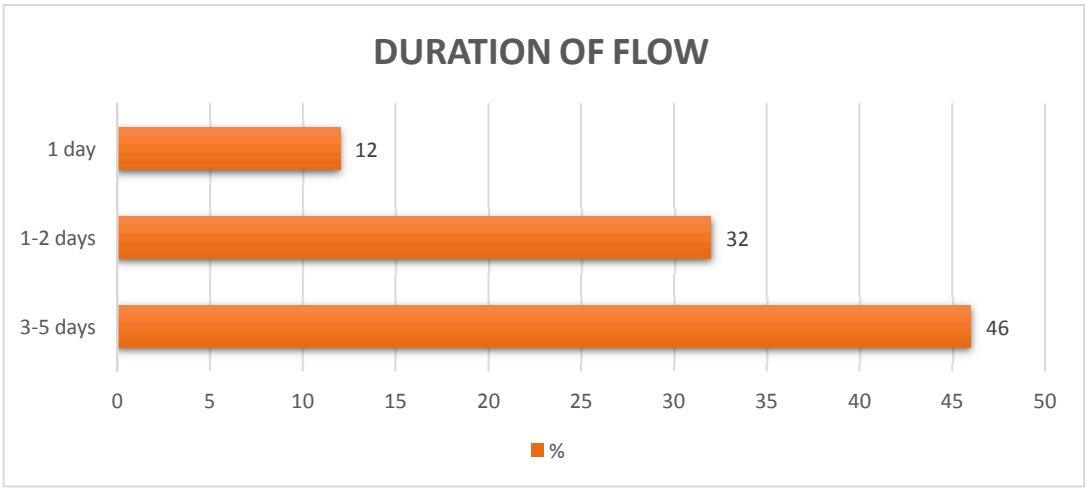


Fig 14: Maximum patients (46%) were having 3-5 days normal duration of flow.

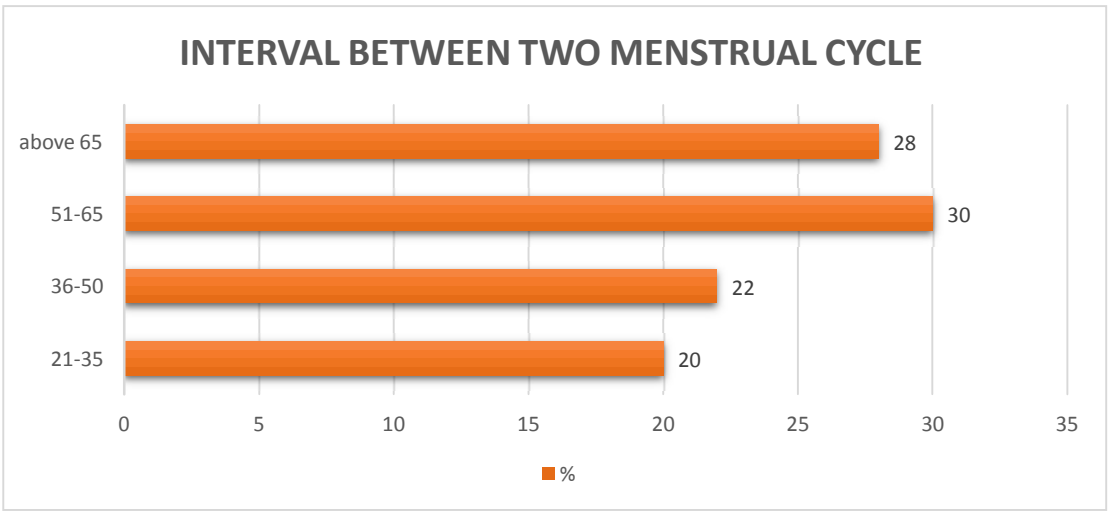


Fig 15: Maximum patients (30%) were having 51-65 days interval between two cycles.

