

# Cross sectional survey study on menstrual patterns among female students of health science with reference to *Ahara*

## Research Article

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### Abstract

Background: Ayurveda is a science that focuses on promoting health and treating illnesses. In the present era, the population is becoming more susceptible to various illnesses due to pollution, excessive job pressure, poor eating habits, and an unhealthy lifestyle. Especially women who have to balance both professional and personal lives are facing a lot of health issues. Our *Swasthya* is dependent upon three *Upsthambas*, namely *Ahara*, *Nidra*, and *Brahmacharya*. Among all these three *Ahara* has been given prime importance for healthy life of individual. *Ahara* also is referred to as the superior medicine, or *Mahabhaishajya*. Due to the disturbance of lifestyle or food habit for a long period, later it results in various ailments or syndrome. Material and Method - A cross-sectional survey was conducted among female health education students aged 16 to 30 years. A total of 150 female students who were selected at random and were evaluated between August 2023 and October 2023 using a questionnaire. Result – Based on the questionnaire, the results show that due to lack of regularity in daily routine, disturbance in eating habits there is great adverse impact seen in the menstruation pattern of girls. Discussion – The altered lifestyle especially diet in modern era has made great impact on physical as well as mental health of all individuals. This become evident as we see its effect on the menstrual symptoms which are results of improper *dhatu* formation at physical level and also alteration of hormones due to mental instability.

**Keywords:** *Aahar*, Menstrual cycle, *Sthambhas*, *Agni*, *Dhatu*, *Artava*.

### Introduction

The most important prerequisite for achieving a happy life is good health. The Ayurveda perceives the goal by achieving physical, mental, social, and spiritual well-being via the use of different therapeutic techniques as well as preventive and promotional methods (1). Human bodies are built up of several systems that work together to conduct bodily functions. Various external and internal variables affect the body homeostasis. *Ayurveda* being the life science believes in promotion of health of healthy one and pacification of disease of ill person (2). As per *Ayurveda* body is made up of 3 *doshas*, 7 *dhatu*s & 3 *malas* (3). *Doshas* are functional unit and *dhatu* & *mala* are structural unit of body. Each *dosha*, *dhatu* & *mala* has their specific function (4). Homeostasis between them is necessary for healthy functioning of the body (5).

As the term "up" implies, *Updhatu*s is referenced as a subclass of *Dhatu*s in all Ayurvedic texts. All seven *Dhatu*s have a total of seven *Updhatu*s, with the first *Dhatu* having two, *Artava* and *Stanya* (6). The "*Artava*"

*Updhatu* has a substantial impact on reproductive health and conception. The overall reproductive health depends on the quality of *artava*. Any irregularity in *Artava* and its functions caused by *Agni Dushti*, *Sroto Dushti*, or *Tridosha* imbalances affects both menstruation regulation and reproduction.

*Ayurveda* opines that generalized health, nutrition and proper digestion have relation with *artava* formation (7). *Artava* is not expressed in girls before puberty since the yoni (reproductive organ) is immature; though present since birth. The nutrition and generalized body health greatly influence the *artava* which get expressed at the age of puberty (8).

According to Ayurveda, maintenance of health depends mainly on three *sthambhas* (pillars) and three *Upsthambas* (sub-pillars). *Traya* and *Upsthambas* are the roots of the term *Trayopasthambas*. The term *Upsthambas* signifies supporting pillars, while the word *Traya* denotes three. The three *doshas* (humors), *Vata*, *Pitta*, and *Kapha*, are the three *sthambhas*. *Aahara* (food), *Nidra* (sleep), and *Bhramacharya* (celibacy) are the three *Upsthambas* (9,10). Ayurveda believes that food, both wholesome and unwholesome, is a major contributor to illness and a critical component of good health. Happiness and sadness, respectively, are the results of *Aahara* (11,12,13,14). In addition to continue the process of growth and development and provide the protection to the body against sickness and decay, *Aahar* plays an essential role in identifying the phenomenon of wear and tear (15). Among the

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*Trayopasthambas*, the greatest significance and importance has been assigned to *Aahara* (16).

The contemporary lifestyle is stressful and hence does not allow and individual to pay attention towards their health and diet schedule. There are lot of deviation seen in the diet pattern which results in imbalance diet. Women, who have to balance both professional and personal lives are facing a lot of health issues. These lifestyle changes are disturbing the normal physiological activities further leading to other medical issues. According to Indian health data, menstruation disorders affect over 17.8% of women under the age of 19 and 23.34% of women between the ages of 20 -29 (17). In between menarche to menopause female sees the important phase of life. *Aahar* is very important in maintaining the menstrual cycle (an important parameter of good health), thereby in physical and social well-being of every female. This observational study is a trial to access the significance of *Aahar* in maintaining the menstrual health.

