

# Questionnaire based Cross Sectional Survey of Gynecological Issues and Health Awareness among Late Adolescents and Young Adults

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**Abstract:** Adolescence is a crucial period of development with physical, emotional development, and reproductive maturation. Although physical maturity is completed in most by 18yrs., important changes seem to extend even beyond. They experience a wide variety of gynecological issues. In the recent years' adolescent health has gained priority and several studies have been undertaken to understand the health challenges of adolescents. With this preview, we aim to study the various gynecological issues in late adolescents and young adults and also assess their knowledge and attitude towards health awareness and health care seeking behaviour. **Aim & Objectives:** To study the various gynecological issues prevalent among late adolescents and young adults. To assess the KAP about menstrual hygiene and other aspects of gynecological health. To assess the health care seeking behaviour and the factors which affecting it. **Materials and Methods:** This cross-sectional observational study was conducted among adolescents and young adults in the age group of 18 – 24 years who are pursuing their medical or paramedical course at A.C.S medical college and hospital, Tamilnadu. The validated google form questionnaire was circulated. It contained details of menstrual & other gynecological issues, past history & investigations. It also covered KAP on menstrual hygiene, gynaecological health and health seeking behaviour. The recorded data was compiled and relevant statistical analysis was done. **Results:** A total of 546 students, 77.3% late adolescents and 22.7% young adults responded. 53.6% had normal BMI, over weight - 27.4%, 1.4% - obese, underweight - 17.7%. Nearly 80% had regular periods, 20% had irregular periods. The irregularity was more common among the overweight & obese student group when compared with the normal BMI group, Odds ratio was 1.8 with a p value of 0.004. Dysmenorrhoea was noted in 59% of the study subjects and was the commonest gynaecological problem in the study population. Abdominal pain was reported by 76.4%, which might have included dysmenorrhoea also. Therefore, the actual abdominal pain might have been 17.4% 44% had significant vaginal infection & 14.5% had UTI. 4.8% of the study subjects were having hypothyroidism & 21.2% individuals had been diagnosed as anemic by blood investigations. Acne was present among 53.7%, acanthosis nigricans in 28.2% and hirsutism in 17%. The risk of developing PCOS was calculated among students with irregular cycles and hyperandrogenism, and compared among overweight, obese and normal BMI. The Odds ratio was 7.33 with a p value of 0.003 proving that excessive BMI is definitely a risk factor for hyperandrogenism and PCOS. Menstruation was believed as a disease by 7.9% of students. 14% did not regard hand washing as essential. Majority 62.6% are for changing pads three or four times a day, 11.2% believe in washing with antiseptic solution during periods. Disposable sanitary napkin was used by 87.5% & 58.7% are for disposing pads in dust bins. 26% used reusable cloth pads, 26.8% of them still believe that cloth pads can be washed in water alone. 22.3% and 15.6% do not know the importance of drying cloth pads under the Sun and the benefits of cotton panties respectively. Overall, an average of 10% -25% of the students were not aware of safe menstrual hygiene practices. Whenever they faced health issues, nearly 53.3% did not seek medical help. **Conclusion:** Our study shows high incidence of menstrual irregularity and PCOS in the adolescent population with high BMI. Lifestyle modification should be advocated vigorously to mitigate the risk. Not seeking medical help for problems during adolescence may lead to serious health issues during the reproductive period. The awareness to approach whenever needed has to be emphasized. An average of 10 to 25% of adolescents was not aware of safe menstrual hygiene practices. We can believe that this percentage will be higher in the community. Usage of disposable sanitary napkins has carcinogenic potential and causing environmental pollution, needs to be taught. Hence, there is an urgent need to increase health education among the adolescents for their future and the benefit of the community at large.

**Keywords:** Adolescent health, PCOS, Menstrual hygiene, Adolescent Health seeking behaviour

## 1. Introduction

According to WHO, adolescence is defined as the age between 10 to 19 years.

