



ISSN (E): 2277- 7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2021; SP-10(7): 139-145
© 2021 TPI
www.thepharmajournal.com
Received: 05-05-2021
Accepted: 13-06-2021

Preeti
Ph.D., Student, Department of
Sociology, CCSHAU, Hisar,
Haryana, India

Vinod Kumari
Professor, Department of
Sociology, CCSHAU, Hisar,
Haryana, India

Jatesh Kathpalia
Assistant Scientist, Department
of Sociology, CCSHAU, Hisar,
Haryana, India

Comparison of perceptions regarding menstruation among women of rural, urban and slum areas of Gurugram and Mewat

Preeti, Vinod Kumari and Jatesh Kathpalia

Abstract

Menstruation is a normal biological phenomenon with different perceptions associated with it. Every woman has a different perception based on their religious and cultural norms. The onset of menarche is a significant event in a girl's life and leads to different reactions to this crucial phenomenon. The bodily changes linked with puberty will have an impact in the girl's physical, psychological and social development. The present study was conducted to ascertain the perceptions of women regarding menstruation from rural, urban and slum areas of Gurugram and Mewat district respectively. A total of 240 respondents (40 each from rural Gurugram and Mewat, 40 each from urban Gurugram and Mewat and 40 each from slum area from Gurugram and Mewat) were surveyed with the help of a pre-designed questionnaire as per objectives. Weighted mean table were used to describe the study variables. The mean age at menarche was found to be 13.1 years and majority of respondents' (70.8%) first reaction to menarche was fear and surprise. The pattern of menstrual cycle was found regular for 56.2% of respondents. Majority of respondents from Gurugram perceived menstruation as pubertal phenomenon with highest average weighted mean score of 2.75 whereas majority of respondents from Mewat perceived as cleansing of uterus and release of impure blood with highest average weighted mean score of 2.85. It was found that respondents had various perceptions regarding the physiological and emotional changes occur during menstruation. Back pain, abdominal pain and weakness were the most prominent physiological changes felt by the respondents while embarrassment, difficulty in concentrating and irritability were the most prominent emotional changes perceived by respondents. It was revealed by majority of respondents that menstruation affects their sleeping capacity with highest average weighted mean score of 2.37 in Gurugram and 2.39 in Mewat respectively. It is suggested that perceptions of respondent can be improved by raising their awareness and knowledge about menstruation in a scientific way.

Keywords: Menstruation, menarche, perception, physiological, adolescent, comparison, Gurugram, Mewat

1. Introduction

"Menstrual blood is the only source of blood that is not traumatically induced. Yet in modern society, this is the most hidden blood, the one so rarely spoken of and almost never seen, except privately by women." Judy Grahn

Menstruation is a unique phenomenon in females accompanied with teenage which has been recognized as a special period and signifies the transition from girlhood to womanhood. Chronologically, teenage begins at the age 13 years and extends through age of 19 years. During this period, various physical, physiological and psychological changes take place in women's body including the onset of menstrual period or menstruation. Menarche is the occurrence of a first menstrual period in a female adolescent. The average age of onset of menarche is 12.4 years. Most menstrual periods last between 3 and 7 days, and menses that last more than 10 days is considered abnormal. Menarche indicates the maturation of the adolescent female body. It is commonly associated with the ability to ovulate and reproduce. However, the appearance of menarche does not guarantee either ovulation or fertility^[1, 2, 3]. As the most distinct event of female puberty, menarche is a sign of physical maturity and fertility^[4]. Menstruation is a normal physiological process in females but in some societies and cultures, it is considered as unclean/impure phenomenon. Women shared several misconceptions and traditional beliefs regarding menstruation^[5]. Lack of adequate perception towards menstruation may make girls vulnerable to mental, emotional, and physical problems, especially during their menstruating days^[6, 7, 8].

Corresponding Author:
Preeti
Ph.D., Student, Department of
Sociology, CCSHAU, Hisar,
Haryana, India

Most high school girls had an unfavourable perception regarding menstruation [9]. Poor or inadequate perception about menstruation leads to depression, anxiety and less productive in their work and study too [10, 11]. In India, even mere mention of the topic has been a taboo and the cultural and social influences appear to be a hurdle for advancement of knowledge on the subject.