### Materials and Methods

Cross-sectional survey study was carried out among female health education students between the ages of 16-30 years. A total of 150 female students included randomly were assessed with the help of questionnaire which includes various questions regarding food pattern and diet habits. This survey was conducted between the period of August 2023 – October 2023(18).

#### Inclusion Criteria

Medical college female students of age between 16-30 years those who cooperated to provide correct and complete information.

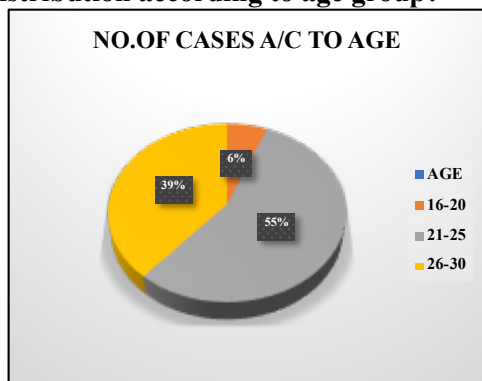
#### Exclusion Criteria

Age below 16 and above 30 years of female student of medical college, Diseased women's, non – cooperative female students.

### Results

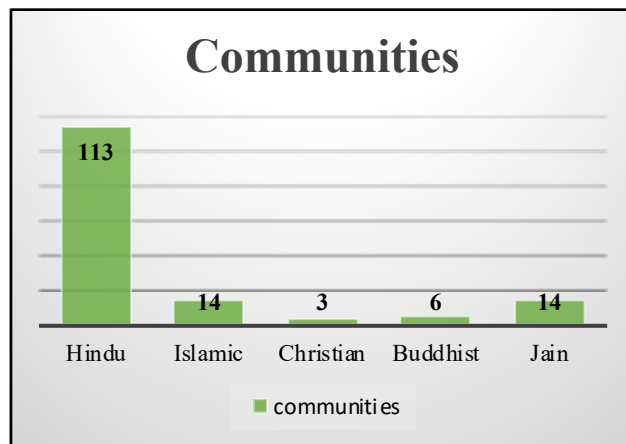
This study has been done on 150 girls, through which different types of questions were asked about their menstruation and health. A synthesis of some of those questions has been kept in the tables given here.

#### Q 1: Distribution according to age group?



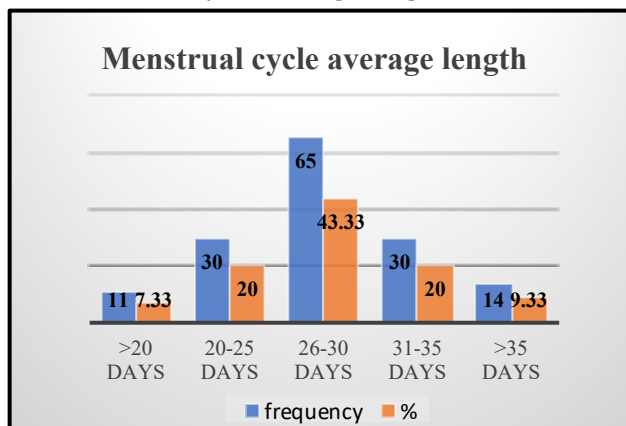
55% female belongs to 21-25 years of age group, where as 39% female belong to 26-30 years of age group and 6% female belongs to 16-20 years of age group.

#### Q 2: Part of any of these communities



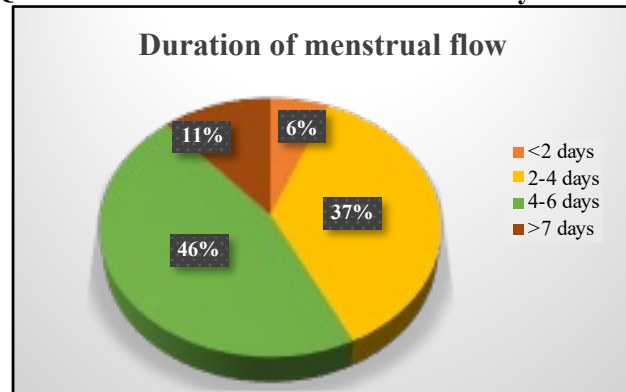
113 females belong to Hindu religion, 14 to Islam religion, 14 to Jain religion, 6 to Buddhist religion and 3 to Christian religion.