There are three stages of adolescence, which include early adolescence (10 to 13 years), middle adolescence (14 to 17

years), and late adolescence/young adulthood (18 to 24 years)

[1] Adolescence is a crucial period of development with physical, psychosocial, cognitive and emotional development, and sexual and reproductive maturation.

Adolescent girls may experience a wide variety of gynecological issues like menstrual irregularities,

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dysmenorrhea, pain abdomen, white discharge per vaginum, PCOS, endocrinopathies, pelvic inflammatory disease secondary to poor menstrual hygiene, abdominopelvic masses, mood disorders<sup>[2-4]</sup>. Also, several diseases occurring during adulthood like diabetes, cancer, hypertension etc. can be mitigated with appropriate approaches in adolescence.

Therefore, in the recent years' adolescent health has gained priority and several studies have been undertaken to understand the health challenges of adolescents.

However, many of these studies and the existing health policies limit their focus to the health of adolescents in the age group of 10 – 19 years. Although physical maturity is completed in most individuals by the age of 18, important changes in adolescence seems to extend beyond 18 years. Compared to the school going adolescent age group, older adolescents and young adults have greater access to knowledge and awareness about various health issues. Unlike their younger counterparts, increased autonomy, peer pressure, social media and technology & better access to health care can influence the attitude and practices of older adolescents towards prevention, management of health issues and utilization of health services.

With this preview, we aim to study the various gynecological issues in late adolescents and young adults and also assess their knowledge and attitude towards health awareness and health care seeking behaviour.

#### Aim & Objectives

- To study the various gynecological issues prevalent among late adolescents and young adults.
- To assess the awareness, and understanding about menstrual hygiene and other aspects of gynaecological health in the study population.
- To assess the health care seeking behaviour of the study population and the factors which affect it.

## 2. Materials and Methods

This cross-sectional observational study was conducted among adolescents and young adults in the age group of 18 – 24 years who are pursuing their medical or paramedical course at A.C.S medical college and hospital, Tamilnadu after obtaining ethical committee clearance.

The validated questionnaire as google form was circulated among the college students. 546 students had consented for the study and responded. The questionnaire contained details of menstrual history, other gynaecological issues, past medical and surgical history and evaluation for any gynaecological issue if present. The questionnaire also had questions to assess the knowledge and awareness of the subjects on menstrual hygiene, gynaecological health and health seeking behaviour.

The recorded data was compiled and entered in Microsoft Excel spreadsheet. Statistical data analysis was done using

SPSS Version 20.0 and relevant statistical analysis was done.

## 3. Results

This cross-sectional study was done among the medical and paramedical students of A.C.S medical college and hospital. A total of 546 students had consented & responded.

#### Age - Chart

Most of the students, 77.3% belonged to late adolescent age group, 18-21 yrs and 22.7% were young adults, 22-24 yrs.

#### BMI - Table 1

The height and weight of the students were collected and the BMI was calculated. This was used in interpreting the regularity of menstrual cycle and also the occurrence of hyperandrogenic features.

BMI	Number	Percentage
Less Than 18/ Underweight	97	17.76%
18- 24 / Normal	293	53.66%
25-30 / Overweight	148	27.10%
More than 30 / Obese	8	1.46%

Only 53.6% had normal BMI. The others were either overweight 27.1%, obese 1.4% or underweight 17.7%, together contributing to 46.32%. (TABLE 1)

#### Menarche & Menstrual History

##### Age of Menarche

The majority of the students, 75.8% attained menarche between 12 to 16 years which is normal. Around 16.3% attained menarche earlier, 11 years or below and few i.e. 7.9% more than 16 years of age.

##### Regularity Of Menses

Nearly 80% (n 436) of the girls and young women had regular menstrual cycles. Only 20% (n 110) experienced irregular menstrual periods.