The manner in which a girl perceives about menstruation and its associated changes may have an impact on her response to the event of menarche [12]. Inadequate perceptions about menstruation result in the poor menstrual hygiene practices of girls and women. Perceptions about menstruation are closely related with the level of knowledge and beliefs about menstruation. Although, menstruation is a natural process yet it is associated with various misconceptions and practices which sometimes results in adverse health effects on adolescent girls [13]. According to UNICEF report, it is estimated that there are 1.2 billion adolescents aged 10-19 years in the world, forming 18% of world population and the percentage of adolescents in India as per the same report is 243 million, which constitute about 21% of the total population of the country [14]. Due to the lack of exposure among young girls regarding menstruation, the practices to maintain personal hygiene and care are in jeopardy. The perception of a young girl on the subject of menstruation is largely dependent upon how much information she gets prior to its occurrence. In a study, it was noticed that before the initiation of menstrual periods very little was known to adolescent girls about the reason of its occurrence [15]. Most of the respondents were unaware of the characteristics and problems related to menarche, prior to its onset. Many girls came to know about menstruation when they first started menstruating and found it unusual or abnormal. So, keeping all these facts in mind, the present study was carried out to ascertain the perceptions of women from Gurugram and Mewat, Haryana, India.

2. Materials and Methods

The study was conducted in Haryana state. Two districts were selected on the basis of female literacy rate. From the districts of higher female literacy rate, Gurugram was selected and

from the districts of lower female literacy rate, Mewat was selected. The study was undertaken in rural, urban and slum areas of Gurugram and Mewat respectively. A total of 240 respondents (40 each from rural Gurugram and Mewat, 40 each from urban Gurugram and Mewat and 40 each from slum area from Gurugram and Mewat) were surveyed with the help of a pre-designed questionnaire as per objectives. Questions in the questionnaire were framed regarding socio-economic and personal profile of respondents and details about menarche accompanied with different reactions to it. Various questions were framed to ascertain the perceptions of women related to menstruation. Perceptions regarding menstruation were categorized into general perceptions, perceptions related to physiological changes, perceptions related to emotional changes and perceptions about influence on daily activities due to menstruation. The data related to perceptions was described through the weighted mean score.

3. Results and Discussion

3.1 Contextual Matrix of respondents

The socio-economic profile of respondents revealed the 46.3% of respondents belonged to scheduled caste and were having nuclear family (61.2%). About 35.0% respondents were between age group of 25-30 years were engaged in farming or labor work. A comparison between respondents from Gurugram and Mewat indicated that 67.5% respondents from urban Gurugram were graduated in comparison to 15.0% respondents from urban Mewat. Majority of respondents' mother were found illiterate (66.7%) and were found housewives (55.8%). Nearly 62.5% respondents were married and having low mass-media exposer (74.3%). Major informants of menarche and menstruation were found friends (45.4%) followed by their mothers (30.4%).

3.2 Details about menarche and pattern of menstrual cycle

Menarche is the occurrence of the first menstrual period in a female adolescent. Menarche is associated with various reactions with its onset in a girl's life. The details about menarche and first reaction with its onset are presented in Table 1.