#### Q 3: Menstrual cycle average length



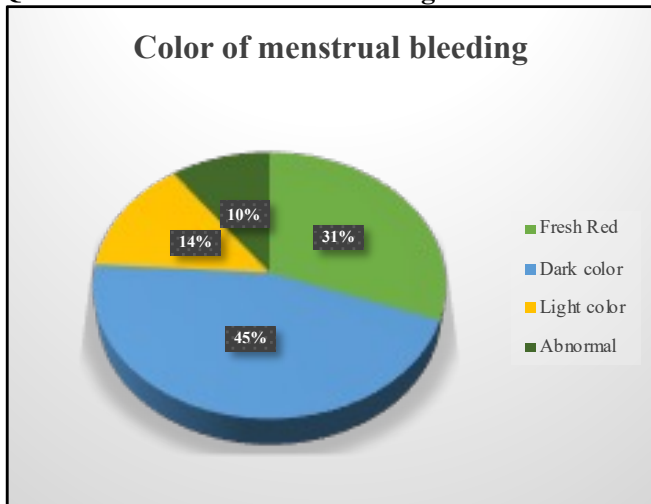
43.33% participants reported 26-30 days cycles, 20% participants reported 31-35 days cycles, 20% participants reported 20 -25 days cycles, 9.33% participants reported >35 days cycles, 7.33% participants reported <20 days cycles

#### Q 4: Duration of menstrual flow/No. of days?



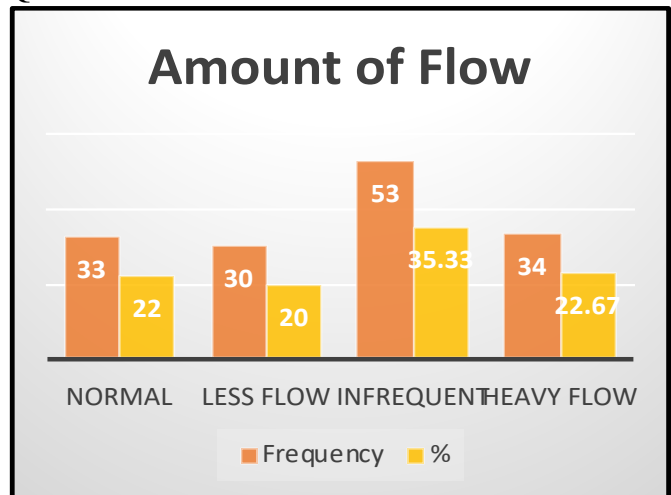
From the survey, 46% girls bleed for 4-6 days, 37% girls bleed for 2-4 days, 11% girls bleed for more than 7 days and 6% girls bleed for less than 2 days.

**Q 5: Colour of Menstrual Bleeding?**



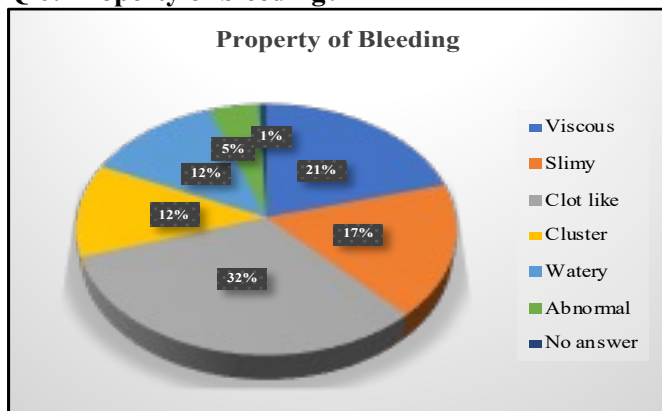
45% of the girls have dark colored bleeding while 31% of the girls have fresh red bleeding or 14% of the girls have light red colored bleeding while the remaining 10% of the girls have abnormal bleeding.

**Q 8: Amount of Flow?**



35.33% of the girls have infrequent menstrual flow, 22.67% of the girls have heavy flow, 22% of the girls have normal flow, while 20% of the girls have less flow.

