

MENSTRUAL HYGIENE KNOWLEDGE, PRACTICES AND ACNE PROBLEMS AMONG ADOLESCENT AND YOUNG ADULT FEMALES: A CROSS SECTIONAL STUDY

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ABSTRACT

Introduction: Menstruation is a natural and healthy process which occurs monthly in female. Acne often found out to be associated with menstruation due to hormonal fluctuation throughout menstrual cycle.

Objective: To assess the menstruation related knowledge, practice and treatment behavior of acne associated with menstruation among adolescent and young adult females.

Methods: Adolescent and young adult female between the age group of 14 to 30 years who had been reached menarche at the time of study were selected for the study. Data was collected through pre-designed, closed-ended and structured questionnaire through personal interview.

Result: 64% of participants had knowledge regarding menstruation before their menarche. 57% of participant's first informant regarding menstrual cycle before menarche was their mothers followed by their 20% friend. Most of the participants in the study were not aware of the cause and the source of the bleeding. 96% of participants practices restriction on religious occasion related to menstruation. 51% participants experienced their acne flaring up during menstruation. 92% of participants did not consulted any doctor for their acne flaring-up during menstruation and preferred self-medication.

Conclusion: The study revealed that the knowledge on menstruation is average and therefore the menstruation practices are hygienic among the adolescent and young woman of the study area.

KEY WORDS

Knowledge, Practices, Adolescent, Female, Menstruation, Menstrual Hygiene, Acne.

I. INTRODUCTION

Menstruation is a natural and healthy process which occurs monthly in female. According to the United Nations Children's Fund (UNICEF), Menstruation is the natural bodily process of releasing blood and associated matter from the female uterus through the vagina as part of the menstrual cycle [1]. Adolescence age is considered between the age of 10 to 17 years, for both gender male and female. Adolescence in female is a stage of conversion from girlhood to womanhood and the beginning of puberty. The behavioral, physiological, and psychological changes occur in adolescence age of 10 to 17 years, the remarkable one is an onset of menstruation in female [2]. Menstrual cycle - a biological cycle leading to several changes in female reproductive system in order to prepare her body for pregnancy under the influence of hormones. The menstrual cycle lasts for up to 28 days; may vary individually from 28 to 35 days. During menstruation, the rise in hormone levels (estrogen) is observed along with the thickening of uterus lining which becomes spongy (day 6 - 8). The ovaries release one of the eggs, termed as "ovulation" (day 14, may vary individually), which further moves towards the uterus through the fallopian tube (day 15 - 24). If the egg does not fertilize, it's implantation into the uterus wall fails and it falls apart. At this stage, the hormone levels (estrogen and progesterone) will drop till the beginning of new menstrual cycle and the same process continues [3]. Menstruation, a part of this menstrual cycle, refers to the shedding off layers from the uterus linings and remnants of unfertilized egg; occurring on an average for 3 to 5 days (minimum for 2 days, maximum for 7 days) each month in all mature females beginning from adolescence (age 10 to 17 years) till they reach menopause (age 45 to 50 years, end of fertility) [3,5,6]. In 2020, there are 7800 million population of world [7] and 1387 million population of India [8]. The global sex ratio is 1.018. In absolute terms, world has 3868.8 million (49.6%) female population while 3931.2 million (50.40%) male population [9]. Sex ratio of India is 108.176, i.e., 108.176 males per 100 females in 2020 which means India has 924 females per 1000 males. In absolute terms, India has 667.012 million (48.08%) female population while 720.284 million (51.92%) male population [10]. The data value represented above [7,8,9,10] are approximate values, calculated other units into million to align all the units into one unit (million) for the ease of reader's understanding. Studies have revealed a gap in knowledge about menstruation and menstrual hygiene among adolescent and young females. A low level of awareness about menstruation was found among adolescent and young females, when they first experienced it [2]. Social hinderance and negative attitude of parents or aged family member for open discussion on related concerns have blocked the access of adolescent female to right type of information, mainly