Table 1: Details about menarche and pattern of menstrual cycle

Variables	Rural		Urban		Slum		Total
	Gurugram	Mewat	Gurugram	Mewat	Gurugram	Mewat	
Age at menarche							
10-12 yrs	7(17.5)	9(22.5)	11(27.5)	8(20.0)	10(25.0)	12(30.0)	57(23.7)
12-14 yrs	21(52.5)	19(47.5)	20(50.0)	18(45.0)	18(45.0)	22(55.0)	118(49.2)
14-16 yrs	11(27.5)	11(27.5)	7(17.5)	13(32.5)	10(25.0)	4(10.0)	56(23.3)
>16 yrs	1(2.5)	1(2.5)	2(5.0)	1(2.5)	2(5.0)	2(5.0)	9(3.8)
Mean age at menarche	13.3	13.1	12.95	13.3	13.1	12.7	13.1
13.2							
13.1							
12.9							
13.1							
First Reaction to Menarche*							
Fear & surprise	26(65.0)	22(55.0)	30(75.0)	29(72.5)	30(75.0)	33(82.5)	170(70.8)
Shock	23(57.5)	18(45.0)	29(72.5)	27(67.5)	26(65.0)	20(50.0)	143(59.6)
Panic	24(60.0)	17(42.5)	26(65.0)	24(60.0)	28(70.0)	22(55.0)	141(58.7)
Scared & cried	14(35.0)	16(40.0)	21(52.5)	26(65.0)	27(67.5)	25(62.5)	129(53.7)
Normal	10(25.0)	15(37.5)	8(20.0)	12(30.0)	1(2.5)	7(17.5)	53(22.0)
Happy	2(5.0)	2(5.0)	4(10.0)	1(2.5)	4(10.0)	3(7.5)	16(6.7)
Pattern of Menstrual Cycle							
Regular	26(65.0)	24(60.0)	22(55.0)	23(57.5)	21(52.5)	19(47.5)	135(56.2)
Irregular	8(20.0)	12(30.0)	15(37.5)	13(32.5)	11(27.5)	15(37.5)	74(30.8)
Missed	6(15.0)	4(10.0)	3(7.5)	4(10.0)	8(20.0)	6(15.0)	31(13.0)

*- Multiple Responses

Data from the Table 1 revealed that nearly 49.2% of respondents attain their menarche in between age group 12-14 years followed by 23.3% in age between age group 14-16 years. The mean age at menarche was found to be 13.1 years. It is in accordance with a study from India in which it was found that mean age of menarche was 13 ± 1.1 years with wide variations [16]. The onset of menarche is associated with various reactions. Respondents experienced multiple reactions to the commencement of menstruation. It was found that majority of respondents (70.8%) had experienced fear and surprise when they saw blood coming out of their reproductive part. Shock was experienced by 59.6% followed by panic reaction (58.7%) by the respondents. Nearly, 53.7% of respondents reported that they got scared and started crying on seeing the blood on their cloths while 22.0% acted normal as they had prior awareness regarding menstruation and 6.7% were happy because they were tensed due to their late menarche. Similar findings were observed in a study in which it was found that fear and surprise was the reaction experienced by majority (59.6% girls, 57% mothers and 92% of grandmothers) of the respondents across the three generation. Shock was experienced by 69.0% girls, 16% of mothers and 49% of grandmothers, when they first saw or noticed blood stains on their undergarments/clothes. Similarly, 55.6% girls, 31% mothers and 36% grandmothers reported that they panicked on seeing blood coming from

their private part/ reproductive organ. It was also found that 23.4% of girls, 29% of mothers and 14% of grandmothers reported that they were scared and cried at the time of attaining menarche [17]. Data from Table 1 also revealed that 56.2% of respondents had regular menstrual cycle followed by irregular menstrual cycle of 30.8% of respondents while 13.0% had missed pattern of menstrual cycle. This result is in accordance with the study by Shabnam (2018) in which it was observed that 77.9% of the participants had regular pattern of menstrual cycle and irregularity of menstruation is frequent among adolescents [16].

3.3 General perception of women regarding menstruation

General perception about menstruation is the mind-set of females about this natural biological phenomenon. General perception about menstruation is closely related with the prior awareness and knowledge about menstruation. Perception regarding menstruation builds up the beliefs and conceptions in the society and directly linked with the menstrual hygiene practices. How menstruation is perceived in society results in the behaviour of society towards menstruating women. General perception of women regarding menstruation was assessed through weighted mean score. To assess the general perception of respondents, 15 statements were taken regarding menstruation. The result of these statements is presented in Table 2.