##### Numerator- Duration/ Quantity of Blood Flow

The total duration of flow was assessed and 456 girls, i.e. 83.5% had normal flow or duration. Only 38 of them (7%) had excessive flow and 52 (9.5%) had scanty periods. The abnormal quantity of blood flow was present only among 16.5% as against 83.5% with normal flow.

##### Denominator- Frequency of the Menstrual Cycle

The frequency abnormality was even less, only 8.2% (n 45) had frequent periods as against 91.8% (n 501) of them who had normal frequency of menstrual cycle.

Overall, irregular menstrual cycles were reported by 20% of the study population of which scanty periods was the most commonly reported issue, 9.5% followed by 8.2% & 7% which were frequent cycles and HMB respectively.

#### BMI and Menstrual Cycle- Table 2

BMI	Regular (n)	Cycle (%)	Irregular (n)	Cycle (%)	Total
Less than 18/ underweight	86	89	11	11	97
18- 24 / Normal	240	82	53	18	293
25-30 / Overweight	106	72	42	28	148
More than 30 /Obese	5	63	3	37	8
Total	437	80%	109	20%	546

Among all the various BMI categorized students, most of them 80% had regular menstrual cycles and only 20% have irregular menstrual cycles. (TABLE 2)

The irregular cycle was most common 37% among the obese students followed by 28% in the overweight group which together is significant. On comparing the occurrence of irregular menses among the normal BMI group and the overweight & obese student group the Odds ratio is 1.8 with a p value of 0.004 (TABLES 3 & 4)

Table 3

	Irregular Cycles (n)	Regular Cycles (n)	Total
Over Weight & Obese	45	111	156
18- 24 / Normal	53	240	293
Total	98	351	449

Table 4

Odds Ratio (Exp/ Control)	1.83598
95% Confidence Interval	[1.163, 2.898]
95% Left- Sided Interval	[1,251, + ∞]
95% Right- Sided Interval	[-∞, 2.693]
P- value	0.004557
Z- Score	2.607764

**Dysmenorrhoea**

Among the study population, 59% a total of 322 students had painful periods as against 41% who did not have pain. 33.3%, 14.3% and 11.4% were spasmodic, triple and congestive types of dysmenorrhea respectively.

**Abdominal Pain**

Abdominal pain was a major gynecological issue present among 417 students (76.4%). 20.5% (n 112) did not have abdominal pain whereas 17 students (3.1%) had complaints of backache, leg cramps, headache, breast pain etc.

Most of them 41.4 % (n 226) suffered from moderate pain, 25.5% (n 139) from mild pain and only 22.2% (n 121) had severe pain abdomen.

**White Discharge- Leucorrhoea**

Leucorrhea was present among 381 students which is nearly 70% and a very significant finding. Only 30% did not have white discharge PV. Most of the white discharge 56% (n-306) was not associated with itching or foul smell, probably physiological whereas 22.9% (n 125) had itching, 9.2% (n 56) had foul smell and nearly 12% (n 65) had both itching and foul smell.

A total of 44% had significant vaginal infection.

**Urinary Tract Infection**

Urinary tract infection was present in only 79 students (14.5%) whereas 85.5% (n 467) were free of this issue.

**Polycystic Ovarian Syndrome**

Polycystic ovarian syndrome is very prevalent among adolescents and adults leading to menstrual and reproductive problems. Among the study population 13% of them (n 71) were already diagnosed as having PCOD.

**Features of Hyperandrogenism**

Acne was the major hyperandrogenic feature present among 53.7% (n 293) of the students followed by acanthosis nigricans among 28.2% (n 154) and hirsutism 17% (n 93) students.

Presence of 2 or more of these features and irregular menstrual cycle is taken as suggestion of PCOS in adolescent age group where USG based PCO morphology is not a reliable criterion.

The BMI of students who are overweight or obese was taken as one group and normal BMI as another group and risk for PCOS was calculated.

Table 5: Incidence Of BMI with Hyperandrogenic Features in Regular and Irregular Menstrual Cycles

BMI	Hirsutism (n)		Acne (n)		Acanthosis Nigricans (n)		Both Acne & Hirsutism (n)		All 3 Features (n)		Total (n) 546	
	Regular Cycle	Irregular Cycle	Regular Cycle	Irregular Cycle	Regular Cycle	Irregular Cycle	Regular Cycle	Irregular Cycle	Regular Cycle	Irregular Cycle	Regular Cycle	Irregular Cycle
Less than 18/ Under Weight	9	5	46	6	9	2	6	3	1	1	86	11
18- 24 / Normal	13	10	122	24	38	18	13	3	5	3	240	53
25-30/ Overweight	19	17	63	24	54	28	14	10	7	6	106	42
More Than 30/ Obese	0	2	3	2	2	1	0	2	0	1	5	3
Total	41	34	234	56	103	49	33	17	13	11		

Table 6

Irregular Cycles	With Hyperandrogenism	Without Hyperandrogenism	Total
Overweight & Obese	12	12	24
Normal BMI	3	22	25

Table 7

Odds Ratio (Exp/ Control)	7.333333
95% Confidence Interval	[1.724, 31.186]
95% Left- Sided Interval	[2.176, + ∞]
95% Right- Sided Interval	[-∞, 24.711]
P- value	0.003490
Z- Score	2.697763

The BMI of students who had irregular cycles and were overweight or obese were taken as one group and normal BMI as another group and the occurrence of hyperandrogenism and thereby the risk of developing PCOS was calculated. The Odds ratio is 7.33 with a p value of 0.003 at 95 % confidence interval. It proves that excessive BMI is definitely a risk factor for the development of hyperandrogenism and thereby PCOS. (TABLES 6 & 7)

#### Past Medical and Surgical Issues

79.3% of the students (n 433) were healthy and did not suffer from any medical illness. The major medical issue was anemia 9.9% (n 54) followed by 4.8% (n 26) with thyroid disorders and 2.2% (n 12) were on some medications. Other ailments included were tuberculosis, jaundice etc. 50 students, 9.6% had undergone some surgery in the past whereas the majority didn't have a past surgical history.

#### Investigations Done

Among the study population 30% Of them had undergone blood investigations and USG as part of their medical examination in the past.

USG had diagnosed 10% of them as PCOS, other diagnosis were fibroids, endometriosis, adenomyosis etc. which were very few in numbers.

Similarly, 21.2% were diagnosed as anemic by blood investigations, 5% having thyroid disorders hypo or hyperthyroid.

#### Awareness and Knowledge Levels Regarding Gynecological Health among Adolescents

Among these 546 students, 9 questions regarding knowledge and attitude about menstrual hygiene were asked and 6 responses were recorded in a linear scale from strong disagreement to strong agreement & 3 questions as single best response.

Around 7.9% (n 43) still believes that menstruation is a disease. 14% (n 77) still do not regard hand washing before and after washing the genitals is essential to prevent infection. 8.2% (n 45) & 1.8% (n 10) believe in changing pad hourly and once a day ( probably the menorrhagia and scanty periods girls), while majority 62.6% (n342) are for changing three or four times a day. 11.2% (n 61) believe in washing with antiseptic solution during periods.

On testing knowledge about the various materials available, 87.5% (n478) are using disposable sanitary napkin. 26% (n 142) reusable cloth pads, 24.5% (n 134) were aware of menstrual cup but a distressing 10% (n 55) students still use old clothes. 26.8% (n 146) of them still believe that cloth pads can be washed in water alone. 22.3% (n142) and 15.6% (n 85) do not know the importance of drying cloth pads under the Sun and the benefits of cotton panties respectively. Regarding knowledge on safe disposal methods, 10 students (1.8%) are for disposal in toilet drain, while majority 318(58.7%) are for wrap and throw in dust bins. Only 193(35.6%) know about burning the pads and 21 (3.9%) are not sure of the method of safe disposal.

Overall, an average of 10% -25% of the students (n 50 – 150)

are not aware of safe menstrual hygiene practices. Also, 87.5% (n 478) are still using disposable sanitary napkins and are not aware of the carcinogenic potential and environmental pollution that it is causing.

On testing the knowledge on genital cleanliness, pelvic infection, HPV infection and on Cancer cervix and its prevention, PCOS and infertility, 200 – 300 (50%) students have answered correctly, whereas the other 50% are having wrong ideas or not sure of the response.

#### Healthcare-Seeking Behaviors of Adolescents Facing Gynecological Problems

Whenever the adolescents faced health issues, nearly 53.3% (n 291) did not seek medical help. 12.6% (n 69) did not know whom to approach, nearly 20% of them did not seek help either because they were not worried about the problem or due lack of time and interest. Their decision of not seeking medical help has been influenced by parents -20% and 25% their own decision and 3% by peer group.

When asked about whom they had approached for the problems, majority mentioned gynecologist (36.8%) or family doctor (17%) followed by friends, relatives (6.8%)

5 % relied on suggestions in the web or social media and less than 1% only were using over the counter medications. Of those who sought medical help, 30.4% were relieved of their issues and 20.7% were not.

#### 4. Discussion

Herein, we have analyzed our results and compared it with several studies that have included late adolescents as the majority of their study population. 77.3% of our study participants belonged to late adolescent age group (18-21 yrs.) and 22.7% were young adults (22-24 yrs.)

BMI of the study population was calculated and was given importance with respect to menstrual irregularity and hyperandrogenism. Although majority of the study population, 53.6% were within normal BMI range, 28.8 % of our study population were overweight or obese and 17.7 % were underweight. This was in accordance to Mendiretta et al, [5] who found that 25.7% of the adolescents were overweight or obese and 10.6 % were underweight. However, in some studies the frequency of underweight adolescents was more than the obese or overweight counterparts. Kalyankar et al [6] found that 14.6% of individuals were overweight, 3.4% were obese, and 26% were underweight, Mukta Agarwal et al [7] noted that 14.5% and 1.6% of individuals were overweight and obese, respectively, while 20.3% were underweight.

In our study, 75.8 % girls attained menarche between 12 – 16 years. Around 16.3% attained menarche earlier, 11 years or below and few i.e. 7.9% at more than 16 years of age. Other Indian Studies have also reported similar age range for menarche in their study population [3, 7]. According to a study by Geeta Singh et al [3], although most girls attained menarche by 13 – 16 years, urban girls attained menarche significantly earlier than their rural counterparts.

In our study 20% of the adolescents had menstrual

irregularities. The incidence of menstrual irregularities noted in other studies ranged from 59 % to 67%. Since ours is not a hospital-based study, the noted incidence is much lower than that of the hospital-based studies. [2-12]. These studies report that menstrual irregularities were the commonest gynaecological problem in adolescents, seeking health care. The commonest menstrual irregularity noted in our study was scanty periods (9.5%) followed by altered frequency (8.2%) and heavy menstrual bleeding (7 %). Other studies on late adolescents have reported amenorrhoea or frequent or infrequent cycles as the commonest menstrual irregularity [7,11,12]. In most studies, heavy menstrual bleeding was reported in 15 – 25 % adolescents approaching for menstrual irregularities [2,9-11].

There was a close association between menstrual irregularities and BMI of more than 25. In our study, the menstrual irregularities were significantly more common among the obese or overweight individuals than normal individuals (Odds ratio 1.8, p value 0.004). Agrawal M et al [14] has reported that girls with high BMI had more oligomenorrhoea, hypomenorrhoea, irregular menstrual cycles, polymenorrhoea, premenstrual symptoms and less dysmenorrhoea and menorrhagia compared to normal BMI girls and underweight girls.

