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Women's Menstrual Cycle based Survey in Haryana, India: Impact on their Socio-Psychological Health

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Abstract:- Women are decent creator of a prosperous nation. In religious country like India where women are worshiped there is another facet also of their ignorance, inequality and domestic violence. They suffer high level of stigma during their menstruation cycle. To address multiple aspects of menstrual cycle and to understand the products that women typically use, the issues they encounter during menstruation, and their personal hygiene habits to prevent menstrual complications, a survey was conducted involving 90 women. According to the survey results, 93.3% of women use disposable pads, 1.1% use tampons, 3.3% use menstrual cups, and 2.2% use reusable pads. Itchiness, redness, and allergic reactions are common problems encountered by most women using sanitary pads. As per various case studies, tampons have been linked to toxic shock syndrome in women. Additionally, poor hygiene practices during menstruation can lead to reproductive tract infections and parasitic infections, as noted in some case studies.

Keywords:- *Menstruation Cycle, Health, Survey.*

I. INTRODUCTION

Women play crucial role in smooth legitimate running of any society. They work efficiently at every platform of society such as educational, social, political, economical, cultural etc. Their communicating abilities, managerial skills, team work, hardworking and good decision making capabilities render them honourable positions among various reputed organizations [1]. According to a survey more than 80% women are the primary health care taker of their family. But they neglects constantly their own health issues. Gender based biased, educational inequality, nutrition deficiency etc., are several factors that pose cumulative negative affect to the women's health [2]. Among various challenges menstruation period also play a foremost role to affect the social, psychological and health status of women specially the young girls.

In the present survey, my study is on the menstruating women of age group between 16 to 45 years and exposed various problems associated with it. We also provide a detail study of menstruation cycle.

➢ *The Menstrual Cycle*

It is a natural physiological process that takes place in women of childbearing age, typically spanning 28 days. This cycle is critical for generating oocytes and readying the uterus for potential pregnancy. During this cycle, numerous hormonal and physiological transformations occur within the body. The cycle commences with the brain signaling specific hormones to initiate the growth of an egg [3]. Upon maturation, the egg is released from the ovary and transported to the uterus via the fallopian tube. If sperm does not fertilize the egg, it disintegrates and is absorbed [4]. The non-fertilization of the egg leads to a drop in hormone levels, triggering the shedding and bleeding of the uterine lining, a discharge that exits through the vagina, also referred to as "menstruation". Menarche, the onset of the first menstrual periods, usually take place between the ages of 12 and 15 Menstruation involves the monthly shedding of the uterine lining, sometimes referred to as menstruation, menstrual period, cycle, or period. For young women, the average time interval between the start of one period and the next varies from 21 to 45 days, whereas for adults, it ranges from 21 to 35 days. The bleeding typically lasts for about 2 to 5 days. Menstruation ceases after menopause, which usually take place between the ages of 45 and 55 [5-9].

Common symptoms during menstruation can include acne, tender breasts, bloating, fatigue, and irritability, among others. This process, governed by hormones, involves the gradual thickening and shedding of the uterine lining (endometrium), resulting in bleeding. The shedding process impacts about two-thirds of the lining of the endometrium. Menstrual fluid is a mixture of blood, mucus, and vaginal secretions [10]. Many hormones such as follicle-stimulating hormone, luteinizing hormone, female sex hormones, progesterone and oestrogen, work together to manage the menstrual cycle [11,12].

➢ *The Menstrual Cycle is Divided into three Stages as Shown in Figure 1:*

- *Follicular (pre-egg release).*
- *Ovulatory (egg production).*
- *Following egg release (luteal). (8)*

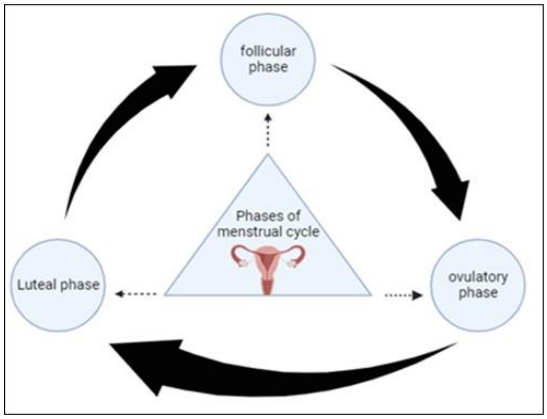

Fig 1 Phases of Menstrual Cycle

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➢ *The Follicular Stage*

The bleeding during menstruation, also known as menstruation, marks the first day of the Follicular (pre-egg release) and signifies the commencement of the menstruation cycle. A combination of follicle-stimulating hormone, luteinizing hormone and the female sex hormones, progesterone and oestrogen, regulates the menstrual cycle. Follicular stage of the menstrual cyclebegins with low levels of oestrogen and progesterone. Menstrual bleeding is caused by the rapturing and ejection of the upper layers of the endometrium, the thicker uterine lining. Concurrently, the raised level of FSH (follicle stimulating hormone) supports the formation of many follicles (fluid-filled sacs) in the ovaries, each holding the egg. Despite a decrease in follicle-stimulating hormone levels later in this period, one follicle normally continues to grow, which also generates oestrogen. Levels of oestrogen progressively increase. Oestrogen levels stay high throughout the entire of this phase. The uterine lining thickens further as a outcome of progesterone and oestrogen action, preparing for prospective conception. If fertilization does not take place, the corpus luteum degenerates and stops producing progesterone, leading to a fall in oestrogen levels. Subsequently, the top layers of the lining dissolve and shed, resulting in monthly bleeding and thebegin of a next new menstrual cycle. The follicular phase start on the first day of menstruation (day 1), characterized primarily by the growth of follicles in the ovaries [13].

Furthermore, the increasing levels of oestrogen not only prepare the uterus but also instigate a rise in luteinizing hormone. The follicular phase normally lasts 13 to 14 days. This phase has the biggest variation in duration of all three phases, which tends to shorten as menopause approaches. Whenever a surge in luteinizing hormone occurs, it marks the end of this phase [14].

➢ *The Ovulation Stage*

The ovulatory phase is initiated by an increase in luteinizing hormone levels. This hormone stimulates the dominant follicle, causing it to expand from the ovary's surface and eventually burst, resulting in the egg's release. Concurrently, follicle-stimulating hormone production is inhibited, resulting in an increase in its levels.

Ovulatory (egg production) generally spans 16 to 32 hours, culminating with the release of the egg, typically10 to 12 hours following the luteinizing hormone rise. Fertilization of egg is only possible approximately 12 hours after release of it. The increase in luteinizing hormone (LH) canbe measured through urine tests, aiding in predicting the timing of ovulation. Even if sperm enters the reproductive system before the egg, fertilization can still occur, as sperm can survive for threeto five days. There's a window of about six days in each cycle, known as the fertile window, when conception is possible. This window generally spans from five days before ovulation to one day after. The number of fertile days differ from cycle to cycle and from individual woman to woman[14,15].

Some women experience a mild ache on the lower abdomen on one side during ovulation, a pain known as Mittelschmerz. This discomfort can last from a few minutes to several hours and typically affects the side of the body containing the ovary that releases the egg. The ovaries do not appear to release eggs in turn each month; rather, the process appears to be random. If one ovary is detach, the other will continue to produce one egg each month [15].

➢ *The Luteal Phase*

It commences following ovulation. In the absence of fertilization, this phase typically lasts for about 14 days and concludes just before the onset of menstruation. During this phase, the ruptured follicle forms a structure referred to as the corpus luteum. As it seals post egg-release, the corpus luteum produces progressively more progesterone. The function of progesterone from the corpus luteum is to prepare the uterus for potential embryo implantation, thickens the endometrium and permeate it with fluid and nutrients to feed the developing embryo. Progesterone also thickens the cervical mucus, thereby reducing the likelihood of sperm or bacteria entering the uterus. During the luteal phase, progesterone induces a slight increase in basal body temperature, which continues until the beginning of a menstrual cycle. This temperature rise can be used as an indicator of whether ovulation has taken place. For the majority of the luteal phase, oestrogen levels remain high, contributing to further thickening of the endometrium. The expansion of the milk ducts in the breasts is caused by oestrogen and progesterone levels. This can lead to breast enlargement and discomfort. If the egg doesn't get fertilized or if a fertilized egg fails to implant, after 14 days, the corpus luteum degrades, resulting in a decline in oestrogen and progesterone levels and the onset of a new menstrual cycle [14,15,16].

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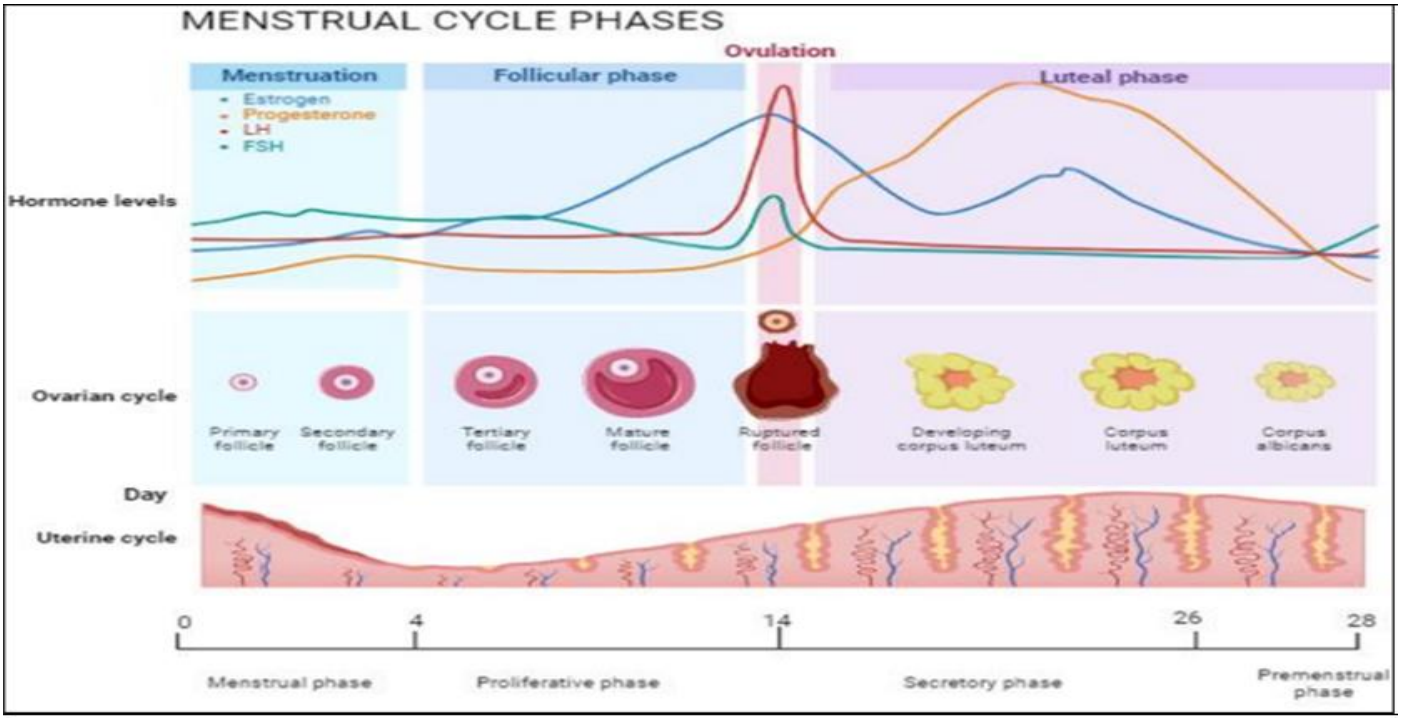