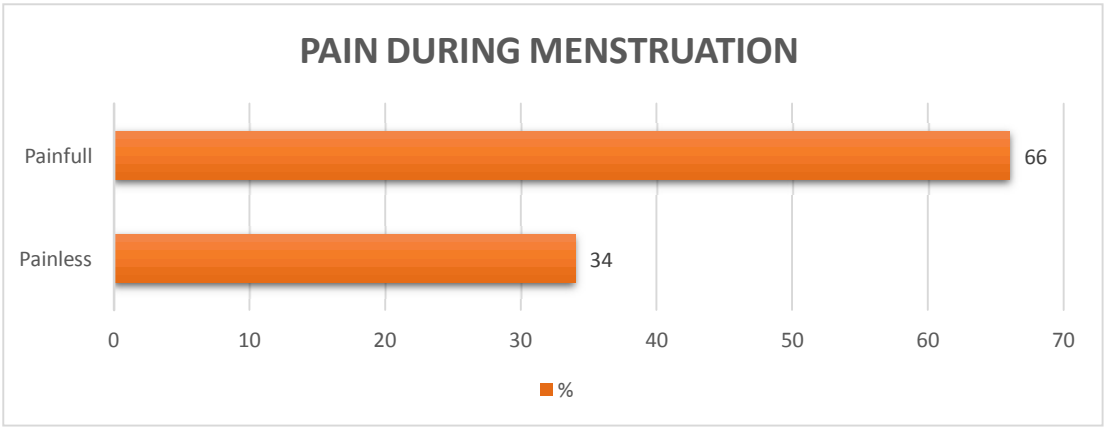


Fig 16: Maximum patients (66%) were having painful menstruation.

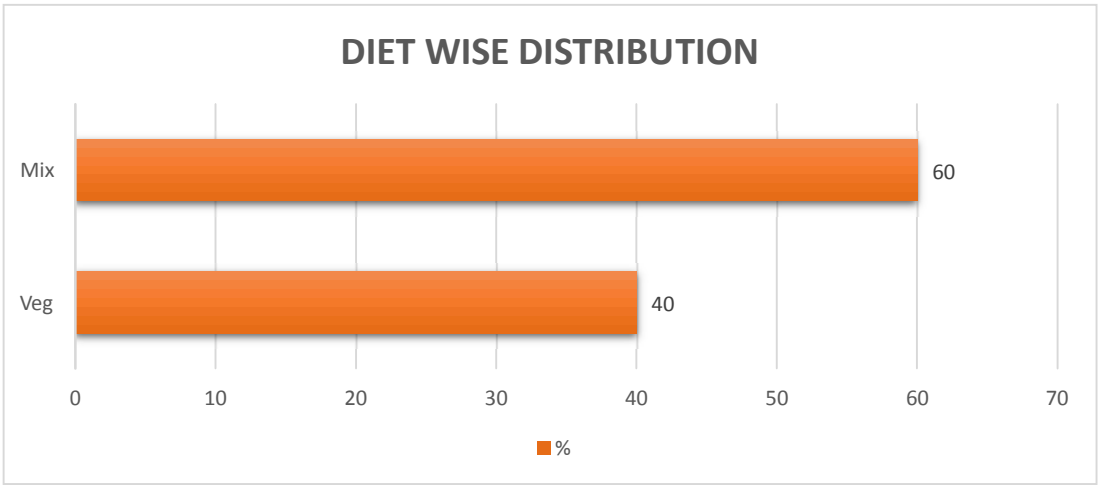


Fig 17: Maximum patients (60%) were taking mix diet.

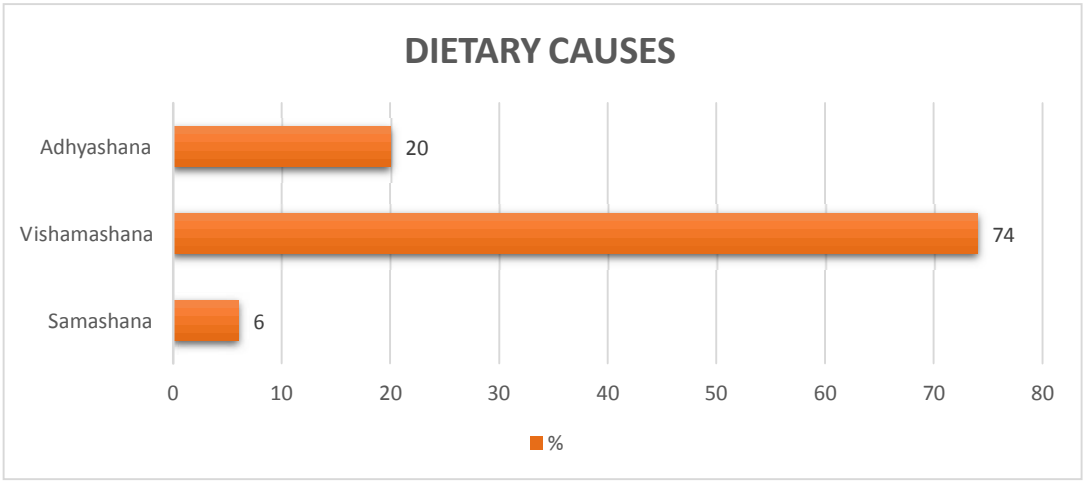


Fig 18: Maximum patients (74%) were Vishamashana type of dietary cause.