in rural and tribal communities [2]. Hence, millions of females across the world and in India are refrained to access the right to manage their periodic menstrual cycle in a respectful and healthy manner [1]. The perception that menstruation is dirty or impure, contributes to restrictions imposed on females during their menstruation. Restrictions like cultural isolation, such as prohibition on handling food, entering religious places or attending religious ceremonies, not allowed to keep fast for the sake of faith on god, or the requirement that female isolate themselves from society and limit themselves to the home. There is also self-inspired restriction like female may fear participating in activities like athletic events and social gatherings. Lack of access to the correct menstrual product may lead to risk of infection., e.g. Yeast infection, Vaginosis or Urinary tract infection. Many communities have belief that menstruating females cannot eat few types of food, such as sour or cold foods, or those prone to spoilage. However, clinically recommended restrictions on the kinds of food menstruating female can or should eat is not that stringent, in-fact dietary restrictions may put them on risk by limiting their nutrient intake [3]. Menstrual hygiene is a global concern including India because it is not appropriately acknowledged and has not received enough attention in the reproductive health and Water, Sanitation and Hygiene (WASH) sector [5]. Menstruation is an important natural-phenomena for human existence, it may be associated with various disorder which can affect the quality of life of menstruating females [5]. A need of moment is that female should have a basic knowledge, facilities and the cultural environment to manage menstruation hygienically and respectfully [2]. Menstrual hygiene materials include the products like pads, cloths, tampons or cups used to absorb menstrual flow [1]. Acne is the common skin problem, affecting about 90% of all people at some time during their life. Acne usually occurs in adolescence and young adulthood. Acne is caused due to male sex hormone; androgen, also produced in female. This hormone causes excess oil (sebum from sebaceous gland) production from skin and if this oil is not leaving the pore, due to dead cell clogging, then the acne develops on skin of face, chest, back, shoulder, etc. Various types of acne like whiteheads and blackheads, formed due to material trapped below the skin, pustules (pimples) is the inflammatory cyst filled with pus, papules formed after the pores breakdown forming a hard, clogged pore that are tender to touch, nodules are larger inflammatory pores penetrating deeper in the skin and cysts develop, when pores are clogged by sebum, bacteria and dead skin cells, penetrating deeper into the skin, often painful to the touch. Acne seems to flare up after menarche due to hormonal imbalance. The female hormone levels drop to lowest levels as the menstruation approaches while the level of testosterone remains constant, which seemingly is higher than the female hormones. This makes the skin more prone to acne issue [11, 15]. Most of the studies discussed about knowledge and practices regarding menstruation. Few or no cross sectional survey studies have been found to address relationship of acne associated to menstruation. It was therefore considered as important to investigate the menstruation related knowledge, practices and treatment behavior for acne among young and adult female. Hence, this study has been conducted to find out present menstruation related knowledge, practices and treatment behavior for acne associated to menstruation among young and adult females in Vapi, Gujarat, India.

II. METHODS AND MATERIALS

Objectives: [4]

1. To assess the menstruation related knowledge and practice of adolescent and young adult females in study area.
2. To assess adolescent and young adult female's treatment behavior for acne associated with menstruation in study area.

Methodology: [5]

Type of Study - A cross-sectional study.

Study Setting - The present study was undertaken among the adolescent and young adult females in Vapi, Gujarat, India.

Study Subject - Adolescent and young adult females between the age group 14 to 30 years.

Inclusion Criteria - All adolescent and young adult females between the age group of 14 to 30 years who are willing to participate in the study.

Exclusion Criteria - All adolescent and young adult females who are either not willing to participate in the study or mentally challenged.

Study Duration - 1 to 2 months.

Sample Size - 100 participants.

Study Instrument - A pre-designed, closed-ended and structured questionnaire.

Information collected - The purpose and importance of the study was explained to participants. Verbal informed consent was taken prior to the data collection. The participants who gave consent were interviewed in privacy with the help of pre-designed, closed-ended and structured questionnaire which included topics relating to knowledge about menstruation, hygiene practiced during

menstruation and restricted activities practiced during menstruation. The study variables include general information like age, marital status, education, occupation and community; knowledge related to menstruation like prior to menarche, whom did you learn about menstruation before menarche, organ from where bleeding occurs in menstruation, cause of menstruation, duration of normal menstruation and harmful effect of unhygienic menstruation practices; practice followed during menstruation like choice of sanitary napkin or absorbent, frequency of changing sanitary napkin or absorbent, method of disposal of the pad, frequency of bath during menstruation and restriction practiced during menstruation, and acne problems associated with menstruation and their treatment seeking behavior [13, 14].