Table 2: General perceptions of women regarding menstruation

General Perception	Rural		Urban		Slum		Total			
	Gurugram	Mewat	Gurugram	Mewat	Gurugram	Mewat	Gurugram	Mewat	AWM	Rank
Normal process	2.70	2.25	2.85	2.37	2.52	2.20	2.69	IV	2.27	XII
Sign of fertility	2.77	2.52	2.52	2.05	2.85	2.85	2.71	II	2.45	IX
Sign of maturity for marriage	1.70	2.37	1.15	2.20	2.85	2.90	1.88	XI	2.49	VIII
Cleansing of uterus	2.80	2.90	2.02	2.75	2.87	2.92	2.56	V	2.85	I
Pubertal phenomenon	2.75	2.65	2.87	2.72	2.65	2.70	2.75	I	2.69	V
Curse of god	1.82	2.62	1.32	2.47	2.50	2.67	1.88	XI	2.59	VI
Diseases	1.72	2.15	1.17	1.87	2.10	2.37	1.66	XIV	2.13	XIII
Disorder	1.80	2.05	1.25	2.05	2.10	2.27	1.71	XIII	2.12	XIV
Release of dirty blood	2.60	2.87	1.57	2.67	3.00	3.00	2.39	VII	2.85	I
Monthly event	2.70	2.60	2.80	2.60	2.62	2.55	2.70	III	2.58	VII
Painful process	2.40	2.17	2.47	2.20	2.62	2.67	2.50	VI	2.35	XI
Menstruation as a lifelong process	2.05	2.40	1.75	2.22	2.57	2.62	2.12	IX	2.41	X
Feel uncomfortable besides male members	2.25	2.82	1.57	2.72	2.95	2.97	2.25	VIII	2.84	III
Feel uncomfortable in buying pad from male shop-keeper	1.97	2.77	1.20	2.70	2.70	2.90	1.95	X	2.78	IV
Ever harassed due to menstruation	1.60	1.77	1.32	1.62	2.02	2.25	1.65	XV	1.88	XV

AWM- Average Weighted Mean

Data from Table 2 reveals that, in Gurugram, majority of respondents perceived menstruation as 'pubertal phenomenon' with highest average weighted mean of 2.75 followed by 'sign of fertility' with average weighted mean of 2.71. perception of menstruation as a 'lifelong process' was ranked IXth while perception of menstruation as 'disorder' and 'diseases' was ranked XIIIth and XIVth respectively. On the other hand, in Mewat, majority of respondents perceived menstruation as 'cleansing of uterus' and 'release of dirty/impure blood' with highest average weighted mean of 2.85 followed by as 'feel uncomfortable besides male members during menstruation' with average weighted mean of 2.84. Perception of menstruation as a 'normal process' was ranked XIIth. Perception as 'harassment due to menstruation' was perceived by least of respondents in Gurugram and Mewat respectively. Senol (2010) examined that 76% of the

girls described menarche as a positive change such as "preparation to be a mother", 21% as "a transition to adolescence" whereas 62% described it as a negative change such as "discharging dirty blood". The girls who reported positive menarcheal experiences would tend to show positive current menstrual attitudes/behaviours and the opposite was true for the girls who reported negative menarcheal experiences [18]. Shanbhag (2012) observed that 74.2% felt that menstrual cycle is a natural phenomenon while 17% felt that menstruation occurred due to the curse of God [19]. Erbil (2015) found that 40.2% of the girls perceived menstruation as a normal physiological process, 20% girls perceived it as a necessary evil while 19.7% considered it as troublesome [20]. Positive perception towards menstruation leads to good menstrual hygiene practices.