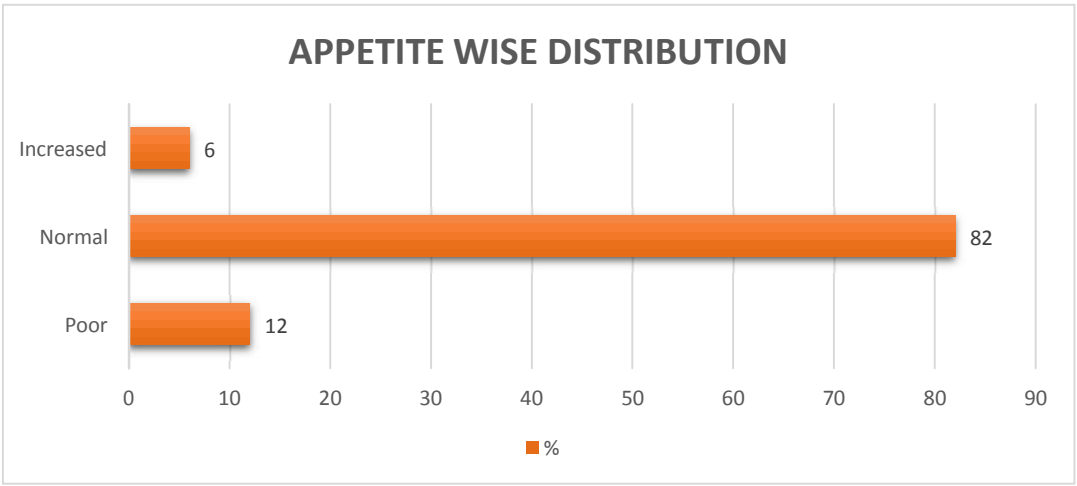


Fig 19: Maximum patients (82%) were having normal appetite.

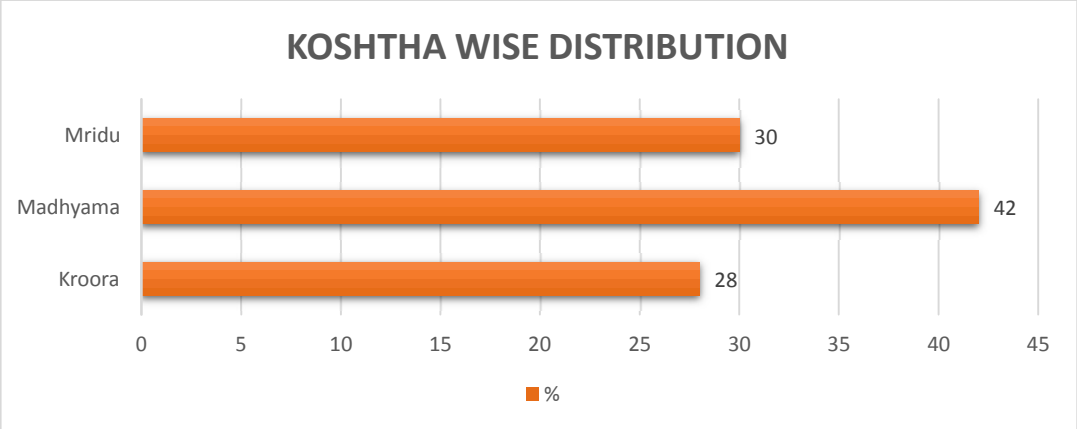


Fig 20: Maximum patients (42%) were having Madhyama Koshtha.

Fig 21: Maximum patients (52%) were found moderate stress.

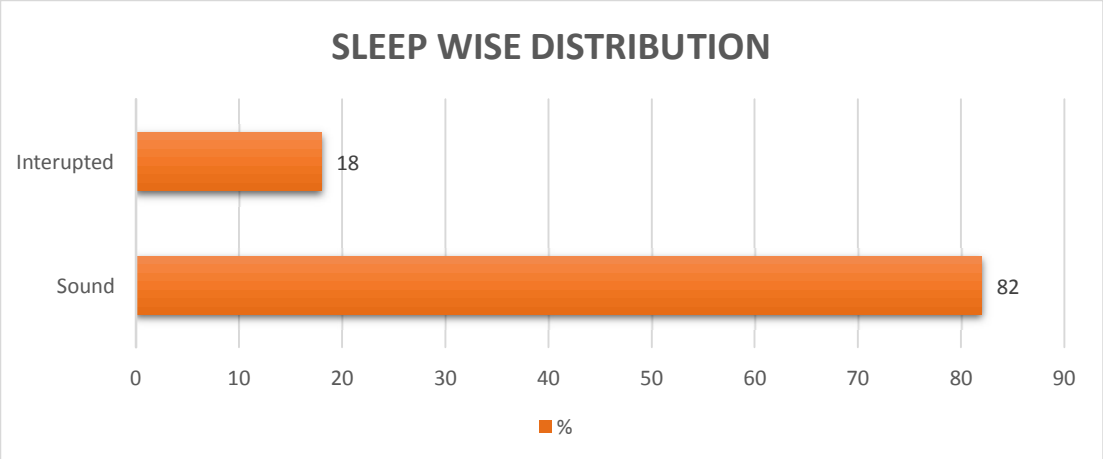


Fig 22: Maximum patients (82%) were having sound sleep.

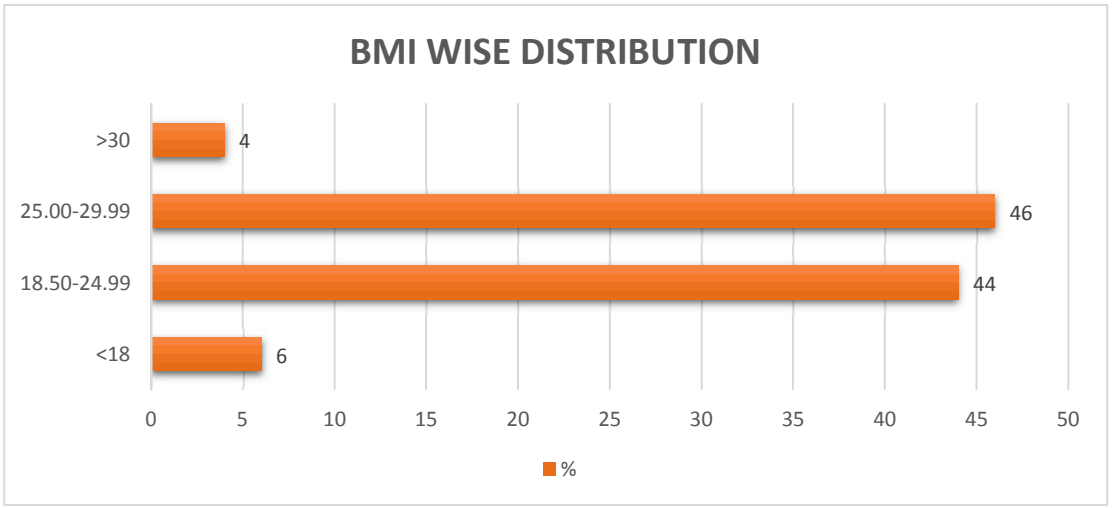


Fig 23: Maximum patients (46%) were found overweight (25.00-29.99).