**Q 6: Property of bleeding?**



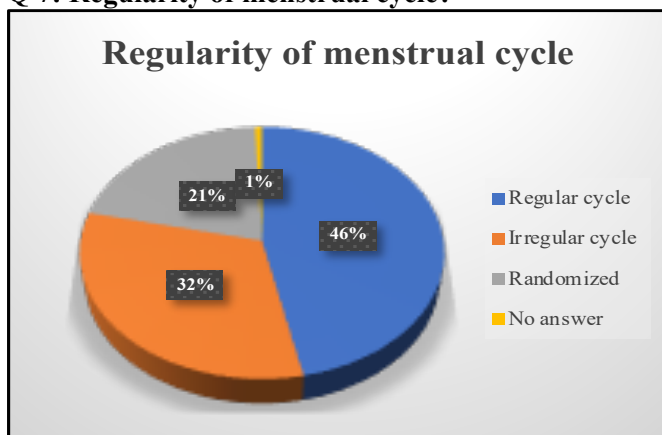
32% of girls have clot-like bleeding, 21% of girls have viscous bleeding, 17% of girls have slimy bleeding, while 12% of girls have watery bleeding, 12% of girls have clusters, while 5% of girls have abnormal bleeding and 1 girl did not answer this question.

**Q 9: What do you do when you have menstrual pain?**



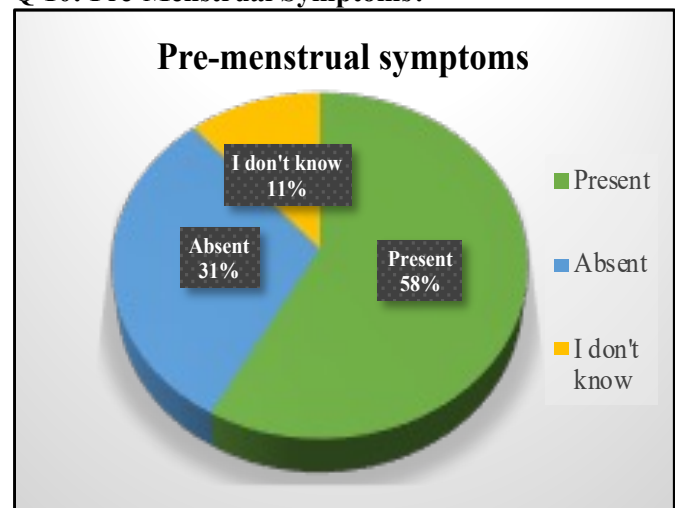
According to the survey it was found that 29.33% girls use natural remedies for menstrual pain, while 28.67% girls do not do anything for menstrual pain, 24% girls consume painkillers for menstrual pain.

**Q 7: Regularity of menstrual cycle?**



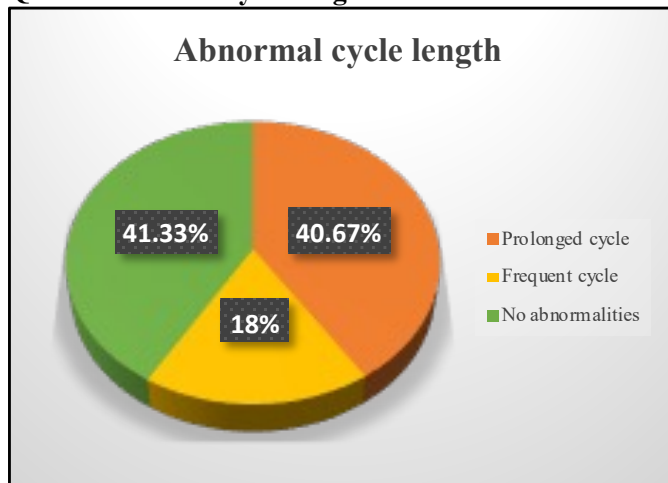
46% of the girls have regular cycles, 32% of the girls have irregular cycles while 21% of the girls are randomized and 1 girl did not answer this question.

**Q 10: Pre-Menstrual Symptoms?**



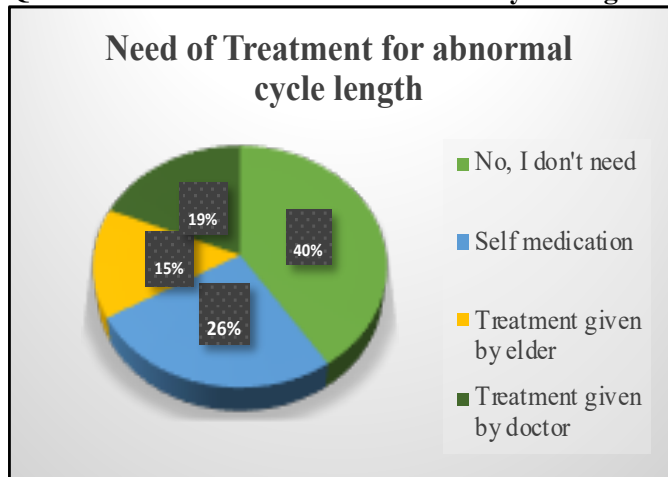
58% girls have PMS present, 31% girls have it absent while 11% girls do not know about it.