3.4 Perceptions about physiological changes occurred during menstruation

The menstrual cycle is governed by hormones that rise and fall in rhythmic patterns, influencing the variety of physical sensations and leads to various physiological changes in body. Perceptions about physiological changes occurred during menstruation was assessed through weighted mean and presented in Table 3. It was found that back pain, abdominal pain and weakness were mostly felt by majority of participants during their menstrual period while acne, nausea/vomiting and headache were perceived least by respondents. They further added that these are the most prominent physiological changes associated with menstruation. The feeling of physical discomfort is common for most females during menstruation. These results are in accordance with the studies from various regions. A study by

Nag reported dysmenorrhea prevalence of 33.5% among adolescent girls in India [21]. A study by George and Bhaduri found dysmenorrhea to be a common problem in India with prevalence of 87.7% [22]. Similar findings had been reported by Jayashree and Jayalakshmi in rural married women of Andhra Pradesh. [23]. Another study reported that one third of the girls (34%) had lower abdominal pain followed with that was supra-pubic (22.8%), lower back (16%) and thighs (3.4%). Besides, 24% of the girls have reported pain in throughout body during menstruation [24]. Another study suggested that primary dysmenorrhea is characterized by lack of visible structural abnormality with major symptom is lower abdominal or lumbar region pain, followed by other symptoms such as nausea, vomiting, headache and diarrhea [25].

Table 3: Perceptions about physiological changes occurs during menstruation

Physiological Perception	Rural		Urban		Slum		Total			
	Gurugram	Mewat	Gurugram	Mewat	Gurugram	Mewat	Gurugram		Mewat	
							AWM	Rank	AWM	Rank
Back pain	2.52	2.35	2.60	2.27	2.62	2.50	2.58	I	2.37	II
Abdominal pain	2.62	2.45	2.42	2.42	2.65	2.30	2.56	II	2.39	I
Weakness	2.20	2.20	2.35	2.17	2.60	2.70	2.38	III	2.35	III
Dizziness	1.60	1.57	2.02	1.80	1.72	1.80	1.78	VIII	1.72	VIII
Abdominal bloating	2.40	1.85	2.30	1.67	2.20	1.75	2.30	V	1.85	VI
Pain in legs	2.35	2.20	2.25	2.00	2.10	2.30	2.20	VI	2.16	V
Sleeplessness	2.30	2.25	2.37	2.32	2.30	2.30	2.32	IV	2.29	IV
Diarrhea	1.57	1.50	1.75	1.67	1.80	1.62	1.70	IX	1.60	X
Headache	1.35	1.47	1.42	1.55	1.37	1.47	1.38	XII	1.50	XI
Breast swelling	2.12	1.82	1.95	1.72	1.97	1.95	2.01	VII	1.83	VII
Nausea/vomiting	1.25	1.45	1.70	1.50	1.32	1.27	1.42	XI	1.40	XII
Acne	1.57	1.35	1.72	2.12	1.45	1.40	1.58	X	1.62	IX

AWM- Average Weighted Mean

3.5 Perception about emotional changes occurs during menstruation

Menstruation is accompanied with various emotional changes in the female’s body and data about perception of emotional changes during menstruation is presented in Table 4. Result from Table 5 revealed that in Gurugram, majority of respondents had difficulty in concentrating during their menstrual period with the highest average weighted mean of 2.56, irritability ranked IInd with AWM of 2.33 while self-consciousness was the least perceived emotional change. On the other hand, In Mewat, majority of participants perceived embarrassment as the highest emotional change with AWM (2.71), difficulty in concentrating ranked IInd with AWM (2.55) and inferiority ranked IIIrd with AWM (2.51) to be associated with menstruation during their periods while anger and self-consciousness were perceived by least respondents.

Results show that women experience multiple emotional changes during menstruation. Being embarrassed, difficulty in concentrating, inferiority, anxiety and frustration highlight that menstruation is not a happy phenomenon and can leads to poor self-image. Slyepchenko (2017) showed that subtle working memory and selective attention impairment occurred more frequently in women with moderate to severe PMS than women in with mild or no PMS symptom. These studies were concordant with symptoms of PMS (difficulty concentrating, lowered performance, lowered judgement) [26]. Another study showed that about 44.3% of the subjects had anxiety, 45.5% had depression, and 47.2% had stress. In addition, Pearson correlation coefficient test showed a significant positive correlation between menstruation signs and depression, anxiety, and stress [27].