In the present study, dysmenorrhoea was noted in 59% of the study subjects and was the commonest gynaecological problem in the study population. Mukta Agarwal et al [7] noted that dysmenorrhoea and puberty menorrhagia were the commonest menstrual disorders in late adolescents with a prevalence of 24.8% and 23.95%, respectively. Other hospital based Indian studies have reported dysmenorrhoea in 9 -68% of adolescents [2-12]. There is a huge variation in the reported rates of dysmenorrhoea among these studies. This probably indicates that there is disparity in the attitude of adolescents in approaching health care facilities for this symptom.

Notably, in our study, triple dysmenorrhoea was seen in 14.3% of the adolescents which indicates that these adolescents should be further evaluated for endometriosis. According to Millischer AE et al [13], there is a predominance of endometriosis after 18 years among the adolescents.

In our study about 44 % of the adolescents reported excessive white discharge per vaginam. Other studies reveal that 5 – 25 % of the adolescents reporting to hospital had excessive white discharge [2,7-11]. This disparity between our study and other studies indicates that many adolescents probably do not seek medical help for this issue.

76.4% of the subjects reported lower abdomen pain which was much higher than the prevalence of abdominal pain. Dysmenorrhoea was prevalent among 59%; probably the students had mistakenly marked the dysmenorrhoea as abdominal pain too. So, we can deduct it and take probably 17.4% as true abdominal pain, similar to other studies which deserves medical attention [7,11]. The cause of this kind of pain could be due to urinary infection, pelvic inflammatory disease, endometriosis or abdominopelvic masses. In our study, about 14.5% of the study population had urinary complaints which was a little higher than other studies (3.2 % - 11.5 %) [7, 9-12].

Our data revealed that 13 % of the study population had PCOS which was in alignment with most other studies [2, 7, 11]. According to Mukta Agarwal et al [7] PCOS was the underlying cause for menstrual irregularities such as oligomenorrhoea in up to 64.2% of the adolescents.

In the present study, acne was the major hyperandrogenic feature (53.7%) Mukta Agarwal et al, [7] showed acne as 29.7%. Acanthosis nigricans was 28.2% in our study, and hirsutism 17%, whereas Mukta Agarwal et al [7] show hirsutism as 21.38%.

Presence of 2 or more of these features suggestive of hyperandrogenism and irregular menstrual cycle was taken as suggestion of PCOS in adolescent age group where USG based PCO morphology is not a reliable criterion. Hyperandrogenism in individuals who had irregular cycles and were overweight or obese was compared with those having irregular cycles and normal BMI. It was found that high BMI is a risk factor for the development of hyperandrogenism and thereby PCOS. Odds ratio - 7.33, p value - 0.003 at 95 % confidence interval. Mukta Agarwal et al [7] noted that 29.7% adolescents with PCOS were overweight or obese. They also found that PCOS is closely related to BMI, similar to our study.

4.8% of the study subjects were having hypothyroidism. Hypothyroidism and hyperprolactinemia were noted in 4% - 10% of adolescents in most studies. [2,8,11] Hypothyroidism and hyperprolactinemia are important contributors to menstrual irregularities.

In our study, 21.2% individuals had been diagnosed as anaemic by blood investigation.

Bafna et al and Vani et al reported anaemia in 31.1% and 34.6 % study subjects [4,12]. Mukta Agarwal et al [7] identified anaemia in 62.15% of late adolescents. Subramanian M et al [15] reported that prevalence of anaemia was 71.7% among rural adolescent girls in a community- based study. Chandrakumari AS et al [16] found that among the adolescents, anaemia was most prevalent in late adolescents (52.2%).

Among these 546 students, questions regarding knowledge, attitude and practice about menstrual hygiene and awareness of gynecological health were asked and the results were compared.