**Q 11: Abnormal Cycle length?**



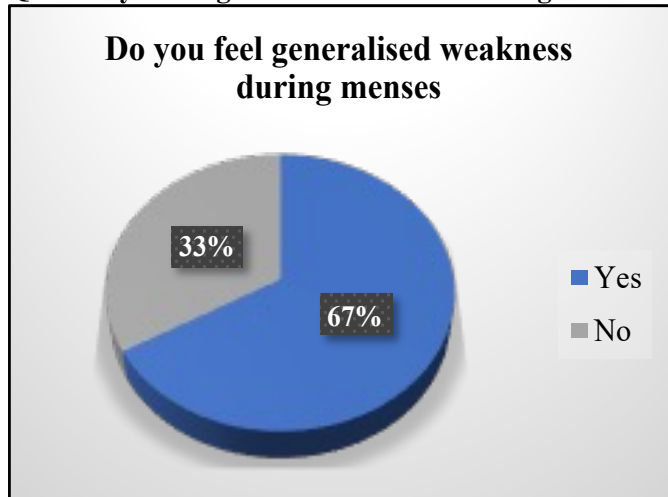
41.33% participants reported having no abnormalities, 40.67% participants reported have prolonged cycle or >40 days and 18% participants reported have frequent cycle or 2 period in a month.

**Q 12: Need of treatment for Abnormal cycle length?**



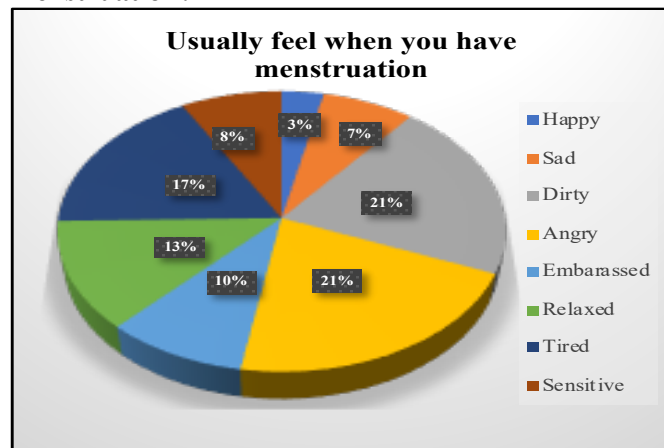
40% participants responses do not need treatment for abnormal cycle, while 26% girls take self-medication for abnormal cycles.

**Q 13: Do you feel generalised weakness during menses?**



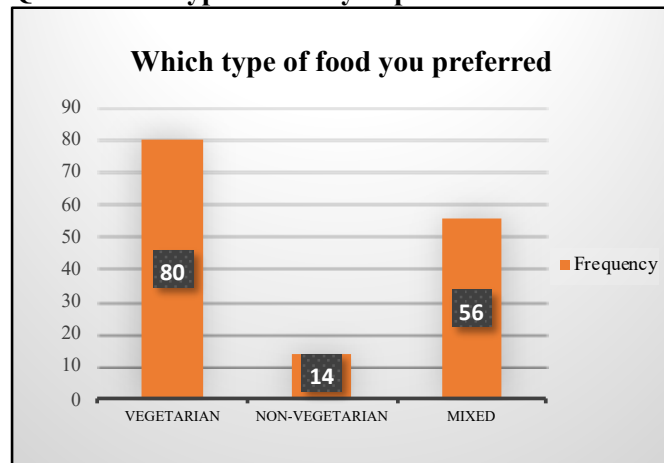
67% girls feel weakness during menstruation and 33% girls don't feel generalised weakness during menstruation.