Table 4: Perception about emotional changes occurs during menstruation

Emotional Perception	Rural		Urban		Slum		Total			
	Gurugram	Mewat	Gurugram	Mewat	Gurugram	Mewat	Gurugram		Mewat	
							AWM	Rank	AWM	Rank
Embarrassment	2.52	2.72	1.50	2.60	2.72	2.82	2.25	IV	2.71	I
Anger	1.25	1.42	1.70	1.20	1.50	1.32	1.48	X	1.31	XI
Self-consciousness	1.50	1.37	1.72	1.50	1.20	1.12	1.47	XI	1.33	X
Decreased interest in activity	2.50	2.25	2.27	2.05	2.10	2.15	2.29	III	2.15	VI
Inferiority	2.12	2.27	1.80	2.60	2.60	2.67	2.17	VI	2.51	III
Difficulty in concentrating	2.60	2.40	2.37	2.60	2.72	2.65	2.56	I	2.55	II
Mood swings	2.12	2.25	2.45	2.32	2.20	2.15	2.25	IV	2.24	IV
Irritability	2.37	2.12	2.40	2.12	2.22	2.35	2.33	II	2.20	V
Anxiety	1.75	1.77	2.22	1.82	1.90	1.72	1.95	VII	1.77	VII

Frustration	1.92	1.85	2.17	1.82	1.62	1.52	1.90	VIII	1.73	IX
Normal like other days	1.75	1.77	1.65	1.82	1.90	1.72	1.76	IX	1.77	VII

AWM- Average Weighted Mean

3.6 Perceptions about influence on daily activities due to menstruation

As menstruation is accompanied with various physiological and emotional changes which impacts the routine activities of women. The perception of women about impact of menstruation on daily activities is presented in Table 5. It was revealed by majority of respondents that menstruation affects their sleeping and working capacity at workplace. The women revealed that they can't sleep or sit freely during their

menstrual period as they are in constant fear of staining their cloths due to leakage. Studies revealed that students tend to be absent from school, unable to focus on their courses a distracted from lectures due to dysmenorrhea symptoms. Students affected with PMS complain of inability to sleep, prolonged rest need, fatigue and inability to study [28, 29, 30, 31]. Other studies also confirm female adolescents' negative attitudes toward education and absenteeism were common due to excessive pain [28, 29].

Table 5: Perceptions about influence on daily activities due to menstruation

Perception about influence on activities	Rural		Urban		Slum		Total			
	Gurugram	Mewat	Gurugram	Mewat	Gurugram	Mewat	AWM	Rank	AWM	Rank
Walking	1.70	1.52	2.07	2.07	1.67	1.57	1.81	VI	1.72	V
Studying	1.85	1.65	1.77	1.87	1.15	1.00	1.59	VIII	1.50	VIII
Running	1.57	1.55	2.22	1.80	1.47	1.40	1.75	VII	1.58	VII
Sitting	1.92	2.00	2.27	1.90	1.55	1.75	1.91	V	1.88	III
Sleeping	2.30	2.35	2.37	2.30	2.45	2.52	2.37	I	2.39	I
Household activities	1.85	1.87	2.40	1.80	1.55	1.40	1.93	IV	1.69	VI
Carrying heavy things	1.87	1.77	2.42	1.95	1.52	1.47	1.94	III	1.73	IV
Working capacity at work place	1.97	1.82	2.37	2.20	2.10	2.17	2.20	II	2.09	II

AWM- Average Weighted Mean

3.7 Level of perception of women from Gurugram and Mewat

Data from the study revealed that women from Gurugram and Mewat had moderate level of perceptions except low

physiological perceptions by women from Mewat. Result of the level of perceptions is shown in fig. no. 1 and fig. no. 2 respectively.