Around 7.9% still believe that menstruation is a disease. This is similar to the study by Sanober et al [17], among rural adolescent population of Gilgit, Pakistan, who also reports 7% .The same was reported by the findings of Boruah B et al (8.2%) [18]. Thakre SB et al [19] (80.62 %) and Kailasraj KH et al [20] (37.6%) reported much higher incidence of ignorance among the adolescents regarding the cause of menstruation.

On testing knowledge about the various absorbent materials being used during menses, in our study, most of our girls, 87.5% are using disposable sanitary napkin, this is almost similar to the study by Maryam Balqis, et al [21] conducted at Jatnangor, Indonesia, who showed that 92.44% used sanitary napkins, whereas in the study by Sanober et al [17], 30.7% only use it. In a hospital based study conducted by P Meena et al., [22] among the rural population of Jaipur, most girls belonged

to poor socioeconomic status and were illiterate, only 5.56% were using sanitary napkins. In our study 26% use reusable cloth pads as against 47.7% among the other study population of Pakistan<sup>[17]</sup>. Among our population, 24.5% were aware of menstrual cup but no mention of it in the study by Sanober et al<sup>[17]</sup>. 10% of our students still use old clothes, whereas only 5.88% use it in Jatianangor study<sup>[21]</sup> & nearly 66.66% were using clothes as absorbent material among the study population of P Meena et al<sup>[22]</sup>

Regarding knowledge on safe disposal methods, 1.8% of our population and 7.3% of Sanober et al<sup>[17]</sup> study group are for disposal in toilet drain, while majority 58.7% of our groups compared to 6.3%<sup>[17]</sup> are for wrap and throw in dust bins. Only 35.6% of our group know about burning the pads, similar to 24.7% in the Pakistan group<sup>[17]</sup> Thakre SB et al<sup>[19]</sup> reports majority (52.2 %) of their adolescents were aware of burning as a method of disposal.

On assessing their attitude and practices during menstruation, 26.8% of our study population still believe that cloth pads can be washed in water alone. Among the Jatianangor<sup>[21]</sup> students 51.68% use only water, whereas only 1.7% have said that in the Pakistan study<sup>[17]</sup> population.

86% of the students believe in handwashing before and after washing the genitals, as against 98% among the Jatianangor students<sup>[21]</sup>. There is still a distressing 14% still do not regard hand washing before and after washing the genitals as essential to prevent infection, same was noted in 59.3 % by Thakre SB et al<sup>[19]</sup> and 58.4 % by Kailasraj KH et al<sup>[20]</sup>

8.2% & 1.8% believe in changing pad hourly and once a day (probably the menorrhagic and scanty periods girls), while majority 62.6% are for changing more than three times a day. (Present study, Thakre SB et al and Kailasraj KH et al<sup>[19,20]</sup>) In the study by Sanober et al<sup>[17]</sup> 50% change every 2 hours and 27.30% change more than 3 hours later.

In our study 51.1% of the study population use water alone for washing the genitals, 37.5% use soap and water and 11.2% believe in washing with antiseptic solution during periods. On comparing the study with Sanober et al<sup>[17]</sup>, in which 38.7% and 38% use water alone and water with soap respectively. In the study by Maryam Balqis,<sup>[21]</sup> 51.68% use only water very similar to our study population & 47.90% use water and soap.

A good 88% dry cloth pads under the Sun similar to, 84% in the study by Maryam Balqis<sup>[21]</sup> 70% in P Meena et al<sup>[22]</sup> study, whereas only 39.9% did it among the Sanober et al<sup>[17]</sup>.

Overall, an average of 10% -25% of the students (n 50 – 150) are not aware of safe menstrual hygiene practices. This is much better than the study by P Meena et al.,<sup>[22]</sup> where 70% were not aware of hygienic practices. Maryam Balqis,<sup>[21]</sup> shows 75.6%, 78.15% & 88% of good Knowledge, Attitude & Practice among their study population.

Also, 87.5% of our study population & 92.44% of Maryam Balqis<sup>[21]</sup> are still using disposable sanitary napkins and are not aware of the carcinogenic potential and environmental pollution that it is causing.