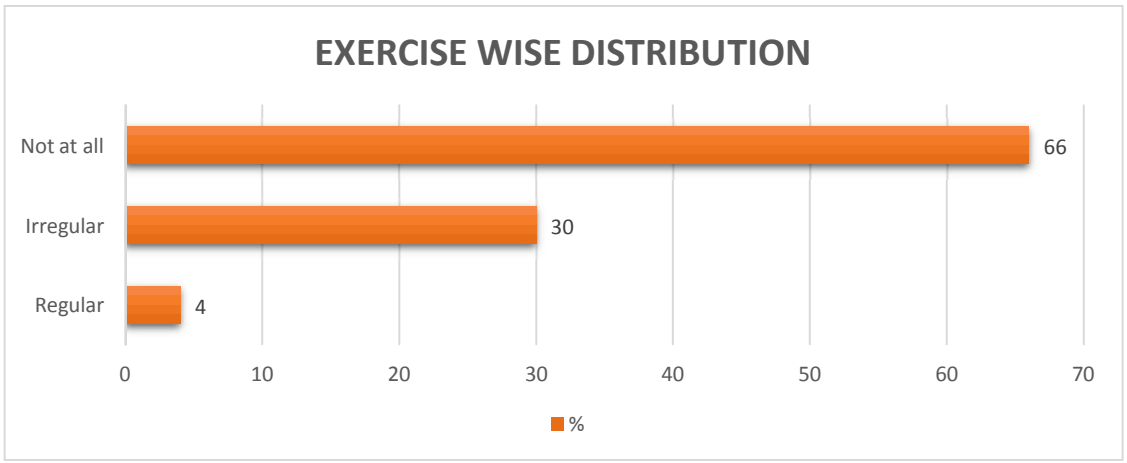


Fig 24: Maximum patients (66%) were not doing any exercise.

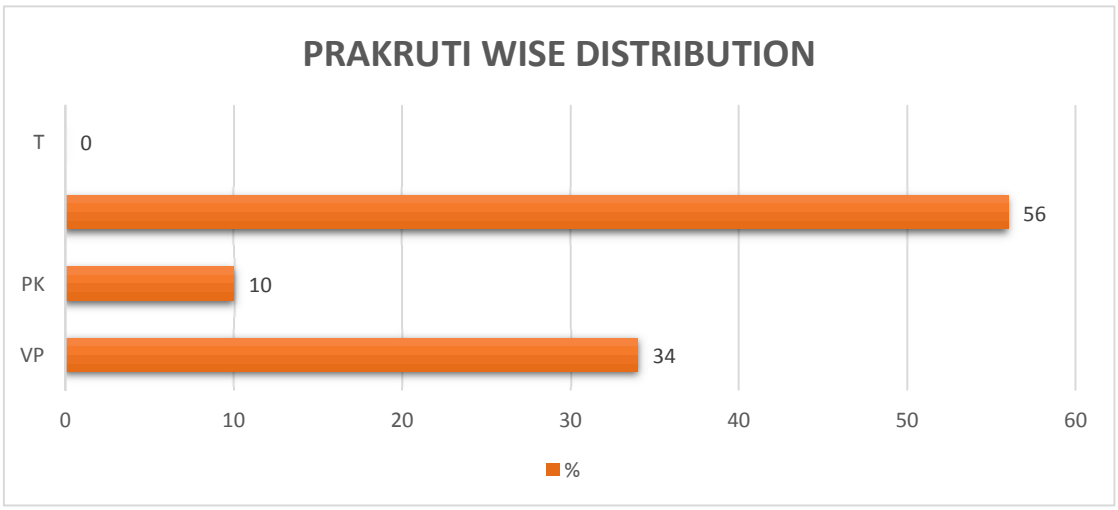


Fig 25: Maximum patients (56%) were found *Kaphavataja Prakruti.*

DISCUSSION

Table No. 1

OBSERVATION	MAXIMUM	MINIMUM
Age	(16-25 year) 58%	(36-40 year) 10%
Marital status	(Unmarried) 72%	(Married) 28%
Religion	(Hindu) 72%	(Others) 2%
Socio-economic status	(Middle class) 66%	(Poor) 0%
Habitat	(Urban) 70%	(Rural) 30%
Occupation	(Student) 60%	(Service) 16%
Chief complaints	(Menstrual irregularity) 90%	(Acanthosis nigricans) 0%
Onset of symptoms	(>5 yr. after menarche) 78%	(Since menarche) 10%
Chronicity	(1-3 yr.) 54%	(4-5 yr.) 20%
Family history	(Not present) 90%	(Present) 10%
Treatment history	(Treated) 70%	(Fresh) 30%
Regularity of menses	(Irregular) 80%	(Regular) 20%
Duration of flow	(3-5 days) 46%	(1 day) 12%
Interval between two cycles	(51-65 days) 30%	(21-35 days) 20%
Pain during menstruation	(Painful) 66%	(Painless) 34%
Diet	(Mixed) 60%	(Veg.) 40%
Dietary causes	(Vishamashana) 74%	(Samashana) 6%
Appetite	(Normal) 82%	(Increased) 6%
Koshtha	(Madhyama) 42%	(Kroora)28%
Stress	(Moderate) 52%	(Low) 10%
Sleep	(Sound) 82%	(Interrupted) 18%
BMI	(25.00-29.99) 46%	(>30) 4%
Exercise	(Not at all) 66%	(Regular) 4%
Prakruti	(Kaphavataja) 56%	(Tridoshaja) 0%

The study population includes 50 women who were diagnosed with PCOS. Maximum patients i.e., 58% were from the age group of 16-25 years. This indicates that the majority of the sample population is in the reproductive age range. This is a delicate age group; the females are slowly maturing after puberty and it is also the age of marriage in India. So, the females are more concern about reproductive health.

The prevalence of PCOS were found to be higher in urban areas (70%) than the rural counterpart (30%). People living in cities have more chances of sedentary lifestyle and stress rather than rural. Moreover, the present study was conducted in an urban area, which may be the reason for this finding in majority of patients.

PCOS is mainly caused due to hormonal imbalance in HPO axis. This imbalance occurs mainly due to stress (physical or mental) which is quite common in the people of middle socio-economic class (66%) due to competitive era and increasing inflation especially in the

developing country like India. Though obesity and stress are found more in upper middle (18%) or upper-class people, in the study they are found less. This may because generally they prefer private hospitals than government hospital.

According to occupation wise, 60% were students and 16% were doing service, they experience more stress, anger etc. due to increased workload, new responsibilities, poor timemanagement, and interpersonal relationships. 24% were housewives, etiological factors leading to Obesity, over eating, lack of exercises, etc. are found among this group more than others. Both the groups are very much prone to develop hormonal imbalance leading to PCOS.

"While no one knows exactly what causes PCOS yet, we do think it is an interplay between both genetics and one's environment," says Dr Smith. It was found that maximum no. of pts. (90%) having negative family history. This shows that environmental factors affect PCOS more rather than genetic factors. Another reason behind it might be that PCOS is just raised as a burning problem since last few years. Before that very less patients were diagnosed as having PCOS by USG as it was very costly investigation.

Various literatures regarding PCOS also gives the same data that PCOS causes menstrual abnormality (Oligomenorrhea- 90% and Amenorrhea- 10%); obesity- 48%; hirsutism – 66% and acne- 20% with maximum no. of patients i.e., (54%) had a chronicity of 1 to 3 years.

Which suggests that this affliction definitely requires medical attention for its cure. Onset of symptoms maximum seen in >5 year after menarche (78%). PCOS cannot be diagnosed until 2-3 years after a girl's first menstrual cycle because it can take up to 2 years after a first period for any girl's cycle to become regular. As PCOS is a syndrome and it takesperiod of time for the full symptoms to be diagnosed.

Menstrual history was interviewed, and the following observations were noted. Irregularity was elicited in 80% of patients, maximum patients (46%) had duration of 3-5 days, interval of 51 to 65 days (30%) as these are the main features of PCOS. Painful menses in 66% patients. It revels the *Vata Prakopa* which is one of the symptoms of *Artava Kshaya* (PCOS).

According to treatment history wise, 70% patients were already treated while 30% were freshcases. This shows that lack of awareness towards *Ayurvedic* treatment. As a trend in our country, people first approach to allopathic clinic. There are very few people who come first for *Ayurvedic* treatment. Most of the patients consult *Ayurvedic* gynaecologist only after being tired of allopathic treatment or had suffered side effects of modern drugs. Allopathic medicines for regularization of menses and ovulation induction are hormones only. As a trendthis hormonal treatment is prescribed for 3 consecutive cycles, enough to produce side effects; and another point is that the allopathic treatment is costly, too. This makes the management more difficult. The physiology becomes very complicated in persons who fail to get cured after the hormonal therapy. The data shows that there is a necessity of very serious efforts to establish the management of PCOS, though symptomatic, based on *Ayurvedic* principles of treatment. The wide range of therapy and capacity of *Ayurveda* should be made so popular in such manner that people come first to *Ayurvedic* clinic for treatment.

According to diet wise, 60% patients were taking mix diet while 40% were taking vegetarian diet. It is because of predominance of people taking mix diet in the area where the present study was conducted. Based on this finding, one cannot conclude the association of mix diet with PCOS. Food consumed out of order, in excess, or insufficiently is regarded as *Vishamashana*. In 74% of the cases, it was the primary causal cause. Additionally, it is regarded as a significant *Agni DushtikaraBhava*. *Tridoshaprakopa's* primary *Hetu* is the reason for *Artava Dushti*, which results in PCOS. *Koshtha* is the expression of bowel habits, which depends on *Prakruti*. In present study, 42% patients were *Madhyama Koshtha*. It may say that PCOS can happen to anyone irrespective of *Koshtha* but as the sample size was smallfor this study, it is difficult to conclude that.