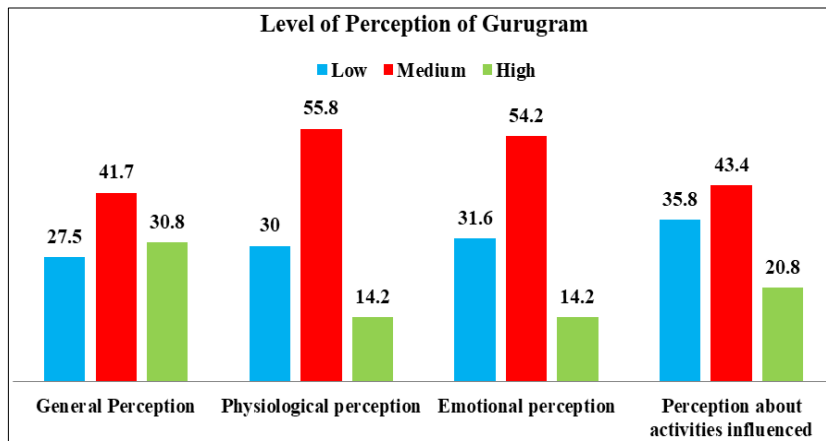


Fig 1: Level of perception of women from Gurugram

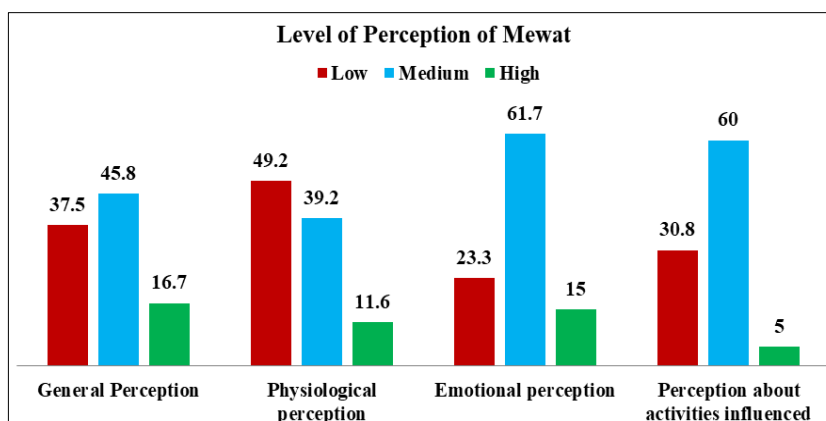


Fig 2: Level of Perception of women from Mewat

3.8 Comparison of general perceptions regarding menstruation among the women of rural, urban and slum areas of Gurugram and Mewat

The general perception of women regarding menstruation from Gurugram and Mewat was compared through the t-test. For the comparison of general perception; rural, urban and slum areas of Gurugram and Mewat were compared and the result is presented in Table No. 6. It was found that general

perceptions regarding menstruation of urban Gurugram and urban Mewat were found significant as there was prominent difference in the mean value of Gurugram and Mewat whereas general perceptions were found insignificant in rural Gurugram and Mewat and slum areas of Gurugram and Mewat. It indicates that general perceptions of women regarding menstruation are of similar kind in the rural and slum areas of Gurugram and Mewat respectively.

Table 6: Comparison of general perceptions regarding menstruation among women of Gurugram and Mewat using t-test

Area	t-cal	Mean Value		SD	
		Gurugram	Mewat	Gurugram	Mewat
Rural Gurugram and Mewat	1.98	32.12	30.62	3.62	3.07
Urban Gurugram and Urban Mewat	4.26*	35.57	32.10	3.48	3.00
Gurugram Slum and Mewat Slum	1.36	30.50	29.65	3.05	2.84

*- significant at 5% level of significance

4. Conclusion

It was concluded from the study that women of Gurugram and Mewat had moderate level of perceptions regarding menstruation. It was noticed that women from rural and slum areas had little negative perceptions as compared to women from urban areas. It was also noticed that reactions to menarche are closely related to prior awareness and knowledge of adolescent girls. Therefore, adolescent girls and women should be educated well and prepared about menarche and menstruation before its onset so that women can have a positive perception towards menstruation and it further results in good menstrual hygiene practices.