Fig 2 Menstrual Cycle Phases and Hormones Level During their Phases

➢ *Type of Absorbent used During Menstruation:*

Sanitary protection products are depending on individual person preference, cultural acceptance, status in society, and market accessibility. Both traditional as well as modern absorbents are usedby women during mensuration time. Reusable cloth pads are widely used absorbents in rural regions or areas, while commercial sanitary pads are adopted by females in cities. To manage menstruation hygiene, one should use soap and period absorbents in addition to basic sanitation facilities [16,17]. Table 1 represents some of the different absorbents used during menstruation with their advantages and limitations.

Table 1 Absorbents used During Menstruation Flow

Absorbent	Advantages	Limitations	Reference
Reusable &Washable Cloth Pads	Economical, easily accessible, re-usable and environmental beneficial.	Leakage and unhygienicdue to microbial contamination	18
Commercialsanitary pads	Made up of cotton, natural origin, comparatively hygienic, easy accessible at market and online also.	Expensive, not reusable,and not very environmentally friendly	19
Tampons	Natural as well as synthetic origin,natural obtained from sea sponges,leakage proof.	Expensive, not availableeasily	20
Menstrualcup	Medicated silicon cups, practical,cost-effective, and sustainable solution, longer life 6 t0 12 hours,leakage proof, reusable.	Not easily available	21
Bamboo and banana fibre pads	Natural origin, inexpensive, quickly biodegradable, and environmentally friendly pads with high antimicrobialquality.	Available and used inrural areas	22

II. SURVEY METHODOLOGY

➢ *Data Collection*

A Survey based study was conducted in adolescent women of 16-45 years urban as well as rural area of Haryana, India. Study was run from April 2023 to July 2023. Total 90 healthy women subjects were chosen for conducting the survey. The participating girls and women were of different fields like students, working women, house wives etc. According to the objectives pre designed and pretested self-responding questionnaire with both close and opened questions was designed in Google form.

Women as well as adolescents were directed to fill up the questionnaire within a assigned time period. Information was gathered regarding various aspects of menstruation like first occurrence of menstruation and perceptions about the social taboos and dishonour correlate with it. Information was also gathered regarding various hygienic practices and various absorbent used during menstruation and so on.

➢ *Data Compilation and Analysis*

The obtained data from all filled questionnaires was studied; compiled and useful information obtained is represented in the form of graphs. Statistical analysis was done using Microsoft excel.

III. RESULTS AND DISCUSSION

In total 90 participants, female age lies between 16-46 years and majority of female are in age group of 20-27 years. All the participated female answers all the questions of questionnaire without any hesitation and support very well for the survey. After analysis of data some information was collected in Google form. Question based google form link where all response are recorded is mentioned below:

https://docs.google.com/forms/d/e/1FAIpQLSeCOJgRkJtaU-2rlQW8r5m7CjGIF5MOp41-cv6DV9_SjT2Q/viewform?usp=sf_ link

- According to survey, the menstrual cycle of the selected women candidates is presented in figure 3, which show regular and irregular pattern of mensuration. Total of 90 response, 86.7% have shown regular menstrual cycle and 13.3% have irregular menstrual cycle. Therefore, it is revealed that irregularity of menstrual cycle is frequent among female due to various condition such as changes in hormone levels, certain health conditions and more physical stress, psychological stress, smoking or medication side effects [23]

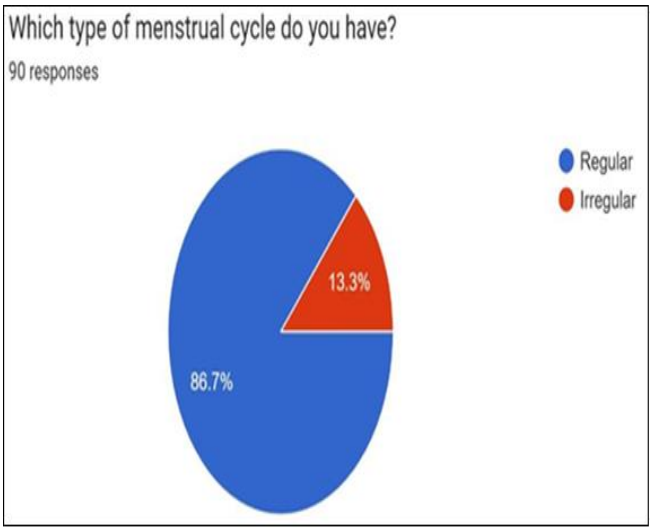

Fig 3 Data of menstrual cycle pattern

- According to survey, figure4 indicates that 15.6% women face nausea during menstrual periods, 13.3% women face vomiting, 41.1% face backache, 66.7% face abdominal crampsand 2.2%women face no problem and remaining women face another problem like fever, mood swings, headache and cervical pain, breast pain, sometime fever and cold, pimples etc.

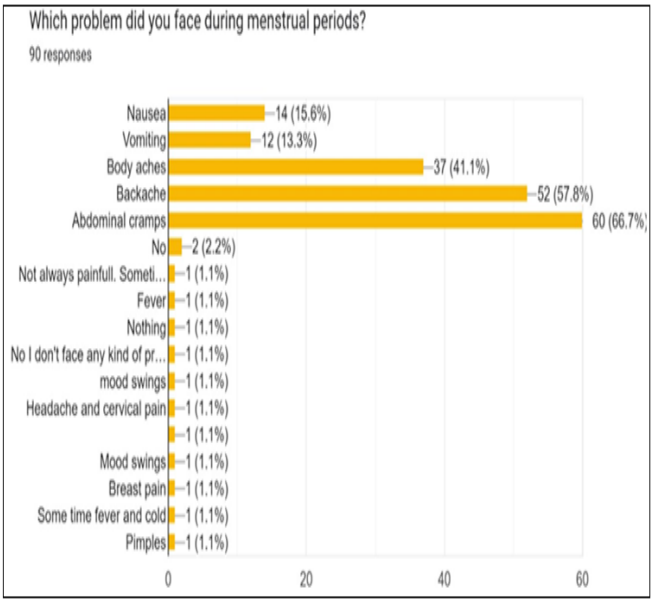

Fig 4 Data of Problems Faced During Menstruation

- According to survey, Figure 5 show that 52.2% female had changed sanitary pad two time ina day (morning and evening) and 37.8 % change sanitary pad three time (morning, evening and afternoon) and 7.8 % change more than three times and 2.2 % had changed only once per day (wear until the next day). These data show that blood flow during menstruation, the female which had changed sanitary pads more than three time in day having heavy flow as compared to who changed sanitary pads once a day. There is another reason of changing the pads is to maintain the hygiene condition during menstrual cycle [24].

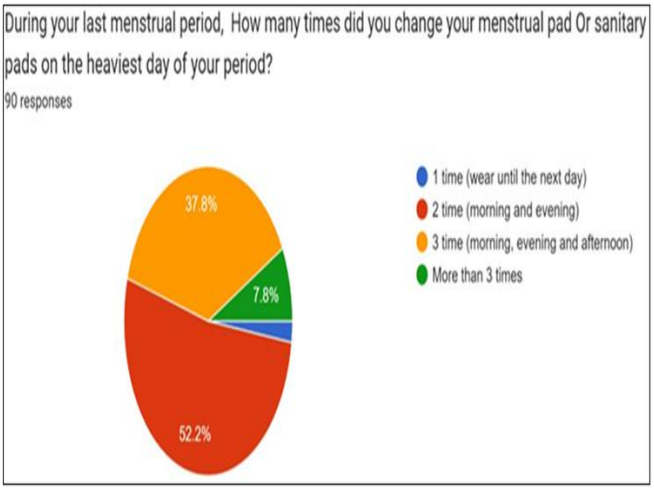

Fig 5 Data of using of Sanitary Pads in a Day

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- According to survey, Figure 6 shows the use of various products during menstruation cycle in which 93.3 % of female participants were using disposable pads, 3.3% using menstrual cup, 2.2 % using reusable pads and 1.1 percent use tampon. These products are used during menstrual cycle to absorbed the menstrual flow. Majority of participants are using disposable pads because they seems to be easily accessible and comfortable to use [25].

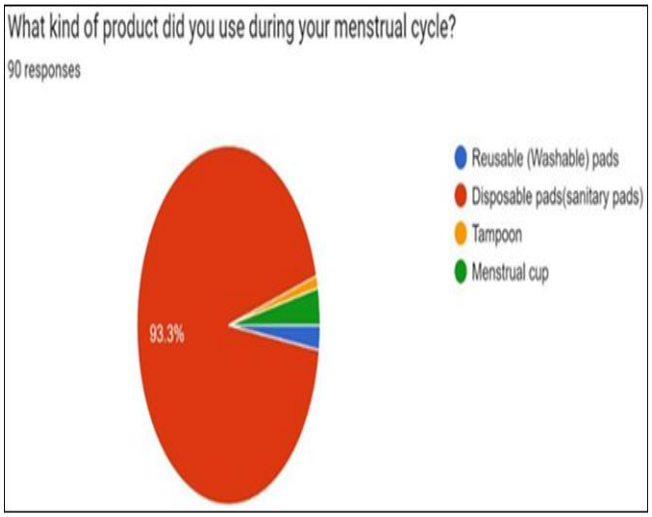

Fig 6 Data of Various Products use in Mensuration

- According to survey, Figure 7 shows about various sanitary pads brands which is preferred most during menstruation. Most of female participants 50% using whisper sanitary pads, 10.5% using Stayfree sanitary pads, 25.5% using Sofy sanitary pads, 14% using other sanitary pads like Ammy, Nine, Emvy, Sirona, Sea etc sanitary pads. Sanitary pads are available in different shapes and size. Every female use different shape and size sanitary padduring her menstrual cycle. The selection of sanitary pad depends on various factors such as skin sensitivity, blood flow during periods, comfort, lifestyle and activities. The priority level of each entirely depends on the person, and hence the choice of the sanitary pad is completely subjective [26].

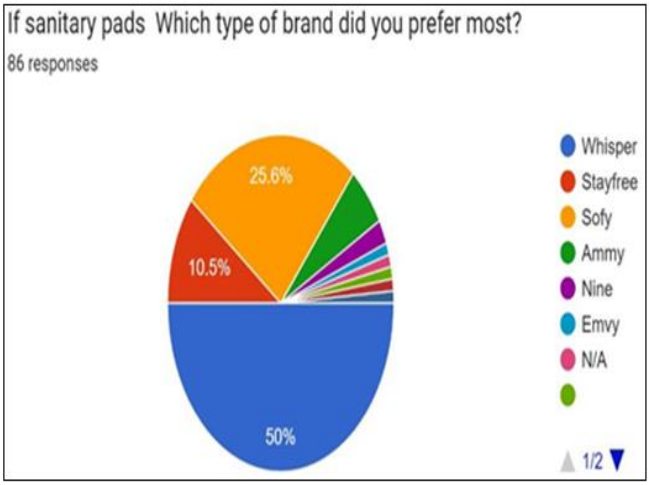

Fig 7 Data of Different Sanitary Pads Brands using During Menstruation

- According to survey, Figure 8 shows about wash of hands before or after changing of menstrual materials during periods in which 90% females agree that she will wash their hands every time when they changed their menstrual material, 10% females wash their hands sometime pre and post changing their menstrual material. Menstrual blood contains natural bacteria from the vagina and cervix with other components like blood and uterus endometrial tissue. Although, for maintaining hygiene we should wash our hands before and afterchanging of menstrual materials.

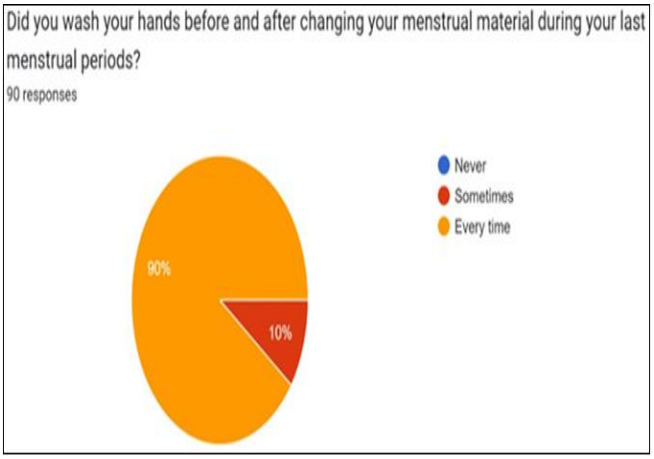

Fig 8 Data of Washing Hand before and after Changing of Menstrual Products

- According to survey, Figure 9 indicate about disposing of menstrual products. 79.3% of females disposing menstrual material using plastic bag (cover of pad), 18.4% using toilet paper, 1.1% using cloths for disposing and 1.1% doesn't used anything for disposing menstrual material. In every state of India, there is currently a dearth of menstrual product disposal product facilities. Menstrual waste can be disposed ofin a variety of ways in rural areas, including burying, burning, throwing in garbage,and using pit latrines, whereas in urban regions setup of modern disposable menstrual products are used, where they are disposed of utilizing solid waste management, special dustbin, or pad incinerators.[27].

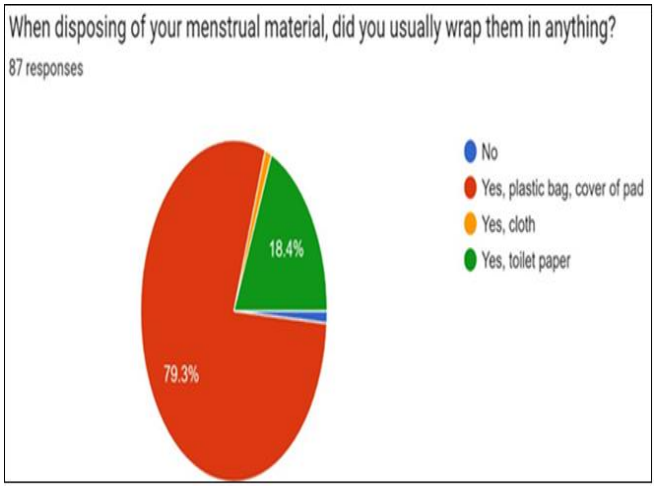

Fig 9 Data of Disposing Menstrual Material

- According to survey, washing of genital during menstruation shown in figure 10, in which 56.6% female wash three or more times a day during menstrual periods, 33.3% women wash twice per day, 6.7% women wash once per day and 4.4% women wash their genitalsat the end my periods only. Washing of genital area depends upon the amount of flow of blood during menstruation. If blood flow is heavy washing of genital area could be more then average blood flow for maintaining hygiene and healthy genital area during periods [28].

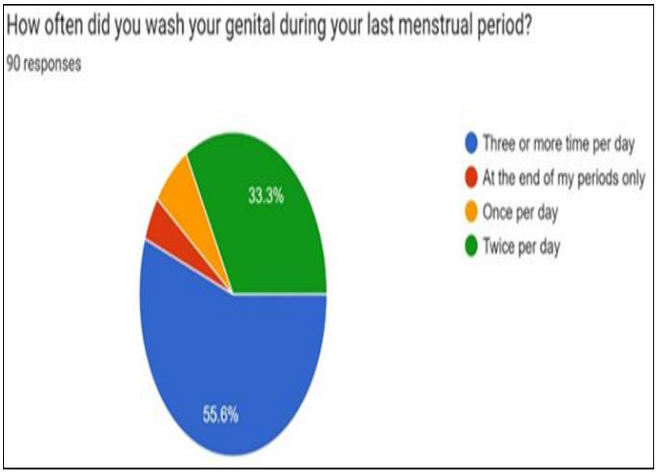

Fig 10 Data of Washing Genital Area During Menstruation

- According to survey, washing of genital using soap shown in figure 11, which indicates 45.5% females never use soap to wash genital, 37.7% sometime use soap and 16.7% women use every time soap to wash genital area. Soap use in genital area during menstruation or other normal day cause change in PH of vaginal area, dryness etc.

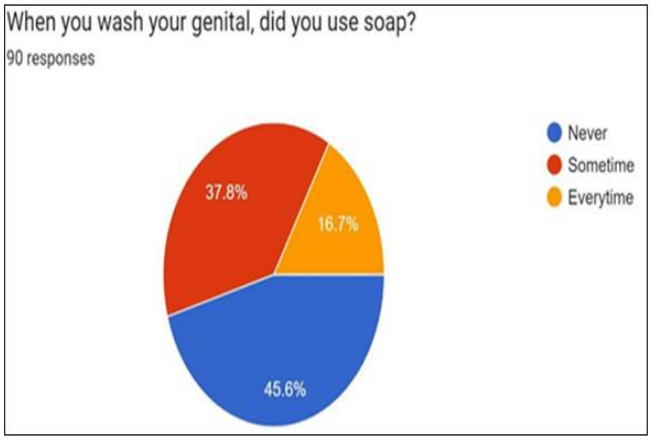

Fig 11 Data of Soap use in Genital Area

- According to survey, figure 12 indicate that 45.6% women got no infection and 37.8% women acquire sometime infection and 16.7% women acquire every time infection while using sanitary pads and figure 13 indicate infection seems to be like itching(61%), redness(11%) and allergies(12%). And the possibility of having these problem and infection is due to unhygienic practices maintained by women itself [29].

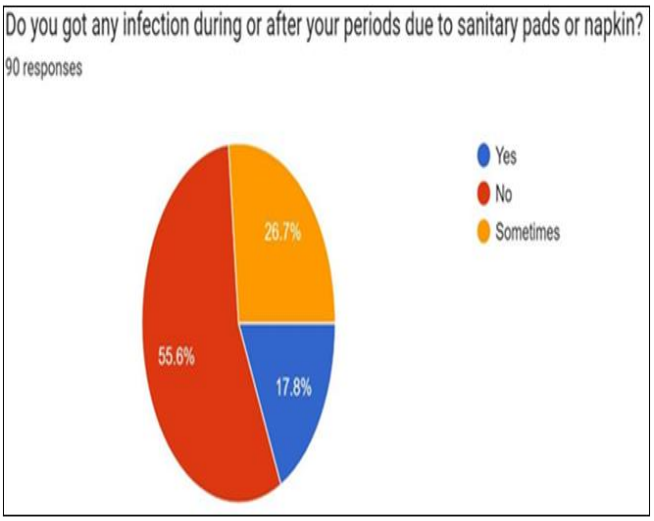

Fig 12 Data of Infection During or after Periods due to Sanitary Pads

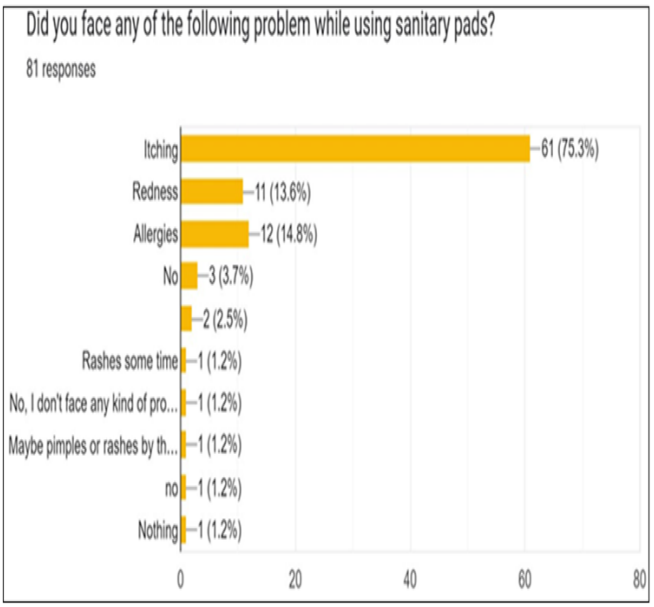

Fig 13 Data of Problem Associated while Sanitary Pads

- According to survey, figure 14 indicates that 28.9% female take painkiller for the menstrual pain, 71.1% take no painkiller for the menstrual pain and out of 28.9% females 55.5% women take allopathic medicine for menstrual pain, 17.3% women take homeopathic and 26.9% take ayurvedic medicine (indicated in figure 15). Allopathic medicine is easy to accessible as compare to other medicine but in other hand they show some side effect as hormonal disbalance, nausea, vomiting etc. In contrast homeopathic and ayurvedic drugs show less side effect but long time to show desired effect. Menstrual pain is a natural phenomenon, so us of painkiller should be avoided as possible. That's why majority of responses opt not to use painkiller during menstrual cycle [30].

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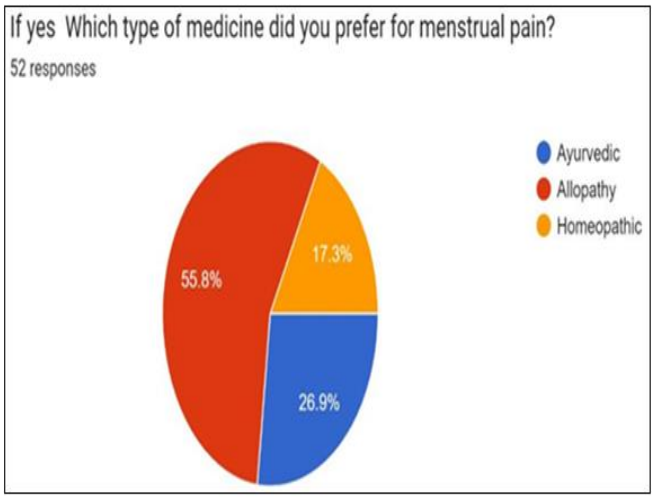

Fig 14 Data of Painkiller used During Menstruation

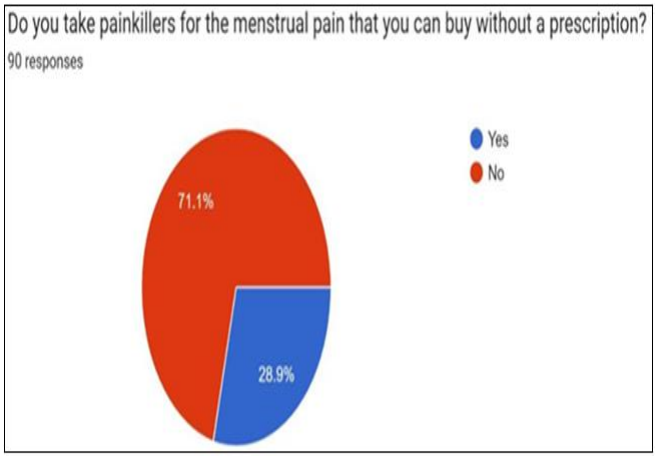

Fig 15 Data of Type of Medicine used in Menstrual Pain

IV. CONCLUSION

In ancient era women used cloth as a menstrual material and they got infection due to unhygienic condition maintained by cloth and women itself. But in modern era, women use sanitary pads instead of cloth and according to my survey studies 93.3% women use disposable sanitary pads and out of them 55.6% women acquire no infection and 26.6% women face sometime infection and 17.8% women face infection every times due to sanitary pads like itching (61%), redness (11%), and rest of women face allergies, rashes etc. This may due to unhygienic condition maintained by women itself. Illiteracy among mothers and children, along with misunderstandings, unhygienic practices, and lack of knowledge about menstruation, are fundamental contributors to many such problems. So, by establishment training program with an emphasis on menstruation and menstrual hygiene management, menstrual hygiene promotion can be achieved. Using social and electronic media platforms to educate girls and women about the latest menstrual products is critical, legislative regulations, and other related subjects. Consequently, it is imperative to encourage adolescents in schools to adopt safe and hygienic practices.