Statistical data analysis - The data obtained from the study was entered in MS excel sheet and analyzed statistically by simple proportions using statistical package for social science (SPSS) package version 25 [13].

Ethical Consideration: The principles of voluntary participant, anonymity and confidentiality were strictly followed in the course of this study [5]. As there was no clinical trial or intervention involved in this study, ethical approval from independent ethics committee was not required and kept optional [12]. However, verbal consent was obtained from either participants or their mother or legal guardian [5].

III. RESULT

Participant's Socio-demographic information:

Table 1 showed in the study that the age of the participants (n=100) varied from 14 to 30 years. Participants between the age group of 18 to 21 years were (48%), 14 to 17 years were (33%), 26 to 30 years were (12%) and 21 to 25 years were (7%) of total participants (n=100). Education of the participants are mainly up to higher secondary school (HSC) level which was (34%), graduate (UG) level was (32%), less than secondary school (<SSC) level was (16%), secondary school (SSC) level (14%) and post-graduate (PG) level was (4%). Most of the (81%) participants were students, (13%) were housewives, (5%) were employed and (1%) preferred not to disclose a Amongst them, (83%) of participants were single, (15%) were married and (2%) were engaged. Study participants consist of Hindu (49 %), Muslim (49%) are equal in proportion and (2%) of Christian.

Table 1: Distribution of participants according to their socio-demographic information (n=100)

Variables	Frequency	Percent (%)
Age in years		
14 – 17	33	33.00%
18 – 21	48	48.00%
21 – 25	07	07.00%
26 – 30	12	12.00%
Education		
<SSC	16	16.00%
SSC	14	14.00%
HSC	34	34.00%
Graduate	32	32.00%
Post Graduate	04	04.00%
Occupation		
Student	81	81.00%
Employed	05	05.00%
Housewife	13	13.00%
Other (Prefer not to disclose)	01	01.00%
Marital Status		
Single	83	83.00%
Married	15	15.00%
Engaged	02	02.00%
Religion		
Hindu	49	49.00%
Muslim	49	49.00%
Christian	02	02.00%

Participant's knowledge of menstruation and menstrual hygiene:

Table 2 showed in the study that (64%) of participants knew about menstruation before their menarche. About (57%) of participant's first informant regarding menstrual cycle before menarche was their mother followed by their (20%) friend and (16%) sister. Only

(19%) of participants have correct information about the organ from where menstrual bleeding occurs in menstruation that is uterus. Around (52%) of participants rightly knew that menstruation is physiological; a natural process, however (42%) of participants said it is god given and (6%) did not know. Nearly all, (97%) participants knew that the duration of a normal menses is 2 to 7 days. All the (100%) participants knew that sanitary products are available for menstrual protection and sanitary pad is the leading and reliable sanitary absorbent recommended during menstruation. Majority of (88%) participants were aware about harmful effects of poor menstrual hygiene which may lead to infections.

Table 2: Distribution of respondents according to their Knowledge about menstruation (n=100)

Variables	Frequency	Percent (%)
<i>Knowledge about menstruation before their menarche</i>		
Yes	64	64.00%
No	36	36.00%
<i>Source of knowledge of menstrual cycle before menarche</i>		
Mother	57	57.00%
Sister	16	16.00%
Teacher	05	05.00%
Friend	20	20.00%
Did not know/ Other (Prefer not to disclose)	02	02.00%
<i>Knowledge of organ from where bleeding occurs in menstruation</i>		
Vagina	69	69.00%
Uterus	19	19.00%
Bladder	02	02.00%
Do not know	10	10.00%
<i>Knowledge of cause of menstruation</i>		
Physiological	52	52.00%
God given	42	42.00%
Do not know	06	06.00%
<i>Knowledge about duration of a normal menses (2 - 7 days)</i>		
Yes	97	97.00%
No	03	03.00%
<i>Knowledge about sanitary products</i>		
Yes	100	100.00%
No	00	00.00%
<i>Knowledge about harmful effect of unhygienic menstruation practices</i>		
Yes	88	88.00%
No	12	12.00%

Participant's practices regarding menstrual hygiene:

Table 3 showed in the study that (66%) of participant's observed their menarche between the age of 12 to 14 years, (25%) observed between the age of 14 to 16 years and (9%) observed between the age of 10 to 12 years. Majority of (87%) participants used sanitary pad but still (13%) of participants uses old clothes. Only (33%) of participants changed sanitary pads twice in every 24 hours, (7%) of participants changed sanitary pads once in every 24 hours and (60%) of participants said they preferred to change sanitary pads according to the situation and (97%) of participants did not reuse the absorbent while (3%) of participants reused it. Nearly all, (98%) of participants said that they were disposing the used sanitary pads in dustbin, (1%) of participant were burning the sanitary pad and (1%) of participant preferred not to disclose. Almost, (73%) of participants bath daily, (25%) of participants restricted daily bath up to third day and chose to bath on forth day of menstruation because of cultural belief that daily bath may increase the menstrual flow and (2%) of participants bath on first day of menstrual cycle and then after bleeding stops. Most of (80%) participants used soap and water, (14%) of participants used plain water and only (6%) of participants used feminine wash to clean their genitalia. Nearly all, (99%) of participants washed their hands properly after every use of sanitary napkins and toilet during menstruation. Amongst all, (96%) of participants practiced restriction on religious occasion and did not attend any religious function, visit temples or observed fasting either by their wish or cultural belief.

Table 3: Distribution of respondents according to their Knowledge hygienic practices during menstruation (n=100)

Variables	Frequency	Percent (%)
Age at menarche		
10-12	09	09.00%
12-14	66	66.00%
14-16	25	25.00%
Type of absorbents use		
Old Clothes	13	13.00%
Sanitary pads	87	87.00%
Change of absorbents		
Once every 24 hours	07	07.00%
Twice every 24 hours	33	33.00%
Depends on situation	60	60.00%
Reuse the absorbents		
Yes	03	03.00%
No	97	97.00%
Disposal of the pad		
Dustbin	98	98.00%
Burn	01	01.00%
Other (Prefer not to disclose)	01	01.00%
Bath during period		
Daily	73	73.00%
First day	02	02.00%
Fourth day	25	25.00%
Material use for cleaning purpose		
Plain Water	14	14.00%
Soap + Water	80	80.00%
Feminine Wash	06	06.00%
Wash of hands after using sanitary pads and every time after toilet during menstruation		
Yes	99	99.00%
No	01	01.00%
Restriction among adolescent girls during menstruation		
On religious occasion	96	96.00%
Restriction not practiced	04	04.00%

Participant's facing acne problems during menstruation and their treatment seeking behavior:

Table 4 showed in the study that (51%) participants experienced their acne flaring up during menstruation although, (92%) of participants did not had any history of skin allergy. Most (77%) of the participant's said their acne appeared on face, (8%) of participant's observed acne on face and shoulder and (4%) of participant's acne appeared on face, back and shoulder. Participants said (51%) of acne were papule, (15%) blackhead, (15%) pustule, (8%) whitehead, (4%) nodule, and (5%) were not able to recognize their acne type. Nearly all, (92%) of participants did not consulted any doctor for their acne flaring-up during menstruation whereas only (8%) of participants consulted doctor. Participants preferred to use (31%) allopathic, (28%) ayurvedic, (21%) herbal and (20%) other form of medicine or available product to treat acne appearing during their menstruation. Nearly all, (91%) participants did not experienced any constipation during their menstruation.

Table 4: Distribution of respondents according to their acne problems during menstruation and their treatment seeking behavior (n=100)

Variables	Frequency	Percent (%)
Acne flare up during menstruation		
Yes	51	51.00%
No	49	49.00%
Acne appears on body part		
Face	77	77.00%
Face and Shoulder	08	08.00%
Face and Back	02	02.00%
Face and Thigh	01	01.00%

Face, Back and Shoulder	02	02.00%
Back	03	03.00%
Back Shoulder	01	01.00%
Other	01	01.00%
Acne not appeared	05	05.00%
Type of acne occurs		
Blackhead	15	15.00%
Whitehead	08	08.00%
Papule	51	51.00%
Pustule	15	15.00%
Nodule	04	04.00%
Blackhead and Papule	01	01.00%
Whitehead and Papule	01	01.00%
Other (Not able to recognize)	05	05.00%
Consulting doctor for acne		
Yes	08	08.00%
No	92	92.00%
Constipation concern during menstruation		
Yes	09	09.00%
No	91	91.00%
Any skin allergy		
Yes	08	08.00%
No	92	92.00%
Type of product use to treat acne		
Allopathy	31	31.00%
Ayurvedic	28	28.00%
Herbal	21	21.00%
Other (Medicine system)	20	20.00%

IV. DISCUSSION

Menstruation is a natural and healthy process which occurs monthly in female. The present study aimed to assess the menstruation related knowledge, practice and treatment behavior of acne associated with menstruation among adolescent and young adult female. In this study, we have found that nearly all the (97%) participants were aware about normal duration of menses (2 to 7 days) and (100%) participants were aware about sanitary products which is similar to study conducted by Maji S^[5] (2016) reported (88%) and (98%) results respectively. The hygiene related practices of female during menstruation have significant importance, as they affect their health by increasing their vulnerability to Reproductive Tract Infections, especially infections of the urinary tract and perineum. Majority of (88%) participants had knowledge about harmful effect of unhygienic menstruation practices contrary to study conducted by Maji S^[5] (2016) reported (33%) result. It was sad to observe in this study that only (19%) of participants knew menstrual bleeding occurs through the uterus although (84%) of participant's education level was SSC or above which is similar to study conducted by Prajapati J et al^[16] (2015) reported (17%) and contrary to study conducted by Yasmin S et al^[17] (2013) reported (63.3%). A little less than half (48%) of participants were not aware regarding the cause for menstruation even in this modern and digital age where information is easily available on internet which stands contrary to the study conducted by Maji S^[5] (2016) reported (62%), Khan A^[18] (2012) reported (78.89%) and Thakre SB^[19] (2011) reported (80.62%) results. Around (64%) of participants had knowledge regarding menstruation before menarche which is similar to study conducted by Sachdeva A et al^[13] (2017) reported (80%) and contrary to study conducted by Prajapati J et al^[16] (2015) reported (39.8%) of girl had knowledge about menstruation before menarche. The Study conducted by Kaur R et al^[20] (2018) discussed that the education sector of developing countries avoids concerns related to the menstruation and menstrual hygiene management by considering it a personal matter. Besides, teachers in the schools also assume that knowledge regarding menstruation and menstrual hygiene management will come gradually to adolescent girl by its own and maybe not discussing appropriately about it. In this study (57%) of participants reported mother, (20%) of participants reported friend and (16%) of participants reported sister and only (5%) of participants reported teacher as their first source of information regarding menstruation which is similar to study conducted by Michael J et al^[4] (2020) participants reported (67%) mother followed by (18.6%) sister, Thakre SB^[19] (2011) participants reported (71.33%) mother followed by (23.78%) sister and contrary to the study conducted by Maji S^[5] (2016) participants reported (43%) peer group (friend) followed by (35%) mothers. However, the reliability of the menstruation related information given by either participant's mother, friend or sister is questionable as they are not necessarily well equipped to fill gaps in adolescent and young adult female knowledge. It is important to make sure that accurate and reliable information is transferred so that the menstruating adolescent and young adult female are prepared to handle menstruation related issues. Thus, assessment and correction of mother's menstruation related