Stress is an invisible factor affecting modern day living and is strongly associated with PCOS in women. In present study, 54% patients were stressed while 46% patients were normal. In this study, there were increased instances of family stress, work stress, and educational stress. Psychosocial stress leads to suppression of hypothalamic-pituitary-ovarian axis, resulting in ovulatory dysfunction, decreased sex steroidogenesis and lower fertility in reproductive-aged women.

According to sleep wise distribution, it has been observed that maximum patients (82%) were having sound sleep and 18% having disturbed sleep. In this study, patients having

sound sleep but their sleeping pattern was irregular. As a trend of modern lifestyle, late night awakening (*Ratri Jagarana*), waking up late in the morning and day sleep (*Diwaswapana*) is the causative factor for many metabolic diseases. The phrase "*Ratrou jagaranaruksham*" *Vataprakopa* is a condition that develops because of the Ruksha Guna, which was a clear cause of PCOS. It can also result in *Artava Rukshata*, which can cause irregular periods. The time to awaken according to Ayurveda is known as *Brahmi Muhurta*, which is roughly 48 minutes before sunrise. After *Brahma Muhurta, Kapha Kala* begins, and *Tama* and *Kapha* block the *Srotas*. It is the period when cortisol, FSH, and LH are at their maximum peak levels. When cortisol, a consequence of cholesterol, is produced abnormally, it decreases the level of LH and estradiol production and, indirectly, affects the menstrual cycle. The majority of endocrine disorders, including PCOS, can be avoided by waking up during the *Brahmi Muhurta.* The primary cause of *Kapha Prakopa* is *Diwaswapana. Divaswapna* (day sleep) causes the body's *Snigdhatva* to rise, which affects *Medas' Dooshana. Rasavaha, Mamsavaha,* and *Medovaha Srotas* are tainted by it. A significant result is that PCOS exhibits*Sthoulya* (obesity), which is *Medo Pradhana Vyadhi.*

According to *Prakruti* wise distribution, 56% of patients had *Vatakapha* while 34% had *Vatapitta Prakriti. Prakriti Parikshana* does not give any idea of the *Prakriti* of an individualwith PCOS as *prakriti* is always natural. It is never abnormal while pathogenesis is always abnormal. All three *dosha*s are involved in the pathogenesis of the disease PCOS with predominance of *Kapha* and *Vata*. Hence the predominance of the patient with *Vatakapha prakriti* signifies the predilection of the patient towards this disease.

The majority of patients, 46%, had a BMI between 25 and 29.9, and 4% had a BMI over 30. It demonstrates that PCOS is more common in obese persons. The fact that anovulatory cycles are linked to gaining weight is another explanation for the influence of BMI. Due to the absence of the luteal phase, this process would result in an overall increase in cumulativeoestrogen exposure while concurrently decreasing exposure to progesterone.

In this study, not exercising at all was defined as sitting or lying down for a significant portion of the day while doing something else, such as reading, working on laptops, watching TV, or using a mobile phone. This is one of the more prevalent causes of the majority of non-communicable disorders, including PCOS. According to a recent study, 66% of the patients have it as one of their main contributing variables. It does the *Rasavaha Medavaha Srotas Dooshana* and vitiates the *KaphaDosha. Avyayama* is a *Hetu* (cause) for

Agni Dushti as well.This corrupts the *Tridosha*. These contributing factors will make PCOS worse.

CONCLUSION

The importance of observational study is to visualize overall faces of a disease like to determine the frequency of occurrence, impact, prognosis and other characteristics.

In this study, the majority of patients were unmarried, demonstrating the adolescent stage of life, which causes numerous physiological, anatomical, and psychological changes in the lives of females. The majority of adolescent girls are unable to discuss and receive appropriate advice for menstrual-related difficulties due to familial, cultural, and societal limitations. PCOS is one of these conditions which is of serious concern.

The majority of patients in this study had faulty dietary habits, which suggests that nutrition is one of the major environmental factors that influences PCOS occurrence. Since stress was shown to be highly prevalent (54%) in the population, it is likely that psychological health should also be evaluated in the initial screening. Doctors must pay close attention, especially in light of the psychological wellbeing-affecting aspects, as good counselling, psychological care, and PCOS therapy and lifestyle change can all help to manage the condition more effectively.

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