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REFERENCES

[1]. Majumder M. The role of women in the development of society. Journal of critical review. 2020; 7(2): 1025-1029.
[2]. Sunita V. Issues and Concerns of Women Health in India. International Journal of Innovative studies in Sociology and Humanities. 2019, 4(1): 26-33.
[3]. Achuthan K., Muthupalani S., Kolil V. K., Bist A., Sreesuthan K. and Aswathy S. A. Novel Banana fibre pad for menstrual hygiene in India: a feasibility and acceptability study, BMC Women's Health (2021)21:29.
[4]. Brott NR, Le JK. Mittelschmerz. [Updated 2023 May 1]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-.
[5]. Fan Y. Study on preparation and application of banana fibre-based composites. Journal of physics: conference series.2023:1-7.
[6]. Holesh JE, Bass AN, Lord M. Physiology, Ovulation. 2023 May 1. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan–. PMID: 28723025.
[7]. Mesan T. B., MD and Young S. L., Progesterone and the luteal phase (March 2015)42(1):135- 151. doi: 10.1016/j.ogc.2014.10.003.
[8]. Monis CN, Tetrokalashvili M. Menstrual Cycle Proliferative and Follicular Phase. [Updated 2022 Sep 12]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-
[9]. Peacock K, Ketvertis KM. Menopause. [Updated 2022 Aug 11]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-
[10]. Phases of Menstrual cycle https://www.menstrupedia.com/articles/girls/cycle-phases Accessed on: 15 May, 2023.
[11]. Reed BG, Carr BR. The Normal Menstrual Cycle and the Control of Ovulation. [Updated 2018 Aug 5]. In: Feingold KR, Anawalt B, Blackman MR, et al., editors. Endotext [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000-.
[12]. Thiyagarajan DK, Basit H, Jeanmonod R. Physiology, Menstrual Cycle. [Updated 2022 Oct 24]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan
[13]. UNICEF Guide to Menstrual Hygiene Material, edited by Phil Poirier and designed by Noha Habaieb, May 2019(1):20-30.
[14]. Ang H, Zhou B, Prinz M, Siegel D. Proteomic analysis of menstrual blood. Mol Cell Proteomics. 2012 Oct;11(10):1024-35.

[15]. R. Ashley, D. Blackwood, N. Souter et al., "Sustainable disposal of domestic sanitary waste," Journal of Environmental Engineering, vol. 131, no. 2, pp. 206–215, 2005.
[16]. Abioye-Kuteyi EA, Ojofeitimi EO, Aina OI, Kio F, Aluko Y, Mosuro O, et al. The influence of socioeconomic and nutritional status on menarche in Nigerian school girls. Nutr Health. 1997;11: 185–95.
[17]. Yadav M., Goel S., Disposable Sanitary pads and Sustainable Environment (January2017) https://www.researchgate.net/publication/342153678_Disposable_sanitary_pads_and_sustainable_environment Accessed on: 16 May,2023.
[18]. Hennegan, J.; Dolan, C.; Steinfield, L.; Montgomery, P. A qualitative understanding of the effects of reusable sanitary pads and puberty education: Implications for future research and practice. Reprod. Health 2017, 14, 78.
[19]. Diaz A, Laufer MR, Breech LL American Academy of Pediatrics Committee on Adolescence, American College of Obstetricians and Gynecologists Committee on Adolescent Health Care. Menstruation in girls and adolescents: Using the menstrual cycle as a vital sign. Pediatrics. 2006;118: 2245–50.
[20]. Thomas F, Renaud F, Benefice E, de Meeüs T, Guegan JF. International variability of ages at menarche and menopause: Patterns and main determinants. Hum Biol. 2001;73: 271–90.
[21]. Menstrual cup: awareness among reproductive women. Ballal S, Bhandary A. Int J Reprod Contracept Obstet Gynaecol. 2020;9.
[22]. Hennegan J, Shannon AK, Rubli J, Schwab KJ, Melendez-Torres G. Women's and girls' experiences of menstruation in low-and middle-income countries: a systematic review and qualitative meta synthesis. PLoS Med. 2019;16(5):1002803.
[23]. Adams Hillard PJ. Menstruation in young girls: A clinical perspective. Obstet Gynecol. 2002;99: 655–62.
[24]. Lee LK, Chen PC, Lee KK, Kaur J. Menstruation among adolescent girls in Malaysia: A cross-sectional school survey. Singapore Med J. 2006;47: 869–74.
[25]. 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 DiagnRes. 2011;5: 1027–33.
[26]. Dhingra R, Kumar A, Kour M. Knowledge and practices related to menstruation among tribal(Gujjar) adolescent girls. Ethno-Med. 2009;3: 43–8.
[27]. Dasgupta A, Sarkar M. Menstrual hygiene: How hygienic is the adolescent girl? Indian J Community Med. 2008;33: 77–80.
[28]. Jothy K, Kalaiselvi S. Is menstrual hygiene and management an issue for the rural adolescent schoolgirls? Elixir Social Science. 2012;44: 7223–28.
[29]. Patle R, Kubde S. Comparative study on menstrual hygiene in rural and urban adolescent girls. Int J Med Sci Public Health. 2014;3: 129–32.
[30]. Gupta J, Gupta H. Adolescence and menstruation. J Family Welfare. 2001;47: 1–13.