knowledge is important and should be a matter of concern for healthcare professional and local support girl. This study shows that the age of menstruating female ranged from 10 to 16 years with maximum number of females (66%) between 12 to 14 years of age which is similar to study conducted by Deo DS et al ^[21] reported that the age of menstruating female ranged from 12 to 17 years and study conducted by Prajapati J et al ^[16] (2015) reported maximum number of girls attaining menarche between 12-14 years. The hygiene related practices among adolescent and young adult female during menstruation are important because it affects their health by increasing their vulnerability to reproductive tract infections. In this study majority of (87%) participants were using sanitary pads which is similar to study conducted by Sachdeva A et al ^[13] (2017) reported (95.5%) and contrary to study conducted by Prajapati J et al ^[16] (2015) reported (26.1%). Nearly all (98%) of participants were disposing sanitary pads in dustbin contrary to study conducted by Sachdeva A et al ^[13] (2017) reported (59.8%) and Maji S ^[5] (2016) reported (23%). Only, (3%) of participants reused the absorbent contrary to study conducted by Maji S ^[5] (2016) reported (90%). Sanitary pads should be changed as often as required, instead of waiting for the pad to become completely soaked with menstrual fluid. In this study (33%) of participants preferred to change absorbent twice in every 24 hours which is similar to study conducted by Sachdeva A et al ^[13] (2017) reported (35.9%) while (60%) of participants preferred to change absorbent according to the situation, in our study. Almost, (73%) of participants bath daily during their menstruation contrary to the study conducted by Maji S ^[5] (2016) reported (10%) maybe due to water scarcity, lack of knowledge, or lack of privacy. Additionally, (80%) of participants were using soap and water to clean their genitalia which is similar to the study conducted by Michael J et al ^[4] (2020) reported (80%) and contrary to a study conducted by Maji S ^[5] (2016) reported (36%) results. A possible reason may be their lack of knowledge about menstrual hygiene and privacy. Nearly all, (99%) of participants washed their hands every time after using sanitary pads and toilet during menstruation which is similar to study conducted by Mohammed S et al ^[22] (2020) reported (94.80%). In this study, nearly all (96%) of participants practiced restriction related to religious rituals and avoid religious work like entering temple/dargah or did not observed kept fasting irrespective of their religion Hindu or Muslim which is similar to study conducted by Ade A et al ^[23] (2013) reported (80%). In this study, half of the (51%) participants observed acne flare-up during their menstruation although (92%) of participants did not had any history of skin allergy. In majority of the participants (77%) acne appear on face, followed by (8%) on face and shoulder while only (4%) observed it on face, shoulder and back. And half of the acne (51%) were papule, (15%) pustule, (15%) blackhead, (8%) whitehead and (4%) nodule. Only (8%) of participants consulted doctor and rest of participants preferred self-medication to treat their acne appearing during menstruation. Participants were found to be using (31%) allopathic, (28%) ayurvedic, (21%) herbal and (20%) other form of medicine/products to treat acne appearing during their menstruation. Nearly all, (91%) of participants did not faced any constipation during their menstruation.

V. CONCLUSION

The study revealed that the knowledge on menstruation is average and therefore the menstruation practices are hygienic among the adolescent and young woman of the study area. Knowledge of menstruation and menstrual hygiene must be included at school curriculum. Furthermore, teachers must be competently trained for communicating explicative reproductive health education knowledge in schools to adolescent and young adult females which increases their awareness on menstruation, menstrual practices, sexuality, and puberty related concerns and removes traditional beliefs and myths related to menstruation. Health education schemes requires active participation from all mother's irrespective to their educational status, to boost and improve their knowledge on menstruation and menstrual hygiene practices so when mothers guide their daughter on menstruation and menstrual practices, they supply accurate, reliable and well equipped information to fill gaps in knowledge of adolescent and young adult females and prepare them to handle menstruation related issues. And there's also a necessity to encourage the adolescent and young woman and take them out of traditional beliefs, misconceptions and restrictions regarding menstruation.

VI. LIMITATIONS

The limitations of this study were sampling methods and sample size, additional studies may be needed using large sample size.

VII. SUPPLEMENTARY INFORMATION

Acknowledgement:

Authors would like to express their sincere gratitude to Dr. Chirag Desai, Professor and Head, Department of Pharmacology, Smt. BNB Swaminarayan Pharmacy College, Salvav for his suggestion and guidance to carry out this study. Also, authors would like to thank all the young and adult female participants who participated in this study.

Conflict of Interest: None

Funding: None

Availability of data and materials:

All data and materials of this study is available and can be accessed from Deepak Jha (corresponding author) with the email address of "dbjmw@yahoo.com". Also, if any concern or suggestion will be answered or considered by corresponding author related to this study.

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