5. References

- Rosner J, Samardzic T, Sarao MS. Stat Pearls [Internet]. Stat Pearls Publishing; Treasure Island (FL): Oct 6, Physiology, Female Reproduction. [PubMed] 2020.
- Petry CJ, Ong KK, Hughes IA, Acerini CL, Dunger DB. Age at Menarche and Blood Pressure in Pregnancy. *Pregnancy Hypertens* 2019;15:134-140. [PMC free article] [PubMed]
- Zhang Z, Hu X, Yang C, Chen X. Early age at menarche is associated with insulin resistance: a systemic review and meta-analysis. *Postgrad Med* 2019;131(2):144-150. [PubMed]
- White LR. Newly Postmenarcheal Adolescents Understanding of Menarche and Menstruation across Race and Income Level as Defined by Qualification Status for Free or Reduced Lunches. Retrieved on October 2, 2008-2015, from <http://d-scholarship.pitt.edu/id/eprint/9671>
- Wall LL, Belay S, Bayray A, Salih S, Gabrehiwot M. A community-based study of menstrual beliefs in Tigray, Ethiopia. *International Journal of Gynecology & Obstetrics* 2016;135(3):310-313. View at: Publisher Site | Google Scholar
- Kumar, Srivastava K. Cultural and social practices regarding menstruation among adolescent girls, *Social Work in Public Health* 2011;26(6):594-604. View at: Publisher Site | Google Scholar
- Goel MK, Kundan M. Psycho-social behaviour of urban Indian adolescent girls during menstruation, *Australasian Medical Journal* 2011;4(1):49-52. View at: Publisher Site | Google Scholar
- Takeda T, Koga S, Yaegashi N. Prevalence of premenstrual syndrome and premenstrual dysphoric disorder in Japanese high school students, *Archives of Women's Mental Health* 2010;13(6):535-537. View at: Publisher Site | Google Scholar
- Zelalem Belayneh, Moges Mareg, Birhanie Mekuriaw. How Menstruation Is Perceived by Adolescent School Girls in Gedeo Zone of Ethiopia? *Obstetrics and Gynecology International* 2020. Article ID 3674243, 6 pages, 2020. <https://doi.org/10.1155/2020/3674243>
- Adewuya O, Loto OM, Adewumi TA. Premenstrual dysphoric disorder amongst Nigerian university students: prevalence, comorbid conditions, and correlates, *Archives of Women's Mental Health* 2008;11(1):13-18. View at: Publisher Site | Google Scholar
- Omu FE, Al-Marzouk R, Delles H, Oranye NO, Omu AE. Premenstrual dysphoric disorder: prevalence and effects on nursing students academic performance and clinical training in Kuwait, *Journal of Clinical Nursing* 2011;20(19-20):2915-2923. View at: Publisher Site | Google Scholar
- Lawan U, Nafisa WY, Musa AB. Menstruation and menstrual hygiene amongst adolescent school girls in Kano, Northwestern Nigeria, *African Journal of Reproductive Health* 2010;14(3):201-207. View at: Google Scholar
- Bhatia JC, Cleland J. Self-Reported Symptoms of gynaecological morbidity and their treatment in South India. *Studies in Family Planning* 1995;26(4):491-5.
- UNICEF. Report: The state of World's children. Available at 2011: <https://www.unicef.org/sowc2011/fullreport.php>. Accessed on 3 January 2019
- Chopra S, Sharma K. Psycho-social Characterization of Menstruation in the Light of Globalization and Local Cultural Ethos among semi-rural Adolescent Girls of Yamunanagar, Haryana 2014.
- Omidvar S, Amiri FN, Bakhtiari A, Begum K. A study on menstruation of Indian adolescent girls in an urban area of South India. *J Fam Med Prim Care* 2018;7:698-702. [PMC free article] [PubMed] [Google Scholar]
- Asmat Sabiya. Socio cultural constructs related to menarche and menstruation among tribal adolescents of Kargil district 2017. <http://hdl.handle.net/10603/189720>. View at: Publisher Site | Shodganga
- Şenol V, Gündüz E, Öztürk A. Attitude, Behaviour and Knowledge Regarding Menarche and Menstruation in Adolescent Schoolgirls in Kayseri *J Clin Obstet Gynecol* 2010;20(2):77-83.
- Shanbhag D, Shilpa R, D'Souza N, Josephine P, Singh J,

- Goud B. