

# KNOWLEDGE AND PRACTICE OF MENSTRUAL HYGIENE AMONG ADOLESCENT GIRLS IN CHENNAI POPULATION

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## ABSTRACT

Adolescence is an important period of transition from girlhood to womanhood. Menstruation is the physiological process that indicates the onset of puberty. The practice of menstrual hygiene also depends on socioeconomic, cultural and religious differences. Menstrual hygiene plays an important role in the overall health of women. The aim of the study is to analyse the knowledge and practice of menstrual hygiene among adolescent girls in the Chennai population. A descriptive cross-sectional survey was conducted among 102 girls of Chennai population to analyse their knowledge and practice of menstrual hygiene through an online survey. A self administered questionnaire was prepared with 10 closed ended questions and circulated among the parents through online survey forms "Google forms". The responses were collected and statistically analysed by SPSS using chi square test. The results were represented by bar charts and frequency tables. Among the 102 participants 98.8% of them are aware of menstrual hygiene 96.1% of the girls use sanitary pads as the absorbent, and about 99% of them dispose of their used absorbents in dustbins. 94.1% have knowledge on the effect of not following good menstrual hygiene. The study concludes that the girls of Chennai population have adequate knowledge and good practice of menstrual hygiene.

**KEYWORDS :** Adolescent girls; Awareness; Menstrual hygiene; Menses

## INTRODUCTION

Adolescence in girls has been recognized as a turbulent time that marks the transition from girlhood to womanhood and is considered a milestone of female puberty. The onset of menstruation is one of the most significant physiological changes that occur during adolescence among girls ( kiran Gaikwad, no date). Menstruation is a normal physiological process indicating the beginning of reproductive life ( Paria, Bhattacharyya and Das, 2014). As adolescence is the most important and sensitive period of one's life a wide range of morbidities exist among adolescents, such as nutritional deficiency disorders, menstrual disorders ( kiran Gaikwad, no date), ( Paria, Bhattacharyya and Das, 2014). Deficiency like iodine deficiency which may cause goitre ( Samuel and Devi, 2015) and Obesity, which is an important health issue, is a common

problem among women of reproductive age ( Baheerati and Gayatri Devi, 2018) which may have a negative effect on health leading to a reduced life expectancy and increased health problems, ( Fathima and Preetha, 2016) even for diseases like Non-alcoholic fatty liver disease weight loss is the major treatment ( Choudhari and Jothipriya, 2016). Menstruation is generally considered unclean in the Indian society. The alienation of menstruating girls and their family restrictions have strengthened a negative attitude towards this phenomenon, which further influences menstrual hygiene practices ( Patil *et al.*, 2018). Women's hygienic activities are of great significance during menstruation, because they have a health effect in terms of increased susceptibility to reproductive tract infections ( Ghimire, 2017). Once deteriorated experimental method of treatment ( Renuka and Sethu, 2015) for getting back the same reproductive health is burdensome.

Proper hygiene practices such as the use of sanitary pads, disposal of absorbents in a proper manner and proper cleaning of the genital area during menstruation are essential. A major aspect for women and girls is to have the understanding, facilities and cultural environment sufficient to hygienically maintain menstruation ( Prajapati, Shah and Kedia, 2015). Poor water facilities, sanitation and hygiene facilities in schools, inadequate puberty education and lack of hygiene items may affect the menstrual hygiene practices of some girls ( van Eijk *et al.*, 2016). The physical load among the girls seems to put them at risk for the occurrence of disorders( Abigail *et al.*, 2019) like Obstructive Sleep Apnea(OSA), a potentially life threatening condition ( Shruthi and Preetha, 2018) which makes them lethargic towards menstrual hygiene. Several research studies have revealed that the majority of girls have low levels of awareness about menstrual hygiene when they first experience it ( Dasgupta and Sarkar, 2008). The practice of menstrual hygiene also depends on socioeconomic, cultural and religious differences.

Inadequate menstrual hygiene has been an insufficiently recognized issue in developing countries. But menstrual hygiene plays an important role in the overall health of a woman. Improper menstrual hygiene may cause bacterial or viral infections or any allergic reactions (R and Sethu, 2018). Even though there are studies done to analyse the awareness of girls on menstrual hygiene they are still facing significant problems on comfortable and dignified experience with menstrual hygiene management. Pain like Lowback pain is a common musculoskeletal disorder characterised by sourness and muscular tension which restrict girls to follow proper menstrual hygiene ( Swathy and Gowri Sethu, 2015). This study aims to understand the knowledge and practices of menstrual hygiene among adolescent girls in the Chennai population.

## **MATERIALS AND METHODS**

A descriptive cross-sectional study was conducted among adolescent girls residing in Chennai to analyse their knowledge and practice of menstrual hygiene. The ethical approval from the institutional review board for the study was obtained. The study included 102 adolescent girls. Simple random sampling was done. A self administered questionnaire was prepared with 10 closed ended questions and were circulated among the adolescent girls residing in Chennai through online survey "Google forms". The data were collected from the Google forms and the results were analysed and represented as bar charts and frequency tables. Statistical software SPSS was used for descriptive analysis. Association between age and awareness of adolescent girls on menstrual hygiene was done using Chi square test with a confidence interval of 95% and statistical significance  $P < 0.05$ . The data was analysed and interpreted as bar charts.

## RESULTS AND DISCUSSION

The study included adolescent girls of age less than 16 years of 4.1%, 16 to 20 years of 45.1% and more than 20 years of 50% girls. When the girls were asked whether they knew that menstruation is a physiological process 99% of them responded that they knew about it. When they were asked what could be the cause of menstruation, 97.1% replied as hormone while only 2% responded as a disease. When they were asked whether proper hygiene should be followed during menstruation 80.3% of them said yes. Among the participants 98% of them were taught about menstrual hygiene practices in schools or in their homes before they experienced it for the first time while 2% of them never knew about it before. When the adolescent girls were enquired about the materials they use as an absorbent 98% of them said that they use sanitary pads and 2.9% of them said they use clothes.

When the participants were asked about their frequency of changing their absorbent during their menses per day, 31.4% of them change thrice a day, 31.4% of them change four times in a day, 30.4% of them change twice in a day while only 2% of them change once in a day. 99% of the girls dispose of their used absorbents in dustbins while only 1% of them dispose them in drains. When the girls were asked about their method of cleaning the soiled clothes 48% clean with water and soap, 34.3% of them clean with hot water and soap, 13.7% of them clean with only hot water and about 3.9% of them clean with only water. When the girls were asked what is the major problem they face during menstruation that limits them from following proper menstrual hygiene, 71% of them responded as stress or mood swings and 14% of them responded as problems related to availability of sanitary pads. When they were asked why menstrual hygiene should be followed, 2% said as to reduce risk of urinary tract infection, 2% said as to reduce rashes in genitals, 2% said as to have good reproductive health and 96% of the girls said all these reasons are included.

In addition to inadequate facilities, traditional culture also limits the adolescent girls and women to discuss menstrual hygiene openly and access to important information about menstrual hygiene (Sommer *et al.*, 2015). Since teenagers are the most agile group, they are more prone to the disease (Iyer, Gayatri Devi and Jothi Priya, 2019) and this can affect their health and education. In present study girls of age more than 20 years had more knowledge, that about 51 of them were aware of menstruation as a physiological process (figure 1) with p value 0.00 which was statistically significant. Similar findings were seen in study done by Balaji Arumugam *et al.* (Arumugam *et al.*, 2014) where 92% of the participants responded to menstruation as a physiological process.

In present study about 51 girls of age more than 20 years responded that hormone is the cause of menstruation. 97.1% responded the same (figure 2), a similar finding was seen in a study done by Upashe.SP (Upashe, Tekelab and Mekonnen, 2015) where 62.7 % of the girls in the study responded that hormone is the cause of menstruation. P value was 0.485(>0.05) which was statistically insignificant. As most of the girls were educated they knew about the process and cause of menstruation. In the present study 80.3% of the girls responded that menstrual hygiene should be followed in a proper manner (figure 3) with p value 0.02(<0.05) which was statistically significant. Similar finding was seen in study by Bhatt *et al.* (Bhatt and Kadam, 2019). In the current study about 88.3% of the girls knew about menstrual hygiene in schools or homes before, 50 girls who were at the age of more than 20 years were also aware of it even before they experienced their first menstruation (figure 4). The p value was 0.946(>0.05) which was statistically insignificant. Similar finding was seen in study by Anushree P.C *et al.* (C. *et al.*, 2014), where 88.3% of the

participants were aware of menstrual practices before they had their first menstruation. It is important that education should begin early on to continue throughout their lifetime ( David *et al.*, 2019). As they were more educated and socialised they know and discuss menstrual hygiene and the practices to be followed.

In the present study 99% of the girls use sanitary pads as an absorbent during their menses and about 44 girls of age more than 20 years responded similarly (figure 5) with p value 0.00 (<0.05) which was statistically significant. Similar findings were seen in a study done by Kumari et al ( Kumari, Sheoran and Siddiqui, 2018), where 75.3% of the participants use sanitary pads as the major absorbent. They were more educated and they also socialise more they prefer the most comfortable ones and the hygienic material. In the present study about 30.4% of the girls change their absorbent twice in a day during menses. Girls of the age of more than 20 years, about 19 of them responded similarly (figure 6). P value was 0.436(>0.05) which was statistically insignificant. Similar findings were seen in study by Bhatt et al ( Bhatt and Kadam, 2019) where about 46.5% of the participants in the study responded similarly to the present study. 51 girls of age more than 20 years dispose of their used absorbent in dustbins. (figure 7) which was the response of the majority of the girls in present study. P value was 0.00(< 0.05) which was statistically significant. Similar findings were seen in a study done by Kumari et al (Kumari, Sheoran and Siddiqui, 2018) where 76% of the girls dispose of their used absorbent in dustbins.

In the present study majority of them cleaned the soiled clothes with water and soap and 26 girls of the age group more than 20 years responded similar to the majority responses (figure8). The p value was 0.203 (>0.05) which was statistically significant. Similar findings were seen in a study done by JavalKar et al ( Javalkar and Akshaya, 2017), where 72% of the participants used water and soap for cleaning their soiled clothes. In the present study when the girls were asked what were their major problems faced during menstruation 69.6% said as stress or mood swings and majority of the girls were of the age group of more than 20 years (figure 9). The P value was 0.058 (>0.05) so it was statistically insignificant. Similar findings were seen in a study done by Jawalkar et al ( Javalkar and Akshaya, 2017) where 64% of the participant girls had restrictions. Most of the habits of today's sedentary lifestyle such as excessive stimulant consumption and extensive usage of electronic media and gadgets have a negative impact on our health ( Rj and R, 2016). Due to the present nature of work and their routine stressful life emotional stress can also precipitate or provoke both acute and chronic asthma ( Dave and Preetha, 2016) which reduces the peak expiratory flow rate ( Timothy, Devi and Priya, 2019). These were considered major restrictions for following proper menstrual hygiene.

In the present study about 94.1% of the girls who participated were aware of the effect of not following proper menstrual hygiene (figure 10). The p value was 0.060(>0.05) which was statistically insignificant. Similar findings were seen in study by Nair.AR et al ( Nair *et al.*, 2019) where 92% of them were aware of effects of improper practice of hygiene. Education in the schools and homes made them to know about the menstrual effects so they practise proper menstrual hygiene. For the present study opposing studies were also seen in the study done by (Fehintola *et al.*, 2017) where only 25% were aware of the effects of proper hygiene and they were not very well aware about the practice of menstrual hygiene. Due to Continuous improper following of menstrual hygiene may lead to effects ranging from clinically unnoticeable to severe conditions ( Harsha *et al.* , 2015).

The main limitation of the present study was that the sample size is less and it is not done in a varied population and is only limited to Chennai. Even though this research was not significant due to certain factors, further research could be done on this topic. In future, extensive studies can be done and knowledge and practice of menstrual hygiene of the girls of varied populations can be analysed which gives us precise results .

## **CONCLUSION**

In spite of the fact that menstruation is a healthy physiological process, the process of menstruation is still a problem for many girls. This study highlighted the knowledge and practice of menstrual hygiene among adolescent girls in Chennai. The present study concludes that the adolescent girls in the Chennai population have adequate knowledge of menstrual hygiene and follow good practice of menstrual hygiene, though very young girls were not aware of some menstrual hygiene practices. Therefore adolescent girls must learn and incorporate desired menstrual hygiene practices.

## **AUTHOR CONTRIBUTIONS**

Author 1 (Ashinie.C), carried out the study by collecting data and drafted the manuscript after performing the necessary statistical analysis. Author 2 (Dr. M. Jeevitha) aided in conception of the topic, has participated in the study design, statistical analysis and has supervised in preparation of the manuscript. Author 3 (Mrs.S.Sangeetha) has participated in the study design and has coordinated in developing the manuscript. All the authors have discussed the results among themselves and contributed to the final manuscript.

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## **CONFLICTS OF INTEREST**

None declared

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Table 1: Depicts knowledge and practice of menstrual hygiene among girls of chennai population

S.NO	QUESTION	CHOICES	RESPONSES
1.	Do you know that menstruation is a physiological process ?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>	<ul style="list-style-type: none"> <li>● 99%</li> <li>● 1%</li> </ul>
2.	What do you think is the cause for menses	<ul style="list-style-type: none"> <li>● Hormone</li> <li>● Disease</li> <li>● Curse</li> </ul>	<ul style="list-style-type: none"> <li>● 97%</li> <li>● 2%</li> <li>● 1%</li> </ul>
3.	Do you know that proper hygiene practices should be followed during menstruation ?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>	<ul style="list-style-type: none"> <li>● 80.3%</li> <li>● 19.7%</li> </ul>
4.	Were you taught about proper menstrual hygiene practices before at homes / schools	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>	<ul style="list-style-type: none"> <li>● 98%</li> <li>● 2%</li> </ul>
5.	What do you use during your menstruation ?	<ul style="list-style-type: none"> <li>● Sanitary</li> <li>● Cloth</li> <li>● Tampons</li> </ul>	<ul style="list-style-type: none"> <li>● 96.1%</li> <li>● 2.9%</li> <li>● 1%</li> </ul>
6.	What is the frequency of changing your cloth / pads during menses per day ?	<ul style="list-style-type: none"> <li>● Once a day</li> <li>● Twice a day</li> <li>● Thrice a day</li> <li>● Four times a day</li> <li>● More than four times a day</li> </ul>	<ul style="list-style-type: none"> <li>● 2%</li> <li>● 30.4%</li> <li>● 31.4%</li> <li>● 31.4%</li> <li>● 4.8%</li> </ul>
7.	How do you dispose of your used cloth / pads ?	<ul style="list-style-type: none"> <li>● In dustbins</li> <li>● In drains</li> <li>● In toilets</li> </ul>	<ul style="list-style-type: none"> <li>● 99%</li> <li>● 1%</li> <li>● 0</li> </ul>
8.	How do you clean your soiled clothes ?	<ul style="list-style-type: none"> <li>● With water only</li> <li>● With water and soap</li> <li>● With hot water only</li> </ul>	<ul style="list-style-type: none"> <li>● 3.9%</li> <li>● 48%</li> <li>● 13.7%</li> <li>● 34.3%</li> </ul>

		<ul style="list-style-type: none"> <li>• With hot water and soap</li> </ul>	
9.	What is the major problem you face during menstruation restricting you to follow proper hygienic practices ?	<ul style="list-style-type: none"> <li>• problem related to disposal</li> <li>• problem related to availability of sanitary pads</li> <li>• Stress / mood swings</li> <li>• Other limitations</li> </ul>	<ul style="list-style-type: none"> <li>• 6.9%</li> <li>• 13.7%</li> <li>• 69.6%</li> <li>• 9.8%</li> </ul>
10.	Why do you think proper hygiene should be followed during menstruation?	<ul style="list-style-type: none"> <li>• Reduces risk of urinary tract infection</li> <li>• Reduces Incidents of Rashes in Genitals</li> <li>• Ensure Good Reproductive Health</li> <li>• All of the above</li> <li>• None of the above</li> </ul>	<ul style="list-style-type: none"> <li>• 2%</li> <li>• 2%</li> <li>• 2%</li> <li>• 94%</li> </ul>

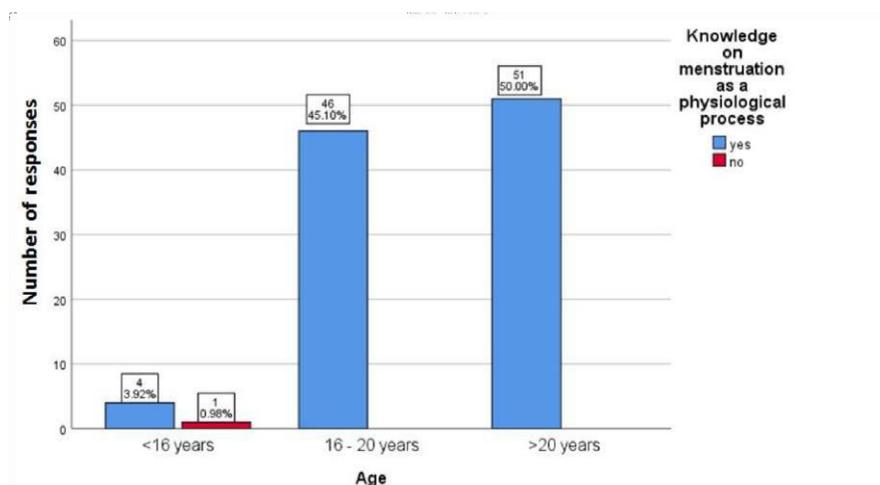


Figure 1: Bar chart depicting the association between age and knowledge of study participants that menstruation is a physiological process, X axis represents age and Y axis represents number of responses. where blue colour represents yes and red represents no. The study participants of age over 20 years

have better knowledge that menstruation is a physiological process than participants of other age groups included in the study. Chi square test, Pearson chi square value: 19.592, p value: 0.00(<0.05) which is statistically significant.

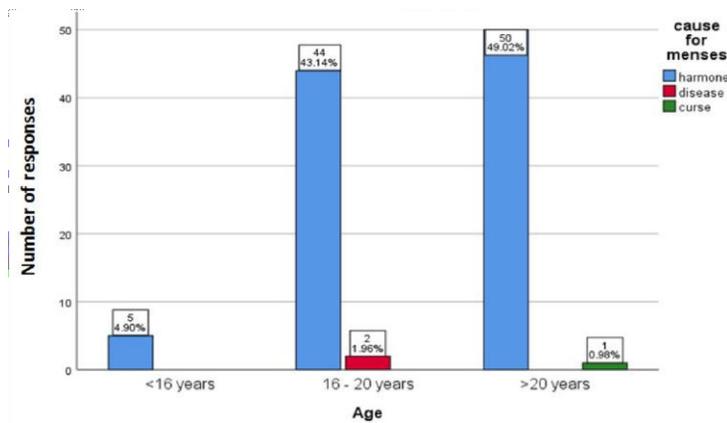


Figure 2: Bar chart depicting the association between age and knowledge of study participants on causes of menstruation. X axis represents age and Y axis represents number of responses where blue colour represents hormone, red represents disease and green represents curse. The study participants of age over 20 years have better knowledge on the cause of menstruation than participants of other age groups included in the study, however it is not statistically significant. Chi square test, Pearson chi square value:3.454, p value:0.485(>0.05) which is not statistically significant.

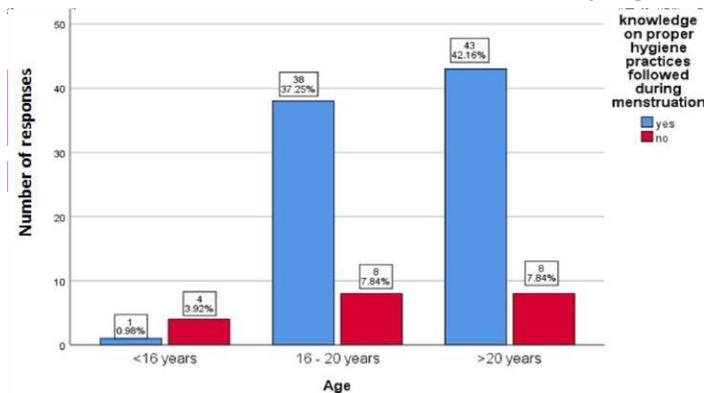


Figure 3: Bar chart depicting the association between age and knowledge of study participants on menstrual hygiene practices. X axis represents age and Y axis represents number of responses, where blue colour represents yes and red represents no. The study participants of age over 20 years have better knowledge on menstrual hygiene practices than participants of other age groups included in the study. Chi square test, Pearson chi square value: 12.210, p value: 0.02(<0.05) which is statistically significant.

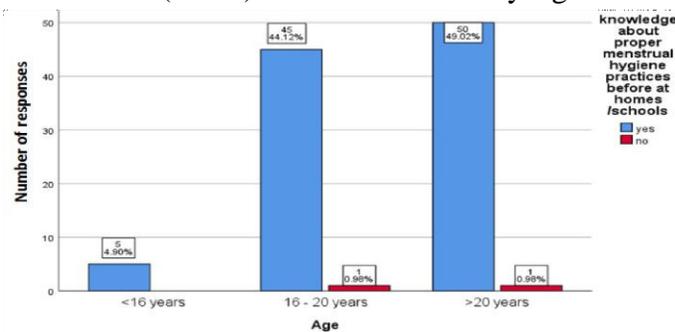


Figure 4: Bar chart depicting the association between age and knowledge of study participants on menstrual hygiene practices before experiencing for the first time from home or schools, X axis represents age and Y axis represents number of responses, where blue colour represents yes and red represents no. The study participants of age over 20 years have better knowledge on menstrual hygiene practices before at homes or schools than participants of other age groups included in the study, however it is not statistically significant. Chi square test, Pearson chi square value: 0.111, p value: 0.946(>0.05) which is not statistically significant.

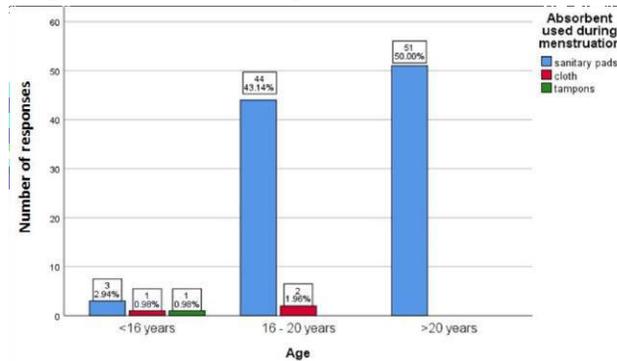


Figure 5: Bar chart depicting the association between age and absorbents used during menstruation among study participants. X axis represents age and Y axis represents number of responses, where blue colour represents sanitary pads, red represents cloth and green represents tampons. The study participants of age over 20 years have better practice of using proper absorbents than participants of other age groups included in the study. Chi square test, Pearson chi square value: 26.916, p value: 0.00(<0.05), which is statistically significant.

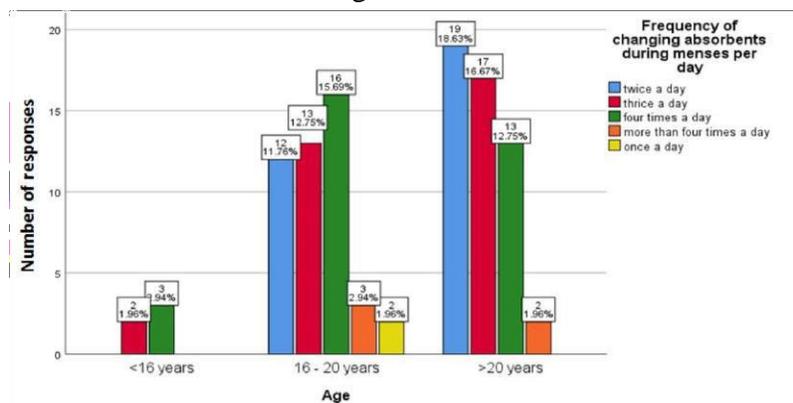


Figure 6: Bar chart depicting the association between age and frequency of changing absorbents during menstruation among study participants. X axis represents age and Y axis represents number of responses, where blue colour represents twice a day, red represents thrice a day, green represents four times a day, orange represents more than four times a day and yellow represents once a day. The study participants of age over 20 years have better practice of changing the used absorbents during menses than participants of other age groups included in the study. however it is not statistically significant. Chi square test, Pearson chi square value: 7.979, p value: 0.436(>0.05) which is not statistically significant.

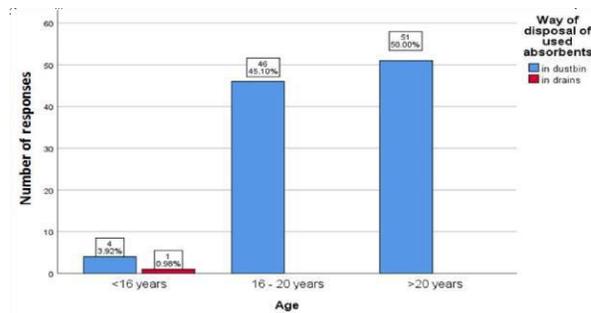


Figure 7: Bar chart depicting the association between age and way of disposing the absorbents during menstruation among study participants. X axis represents age and Y axis represents number of responses, where blue colour represents in dustbins and red represents in drains. The study participants of age over 20 years have better practice of disposal of used absorbents than participants of other age groups included in the study. Chi square test, Pearson chi square value: 19.592, p value: 0.00(<0.05) which is statistically significant.

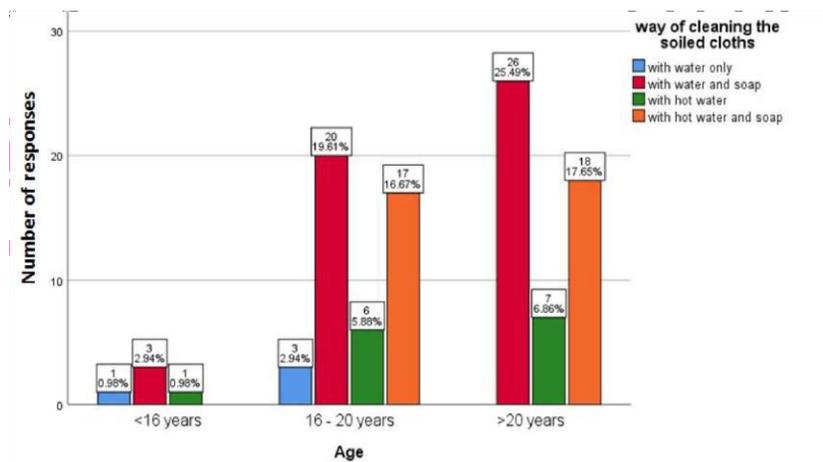


Figure 8: Bar chart depicting the association between age and way of cleaning soiled clothes during menstruation among study participants. X axis represents age and Y axis represents number of responses, where blue colour represents with water only, red represents with water and soap, green represents with hot water and orange represents with hot water and soap. The study participants of age over 20 years have better practice of cleaning the soiled clothes than participants of other age groups included in the study. however it is not statistically significant. Chi square test, Pearson chi square value: 8.512, p value: 0.203(>0.05) which is not statistically significant.

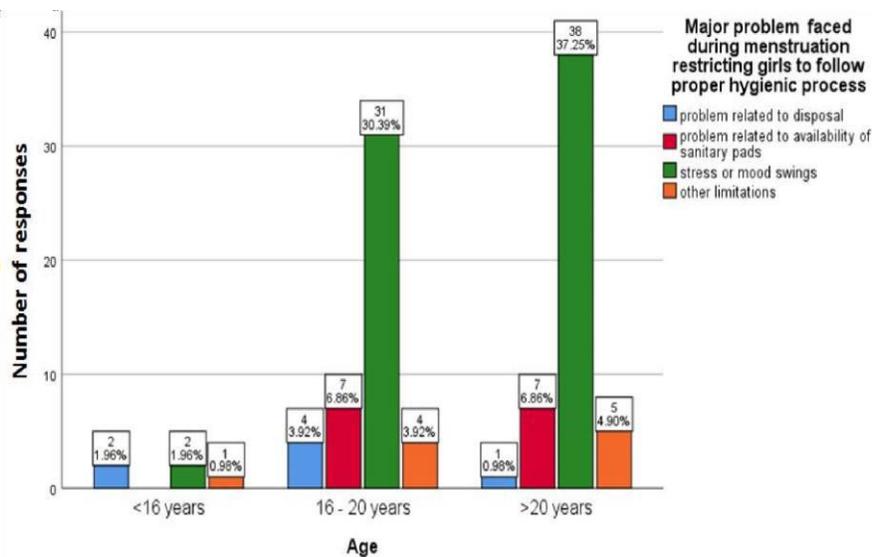


Figure 9: Bar chart depicting the association between age and major problems faced during menstruation among study participants. X axis represents age and Y axis represents number of responses, where blue colour represents problems related to disposal, red represents problems related to availability of sanitary pads, green represents stress or mood swings and orange represents other limitations. The study participants of age over 20 years have better knowledge on the problems faced during menstruation than participants of other age groups included in the study. however it is not statistically significant. Chi square test, Pearson chi square value:12.198, p value: 0.058(>0.05) which is not statistically significant.

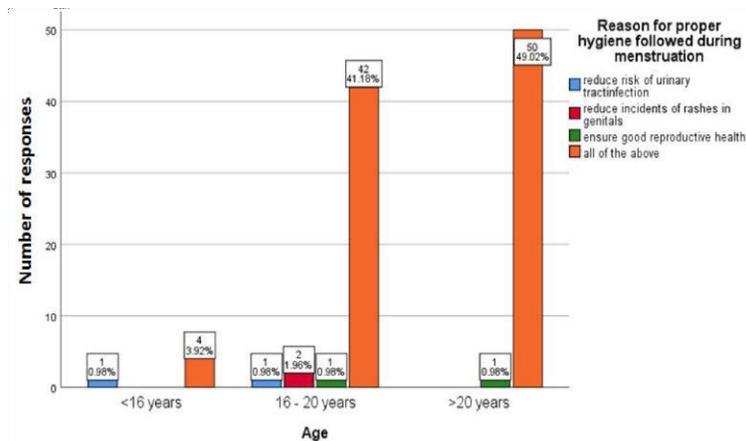


Figure 10: Bar chart depicting the association between age and reason for proper menstrual hygiene to be followed during menstruation among study participants. X axis represents age and Y axis represents number of responses. where blue colour represents reduced risk of urinary tract infection, red represents reduced incidents of rashes in genitals, green represents good reproductive health and orange represents all of the above. The study participants of age over 20 years have better knowledge on the advantages of following proper menstrual hygiene than participants of other age groups included in the study. however it is not statistically significant. Chi square test, Pearson chi square value: 12.080, p value: 0.060(>0.05) which is not statistically significant.

