**Prevalence of Menstrual health and hygiene practices among adolescent girls of Dalgaon, Darrang – A cross sectional study**

**ABSTRACT**

 The present study has been planned to assess knowledge on menstruation, status of the menstrual health, different hygiene practices and complications (if any) among some girls of Dalgaon,Darrang belonging to age group 13 to 22 years. A semi structured proforma was used to collect necessary information regarding various parameters associated with menstruation pattern, hygiene practice and its management. Respondents were found to attain menarche in between 10 to 15 years. SPSS version 17 has beenused for data analysis and the results were expressed in percentages. Out of 230 respondents,78% have regular menstrual cycle. Only 29% participants have knowledge on menstruation. Regarding hygiene practices, 73% respondents were found to use sanitary pads, 8% uses old cloth,7% uses new cloth and the rest 12% uses any materials available to them. 82% of total respondents have been suffering from dysmenorrheal. Current study demands for more awareness in proper management of menstruation as well as hygiene practices and cleanliness that should be further developed.

***Key Words****:****menarche****,****menstruation,hygiene, reproductive health***

**INTRODUCTION**

Menstrual health and hygiene is very essential for well being of reproductive health of women and adolescent girls. It is also equally important for the women to be empowered. Women require good sanitation and hygiene facilities for effective management of menstruation. Every woman covers this normal biological process in her life at adolescence. At adolescence period every women experience this natural phenomenon of menstruation. Adolescence is a critical developmental stage bridging childhood and adulthood, and for girls, menarche - the onset of menstruation - marks the beginning of puberty (Deshpande, 2018). Distinct reproductive changes occur from the onset of menstruation (menarche) till menopausein the life of a woman. Every girl child requires some special attention during adolescence.Although menstruation is normal but many adolescent girls face difficulties to manage their menstrual cycle in a healthy mannerwhich still remains confined to various restrictions in many societies.

Menstrual hygiene is integral for general empowerment and overall well-being of women worldwide (Patel V. *et al*).To maintain community health, menstrual hygiene and good reproductive health is very essential.Menstruation is a natural process that must be managed hygienically to avoid health problems (Winkler IT) such as urinary tract and reproductive tract infections(Garg, S & Anand, T). Lack of adequate knowledge on menstruation and inappropriate hygiene practices among adolescent girls leads to a poor menstrual health. Effective management of menstruation is still far from satisfaction because of proper sanitation practices, proper waste disposal etc.Though the whole process remain entangled with myths and mysteries, scientific management is much important otherwise society may be governed by erroneous information.

 This study aims to aware the adolescent girls regarding menstrual hygiene and proper sanitation practices. Myth and superstitious belief always make a barrier in unraveling different complicacies related to menstruation. The main objectives of present study are to assess the knowledge and the hygiene practices among adolescent girls of Dalgaon during menstruation

**MATERIALS AND METHODS:**

 Present study was carried out among 230 girls residing in Dalgaon of district Darrang for a period of 3 months from November 2024 to January 2025. A self-administered descriptive questionnaire was used to interview the girls and collect data in the survey. The questionnaire was prepared in both English and Assamese language as per situation demands. First of all, we invited all the girls of the Dalgaon area and informed each and every one about our survey. To assess suitability and effectiveness of the questionnaire, at first a pilot study was conducted to collect information. After taking their informed consent only survey was started. Although we collected data from 282 participants but finally we resize the sample to 230 girls only. The final participants belonging to the age group of 13 to 22 years were included for the study. The data of 52 girls were excluded because of non-fulfillment of our requirement. Again pregnant and lactating mothers were also excluded before finalization of sample size. Before starting our survey respondents were intimated through delivering a short lecture depicting our plan and objective of our study.

 The questions in the pro-forma or questionnaire are basically multiple choices and Yes/No type questions. For qualitative analysis participants were split up into various groups. Some of the discussions were conducted informally. Some villagers (mainly women) were also involved in the data collection process and helped us voluntarily. Before starting our survey we discussed broadly with that voluntary workers about the importance and also suggested to maintain confidentiality of different menstrual and reproductive ailments of the participants. History related to their reproductive and menstrual health and complicacies (if any) also recorded as well. Additionally data regarding demographic profile, knowledge on menstruation, hygiene practice and management of the same has been recorded. Collected data were recorded in MS Excel, then analyzed by using SPSS version 17 and P value <0.05 was considered as a statistically significant.