**Q 14: How do you usually feel when you have menstruation?**



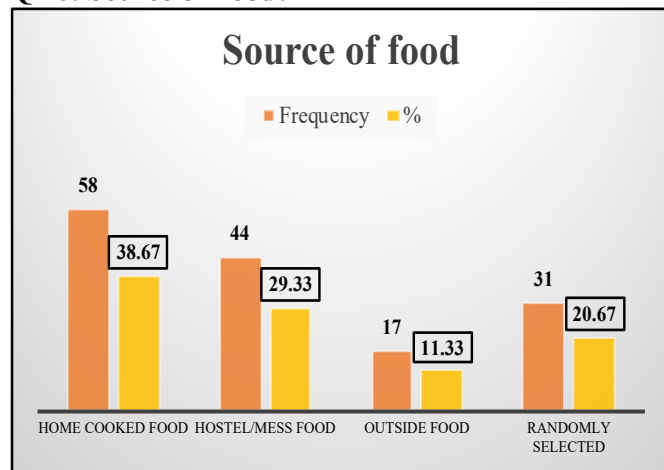
21% participants feel dirty during menstruation similarly 21% participants feel angry, 17% participants feel tired, 13% participants feel relaxed, 10% participants feel embarrassed, 8% participants feel sensitive, 7% participants feel sad and 3% participants feel happy during menstruation.

**Q 15: Which type of Food you preferred?**



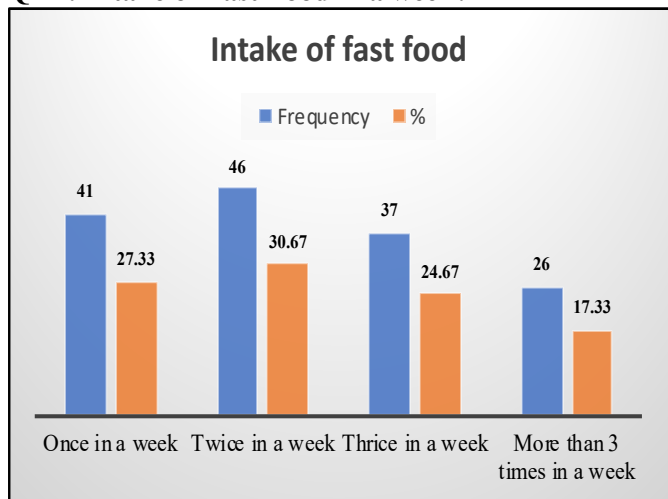
80% girls are vegetarian, 56% girls are mixed diet while 14% girls are non-vegetarian.

**Q 16: Source of Food?**



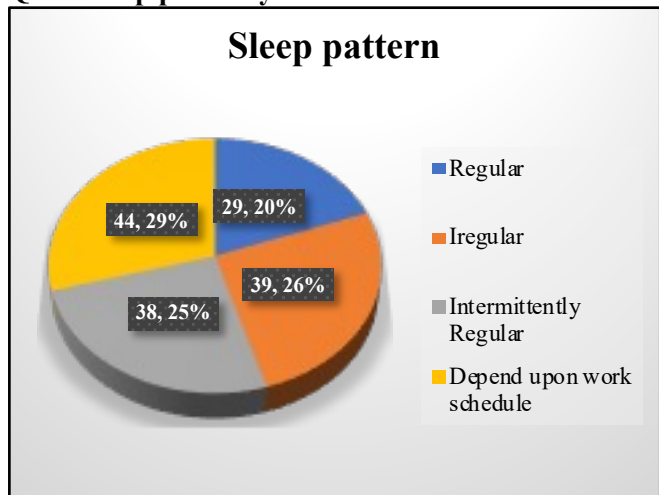
38.67% girls eat home cooked food, 29.33% girls eat hostel/mess food, 20.67% girls sometimes eat home food and sometimes outside food, 11.33% girls eat outside food.

**Q 17: Intake of Fast Food in a week?**



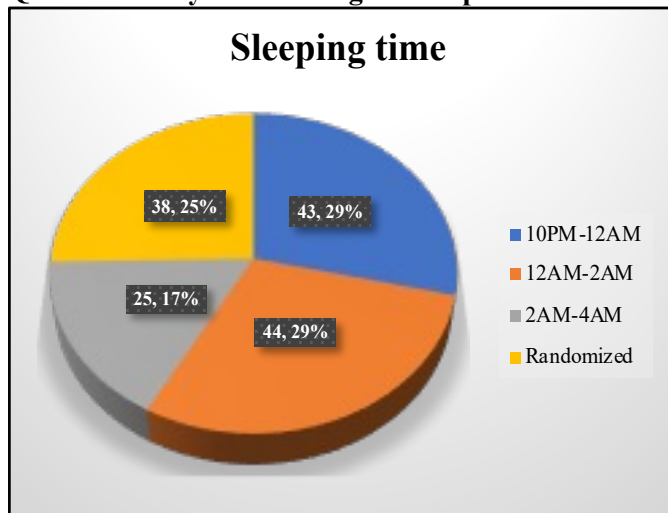
30.67% girls eat fast food twice a week, 27.33% girls eat fast food once in a week, 24.67% girls eat fast food thrice in a week, 17.33% girls eat fast food more than 3 times in a week.

**Q 18: Sleep pattern you follow?**



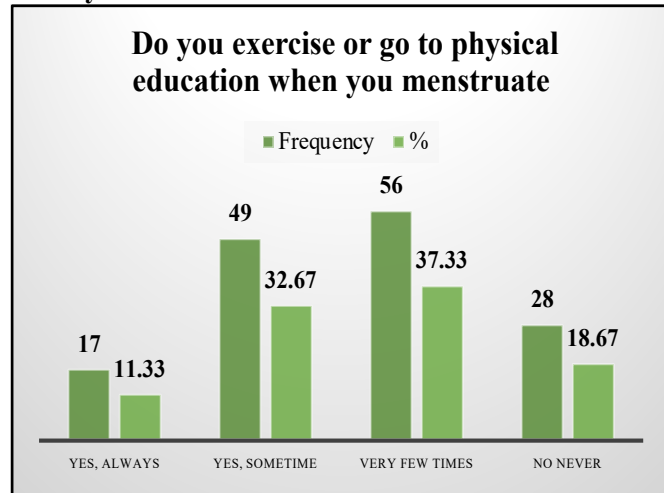
29% participants sleep pattern depends upon work schedule, 26% participants follow the irregular sleep pattern, 26% participants follow intermittently regular pattern, 25% participants follow irregular sleep.

**Q 19: What is your time to go to sleep?**



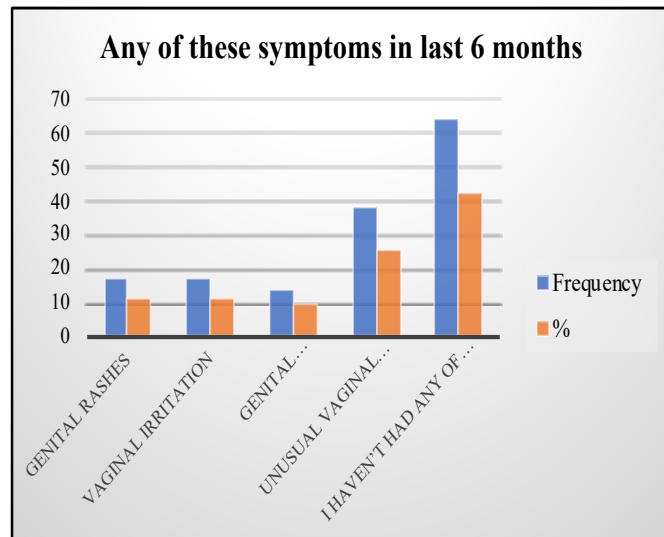
29% of participants' sleeping time falls between 10PM-12AM, 29% of participants' sleeping time falls between 12AM-2AM, 25% of participants' sleeping time is randomized and 17% of participants' sleeping time falls between 2AM-4AM,

**Q 20: Do you exercise or go to physical education when you menstruate?**



32.67% participants sometimes do exercise or go to physical education while menstruating, while 37.33% participants very few times do exercise or go to physical education while menstruating

**Q 21: Have you had any of these symptoms in last 6 months?**



In the past six months 11.33% participants experienced genital rash, 11.33% participants experienced vaginal irritation, 9.33% participants experienced genital redness/inflammation, 25.33% participants experienced unusual vaginal discharge and 42.67% participants experienced none of these.

**Chi Squared test for association**

For the accurate conclusion, they were de-stigmatized by the statistics method so that their passersby could understand how much of it or in causing its symptoms, thus we have further clarified by the CHI SQUARED method.

**Table 1: Regularity of Menstrual Cycle and Source of Food**

		Regularity * Source Cross-tabulation				
		Source of food				
		Home cooked food	Hostel/mess food	Outside food	Randomly selected	Total
Regularity of Menstrual Cycle	Unanswered	0	0	0	1	1
	Irregular Cycle	6	15	11	16	48
	Randomized	11	10	4	6	31
	Regular Cycle	41	19	2	8	70
Total		58	44	17	31	150

Chi-squared test was showed significant ( $\chi^2 = 36.688, P < 0.05$ ) effect among participants having regularity of menstrual cycle and source of food.

**Table 2: Regularity of Menstrual Cycle and Sleep pattern**

		Regularity * Sleep Cross-tabulation				
		Sleep				
		Depend upon work scheduled	Irregular	Intermittently regular	Regular	Total
Regularity	Unanswered	1	0	0	0	1
	Irregular Cycle	16	17	14	1	48
	Randomized	8	12	9	2	31
	Regular Cycle	19	10	15	26	70
Total		44	39	38	29	150

Chi-squared test was showed significant ( $\chi^2 = 32.574, P < 0.05$ ) effect among participants having regularity of menstrual cycle and sleep pattern they follow.

**Table 3: Regularity of Menstrual Cycle and intake of fast food**

		Regularity * Source Cross-tabulation				
		Sleep				
		Depend upon work scheduled	Irregular	Intermittently regular	Regular	Total
Regularity	Unanswered	0	0	1	0	1
	Irregular Cycle	19	3	16	10	48
	Randomized	1	6	15	9	31
	Regular Cycle	6	32	5	27	70
Total		26	41	37	46	150

Chi-squared test was showed significant ( $\chi^2 = 60.818, P < 0.05$ ) effect among participants having regularity of menstrual cycle and intake of fast food.

## Discussion

Based on the questionnaire, the result shows that due to lack of irregularity in daily routine and disturbance in eating habits effects have been clearly seen in the menstruation of girls.

The three *Upsthambas* are *Aahara* (eating), *Nidra* (sleep), and *Bhramacharya* (celibacy). *Aahara* has been deemed to be the most significant and important of the *Trayopasthambas* (19). *Ayurveda* opines that generalised health, nutrition and proper digestion have relation with *artava* formation like all dhatus and updhatus (20). Proper functioning of *Agni* is responsible for proper *artava* formation. Concepts of modern physiology also state that nutrition affects HPO axis and thus have effect on formation of sex hormones

(21). Proper digestion is the first requirement for maintenance of body homeostasis because diet and life style influence physiological units of body i.e. *Tridosha*. *Tridoshas* has influence on *agni* (digestive process), *dhatu* and *strotas*. Leptin is a missing link between the metabolic regulation of reproductive physiology. Estrogen and progesterone are the two main hormones that regulate reproductive physiology (22). Leptin explains the relation between metabolic status with the reproductive axis that is very similar to the concept of *aartava dhatu* formation which is under control of *aahar*, status of *agni* and *aahar rasa* formed after proper digestion. The results shown here demonstrate that leptin regulates LH production (essential for ovulation), establishing a relationship between diet and overall body health in the control of reproductive physiology. It can be concluded that

dietary intake and fasting via leptin influence reproductive physiology via modulating the HPA axis, as well as having a direct effect on the regulation of ovarian function, oocyte maturation, embryo development, implantation, and placentation (23). Ayurveda can be helpful in this area since *artava* and *artava-vaha strotas* are responsible for reproductive function, and there is a detailed description of the significance of proper digestion and metabolism in the development of *artava dhatu* and the function of *artava-vaha strotas*. The menstrual cycle health becomes a parameter or indication of good health and hence is considered in this observational study. i.e. the assessment of the effect of *Aahar* was assessed only on one parameter of good health (*Swasthya*) defined by Ayurveda (24). The balance of *aahar* i.e. food intake is the essential requisites to maintain the *swasthya* as proposed by concept of Ayurveda (25).

In our study, we see that the imbalance of *Aahar* in life, has affected the menstrual cycle, which is an observable parameter for *rasa dhatu* and its *updhatu* (*artav*) and regulation of leptin pertaining to the health of *artava vaha strotas* (26,27).

The deviation of good food habits was found in 38.67% of girls, those who ate home-cooked food, where 30.67% of girls eat fast food twice in a week and 29.33% of girls eat hostel/mess food. All the deviated food habits were greatly responsible in vitiating a healthy menstrual cycle.

## Conclusion

This conclude that the *Aahar* has a great role in maintain the good physiology of body and ultimately good health. Further many other parameters from definition of *swasthya* can be studied in details, to understand the exact and detail importance of *Aahar* for good health.

Vitiation of *doshas* and *agni* by these etiological variables, including nutrition and lifestyle status, has a role in the formation and function of *artava* and *artava-vaha strotas*. Ayurveda believes in avoidance of etiological factors as prime regime of management. This concept of management is lacking in modern medical science. The deviation of food habits like junk food, improper diet and irregular timings influence the normal physiology of menstruation as observed in this study. Further to explore we need to see the effects of deviated *ahara* even on other *dhatu*s and *updhatu*s. So, that we understand the effect of *ahara* on normal physiology empirically.

## Acknowledgement

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**Conflict of Interest:** None

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