On testing the knowledge on genital cleanliness, pelvic infection, HPV infection and on Cancer cervix and its prevention, PCOS and infertility, 200 – 300, i.e. 50% students have answered correctly, whereas the other 50% are having wrong ideas or not sure of the response. The study by Lulu Eva Rakhmilla et al<sup>[23]</sup> show that the knowledge of the students regarding leucorrhoea was low but 98% of them are having good attitude and practices in the prevention of genital infections.

Whenever the adolescents faced health issues, nearly 53.3% (n 291) did not seek medical help, meaning 47% only seek medical help in our study. But a study by Abdul-Aziz Seidu,<sup>[24]</sup> showed 66.5% seek help. In our study when asked the reason for not seeking help, 12.6% did not know whom to approach, nearly 20% of them did not seek help either because they were not worried about the problem or due lack of time and interest, whereas it was long queues at the health care facilities (61.8%) and high cost of treatment (28.5%) in the other study.<sup>[24]</sup>

When asked about whom they approach for their health-related problems, majority mentioned gynecologist (36.8%) or family doctor (17%) followed by friends, relatives (6.8%), In a study by Rajesh Kumar et al.,<sup>[25]</sup> among school going adolescents, boys consulted mainly friends/peers (48%) while girls consulted their mothers (63%). Since our study population were medical and paramedical students, accessibility to doctors was good. It is truly a good sign that only 5 % relied on suggestions in the web or social media and less than 1% only used over the counter medications.

## 5. Conclusion

Our study conducted among medical and paramedical students shows that normal BMI was present only among 53%, the rest are either overweight or underweight. Also, the high incidence of menstrual irregularity and PCOS in the adolescent population with high BMI shows that lifestyle modification should be advocated vigorously among adolescents to mitigate the risk.

Not seeking medical help for problems during adolescence may lead to serious health issues during the reproductive period. This has to be explained and the awareness to approach medical personal whenever needed has to be emphasized.

An average of 10 to 25% of adolescents was not aware of safe menstrual hygiene practices. We can believe that this percentage will be higher in the community. Also, 87.5% of our study population are still using disposable sanitary napkins and are not aware of the carcinogenic potential and environmental pollution that it is causing. Hence there is an urgent need to increase the awareness of gynecological health among the adolescents for their future benefit and the benefit of the community at large.

## 6. Limitations of the Study

Our study population includes medical and paramedical students who have greater access to knowledge and health care facilities. Although this study is conducted among apparently healthy volunteers, our study population may not represent the

true picture of knowledge status and health seeking practices of the community.

However, the study does highlight the frequency of gynaecological problems in late adolescents and young adults which can be extrapolated to the community.

The other major aspects like reproductive and mental health have not been covered in the present study.

## 7. Recommendations

There is an urgent need to educate the adolescent population on nutrition, health and exercise and the importance of preventing obesity which is the greatest non-communicable disease of the present. PCOS is a rising menace and responsible for reproductive and medical ill-health which needs to be addressed as top priority among the adolescents.

Menstrual hygiene is still a topic with lot of controversies especially on the usage of the absorbent materials and their disposal. Wide spread usage of the disposable sanitary pads, (once advocated by the health personal) has now proven to be both carcinogenic to the user and a great environmental hazard if thrown in dust bins. The alternatives have to be taught with great emphasis immediately.

Adolescent health education must be made a part of both school and college curriculum for both girls and boys.

### Author Contributions

Dr. Apurva designed the concept of the article and conducted the analysis and wrote the initial draft of the article.

Dr. Vijayalakshmi Gnanasekaran & Dr. G. Ganitha conducted the literature search and did revisions to the manuscript & finalized it. Dr. Jikki Kalaiselvi approved the finalized manuscript.

### Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

### Ethical Standard

This study was approved by the Institutional Ethics Committee. (No.1204/2024/IEC/ACSMCH)

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