**RESULT:**

 The participants thatwere interviewed each belonging to the age group of13 to 22 years. All of them found to have attained menarche. The demographic characteristics of the studied sample have been shown in Table 1.About 34% of the total girls belonged to 13 to 15 year age group,45% belonged to 16 to 19 years and 21% belonged to age group of 20 to 22 years.Out of total 16% were studying in Middle School, 35.65% were studying in High School, 27.82% were studying in Higher Secondary course and 20.43% were studyingin College. About 73.63% of the total adolescents were belonged to Muslim community and the rest 26.37% were found to be of Hindu community. About 33.41% mothers of the respondents studied till primary school, 27% studied till middle school, 12.71% studied up to High School, 12.32% studied till Higher Secondary and 14.56% were found illiterate.

**Table 1: Socio demographic profile of study population**

|  |  |  |
| --- | --- | --- |
| Demographic Variable | Number | Percentage (%) |
| Age | 13 to 15 years | 78 | 34 |
| 16 to 19 years | 104 | 45 |
| 20 to 22 years | 48 | 21 |
| Education  | Middle School | 37 | 16 |
| High School | 82 | 35.65 |
| Higher Secondary | 64 | 27.82 |
| College | 47 | 20.43 |
| Religion | Muslim | 169 | 73.63 |
| Hindu | 61 | 26.37 |
| Mothers education | Illiterate | 33 | 14.56 |
| Primary School | 78 | 33.41 |
| Middle School | 62 | 27 |
| High School | 29 | 12.71 |
| Higher Secondary | 28 | 12.32 |

Table 2 reveals that, 55% attained their menarche in between 13 to 15 years,37% attained between 10 to 12 years and 8% attained menarche before 10 years. Only 29% of the respondents were found to have an idea about menstruation before attaining menarche. Among theparticipants, 29% consider menstruation as one kind of disease that must be endured on a monthly basis,46% were unaware of the actual cause of menstruation,and 25% believe menstruation to be a process under regulation of some particular hormones.78% girls was found to have regular menstrual cycle and 22% with irregular cycle for their menstruation. Present study shows that16% girls having length of their menstrual cycle ranges20 to 24 days, 44% have 25 to 28 days, 35% girls have a length of 29 to 34 days, 4% have more than 35 days and 1% of the participants were found to have a period of less than 20 days. 49% respondents have a period of menstrual bleeding with maximum 3 to 5 days, 26% having more than 6 days of menstrual bleedingperiod and other 25% have a period of less than 3 days. 82% have an experience of average blood loss per menstrual cycle, 13% often loses heavy amount of blood per cycle. Only 5% of the respondents have scanty blood loss.

**Table2: Information regarding Menarche and Menstruation**

|  |  |  |
| --- | --- | --- |
| Menstrual parameter | Menstrual Pattern | Respondents |
| Nos. of Respondents | Percentage (%) |
| Time of menarche | Menarche attained before 10 years | 18 | 8 |
| Menarche attained between10 to 12 years | 85 | 37 |
| Menarche attained between 13 to 15 years | 127 | 55 |
| Knowledge about menstruation before menarche | Yes | 68 | 29 |
| No | 162 | 71 |
| Menstrual cycle | Regular | 179 | 78 |
| Irregular | 51 | 22 |
| Knowledge on cause of menstruation | Considering menstruation as a disease | 67 | 29 |
| Unaware of actual cause of menstruation | 105 | 46 |
| A normal phenomenon controlled under hormones | 58 | 25 |
| Length of Menstrual cycle | Less than 20 days | 2 | 1 |
| 20 to 24 days | 37 | 16 |
| 25 to 28 days | 101 | 44 |
| 29 to 34 days | 81 | 35 |
| More than 35 days | 9 | 4 |
| Duration of menstrual period | Less than 3 days | 58 | 25 |
| 3 to 5 days | 113 | 49 |
| More than 6 days | 59 | 26 |
| Amount of blood loss | Scanty | 12 | 5 |
| Average | 188 | 82 |
| Heavy | 30 | 13 |

Table3 clearly shows that 73% of the girl students were found to use sanitary pads, 8% uses old cloth, 7% uses new cloth and rest 12% is using all the materials available to them. As per data received during the period of menstrual flow, 7% of the respondents change their used material or cloth only once in a day, 51% change twice in a day and rest 42% have a practice of changing used material thrice in a day.29% of the girl students clean their menstrual cloth inside the house but in a hidden place, 33% clean their used material inside the house but in an open space and other 38% clean outside the house in sunlight.

**Table3: Different Parameters of Menstrual health and hygiene**

|  |  |  |  |
| --- | --- | --- | --- |
| Menstrual hygiene | Methods practiced | Nos. of Respondents | Percentage (%) |
| Material used during menstruation | Sanitary pad | 168 | 73 |
| New cloth | 16 | 7 |
| Old cloth | 18 | 8 |
| All of the above | 28 | 12 |
| Changing of used material | Once in a day | 16 | 7 |
| Twice in a day | 117 | 51 |
| Thrice in a day | 97 | 42 |
| Cleaning of menstrual cloth | Inside the house | 67 | 29 |
| Inside the house but in an open space | 76 | 33 |
| Outside the house in sunlight | 87 | 38 |

Dysmenorrhea or abdominal pain was found to be most prevalent and very common menstrual disorder suffered by the respondentsat the time of menstrual flow. We have recorded a maximum of 82 out of 100 girls that are suffering from severe, moderate or mild abdominal pain.

**DISCUSSION:**

 Studied participants were found to belong to the age group of 13 to 22 years. Status of menstrual pattern, health-hygiene and different complicacies related to menstruation has been analyzed critically in this paper. Here we found that 37% of the participants attained their menarche at the age of 10 to 12 years, 55% attained at the age of 13 to 15 years and 8% attained their menarche before 10 years. Present study shows the mean age of menarche is 13.65. A study conducted on adolescent’ girls of urban slam area of Karad, Maharashtra shows that the maximum number of girls have their menarche at the age of 14, the mean age of menarche was found 13.13 years of age (Deshpande *et al,*2018). In a study conducted by Patil among adolescent girls of the rural North Karnataka region, the mean age of menarche was found to be 13.45 years. Deo and Ghattargi recorded mean age at menarche of 13.16 years. There may be some genetic factors or hormonal factors, environmental reasons, certain food stuff etc. responsible for time variation of first menstruation among the participants. Around 101 respondents (44%) having regular 25 to 28 days menstrual cycle, 16% have 20 to 24 days cycle and 35% have a length of 29 to 34 days cycle of menstruation. Out of 230 girls, 9 having irregular 35 days of menstrual cycle that might have maximum 8 to 9 cycles in a year where 1% girl has a problem of very short menstrual cycle (20 days).

 73% respondents were found to use sanitary pads during menstruation; other uses old or new cloths. Whereas, 12% respondents uses sanitary pads as well as old or new cloths based on availability. A study in rural area of Varanasi found that awareness of menarche was poor, with many girls using old cloths and not maintaining proper hygiene (Kansal, 2016). In a study conducted by Shanbhag *et al*. and Kamath et *al*. the usage of sanitary napkins (64%) was higher compared to old cloth pieces. Whereas in a study conducted by Khanna *et al*., Patil VV, Thakre *et al.,* Dasgupta, *et al*. and Udgiri R *et al*. preference for old cloth pieces was higher compared to sanitary pads. Quazi *et al* in their current study found that more than three fourth of girls use cotton clothand reuse them after washing. The study indicates a significant association between knowledge on menstruation and hygiene practices (p<0.05). Inadequate menstrual hygiene habits may result in infections of the reproductive system and other health issues. These dangers are made worse by a lack of sanitary facilities and clean water, especially in environments with limited resources (Srivastav *et al*, 2024). In our study, problem was not remaining in their finance status, lack of awareness on hygiene, misconceptions on menstruation or myth, but their perceptions, as the respondents still not considering sanitary pad as the most easily handled or managed material during their menstrual flow. The recent National Family Health Survey (2019–21) also found that 59% of the tribal women aged 15–24 use cloth as menstrual absorbents compared with 25% of their counterparts from the general caste (Sharma *et al*). Perfect disposal of used material during menstruation is another important part of proper hygiene practice to be followed. They are not actually well informed or advised by their seniors in their family about perfect disposal of used menstrual materials as they stated. Again they stated that they directly dispose used pads with bare hand throwing to their surrounding places instead of proper burial or burn; the practice that has been followed since their attainment of puberty. Arumugam B *et al*. found that burial, burning, and flushing them in the toilet were the common methods of disposal. Barathalakshmi *et al* and Thakre S.B. *et al.* found that burying was the most common method followed by disposal along with domestic wastes.

 There are many myths and taboos remain entangled with some practices adopted during menstrual flow. To combat these harmful practices, awareness and education are essential from the onset of puberty (Garg, 2015) (Ganguly, 2021). Present study showed here very poor awareness among the participants that only 38% have a practice of drying menstrual cloth in sunlight. This could be the result of differing perception regarding menstruation as the study reveals 29% consider menstruation as one kind of disease, 46% don’t know actual cause of it and only 25% consider menstruation to be regulated by some hormones. Because of such blind belief and wrong information many girls may have to suffer in various difficulties related to their menstrual health and hygiene. Barathalakshmi *et. al*. also found that 54.4% of the girls stored it inside the itself, while 40% of the girls stored it in dress cabinets. Whereas Thakre S.B., found that 51.32% dried the cloth outside the house in the sunlight, 47.37% inside the house, and 1.31% outside the house without sunlight.

 13% participants were found to lose a heavy amount of blood in each menstrual cycle and 82% of the respondents were found to suffer in dysmenorrheal or severe lower abdominal pain Different factors like hormonal imbalance, diet, age at menarche etc. may associate with such occurrence. Present study shows a positive correlation between age at menarche and dysmenorrhoea (p<0.05). Dhingra and Kumar (2009) found in their study that majority of the girls reported experiencing stomach ache (63.5%) followed by nausea (41.5%), pain in leg (12.0%), loss of appetite (24.0%) and very few stated having headache. However since majority of girls in the present study were in reference category of 13-15 years at the age of menarche, no significant variation recorded between prevalence of dysmenorrhoea and age of menarche. Our study differs from the results of some other studies where age of menarche is considered to be an important factor.

**CONCLUSION**

 Present study emphasizes the need of more awareness among the respondents that will play a pivotal role for menstrual good health and hygiene. Menstrual health is the key to the wellness of women’s reproductive and sexual health and well being. Erroneous information may leads to various constraints that may affect physical and psychological wellbeing. Present study demonstrated only a marginal level of menstrual health status of the girls of Dalgaon..It is very essential that the participating adolescent girls be equipped with more knowledge and awareness for an effective management of the menstrual and reproductive health.

**LIMITATIONS:**

 There are some limitations in our study also as there was no hemoglobin estimation as well as no any quantitative test for different reproductive hormones among the girl participants have been done for better analysis of variation of menstruation pattern.

**DISCLAIMER (ARTIFICIAL INTELLIGENCE):**

 The author(s) hereby declare that NO generative AI technologies have been used during the writing and editing of this manuscript

**REFERENCES**

Arumugam B, Nagalingam S, Varman PM, Ravi P, Ganesan R. Menstrual hygiene practices: Is it practically impractical? Int J Med Public Health 2014;4:472‑6.

Barathalakshmi J, Govindarajan PK, Ethirajan N, John William Felix A. Knowledge and Practice of Menstrual Hygiene among School Going Adolescent Girls. Natl J Res Community Med 2014;3:138‑42

Dasgupta A, Sarkar M. Menstrual hygiene: how hygienic is the adolescent girl? Indian J Community Med. 2008;33(2):77–80.

Deo DS, Ghattargi CH. Perceptions and practices regarding menstruation: A comparative study in urban and rural adolescent girls. Indian J Community Med 2005;30:33‑4. 7.

Deshpande, T. N., Patil, S. S., Gharai, S. B., Patil, S. R., & Durgawale, P. M. (2018). Menstrual hygiene among adolescent girls - A study from urban slum area. Journal of Family Medicine and Primary Care, 7(6), 1439–1445. <https://doi.org/10.4103/jfmpc.jfmpc_80_18>

Dhingra R, Kumar A. Knowledge and practices related to menstruation among tribal (Gujjar) adolescent girls. Etho-Med. 2009;3(1):43-8.

Garg S, Anand T. Menstruation related myths in India: strategies for combating it. J Fam Med Primary Care. 2015;4(2):184–6.

Ganguly, L., Satpati, L., & Nath, S. (2021). “Taboos and Myth”–Indispensable Part of Menstruation: An Overview. International Journal of Research and Review, 8(2), 123-131.

Garg, S., & Anand, T. (2015). Menstruation related myths in India: strategies for combating it. Journal of Family Medicine and Primary Care, 4(2), 184–186. https://doi.org/10.4103/2249-4863.154627

Juyal R, Kandpal SD, Semwal J. Social aspects of menstruation related practices in adolescent girls of district Dehradun. Indian J Community Health. 2013;25(3):213–6.

Kamath R, Ghosh D, Lena A, Chandrashekaran V. A study on knowledge and practices regarding menstrual hygiene among rural and urban adolescent girls in Udupi Taluk, Manipal, India. Glob J Med Public Health 2013;2:1‑9.

Kansal, S., Singh, S., & Kumar, A. (2016). Menstrual hygiene practices in context of schooling: A community study among rural adolescent girls in Varanasi. Indian Journal of Community Medicine, 41(1), 39-44. https://doi.org/10.4103/0970-0218.170964

Khanna A, Goyal RS, Bhawsar R. Menstrual practices and reproductive problems: a study of adolescent girls in Rajasthan. *J Health Manag.*2005;**7**(1):91–107. doi: 10.1177/097206340400700103.

Patel V, Tanksale V, Sahasrabhojanee M, Gupte S, Nevrekar P. The burden and determinants of dysmenorrhea: A population-based survey of 2262 women in Goa, India. BJOG. 2006;113:453–63.

Patil VV, Udgiri R. Menstrual hygienic practices among adolescent girls of rural North Karnataka region, India. Int J Community Med Public Health 2016;3:1872‑6.

Quazi SZ, Gaidhane A, Singh D. Believes and Practices regarding menstruation among adolescent girls of high school and Junior college of rural areas of Thane district. J DMIMSU. 2006;2:67-71

Shanbhag D, Shilpa R, D’Souza N, Josephine P, Singh J, Goud BR. Perceptions regarding menstruation and practices during menstrual cycles among high school‑going adolescent girls in resource‑limited settings around Bangalore city, Karnataka, India. Int J Collab Res Intern Med Public Health 2012;4:1353‑62.

Sharma N, Vaid S, Manhas A. Age at menarche in two caste groups (Brahmins and Rajputs) from rural areas of Jammu. Anthropologist. 2006;8(1):55–7.

Srivastav, S., Singh, A., Shukla, P., &amp; Maurya, S. P. (2024). Understanding Menstrual Hygiene Practices and Knowledge among Adolescent Girls: A Review. Journal of Advances in Biology &amp; Biotechnology, 27(7), 1113–1117. <https://doi.org/10.9734/jabb/2024/v27i71070>

Thakre SB, Thakre SS, Reddy M, Rathi N, Pathak K, Ughade S. Menstrual hygiene: knowledge and practice among adolescent school girls of Saoner, Nagpur District. J Clin Diagn Res. 2011;5(5):1027–33

Udgiri R, Angadi MM, Patil S, Sorganvi V. Knowledge and practices regarding menstruation among adolescent girls in an urban slum, Bijapur. J Indian Med Assoc 2010;108:514‑6

Winkler IT. Human rights shine a light on unmet menstrual health needs and menstruation at the margins. Obstet Gynecol. 2019;133(2):235–7.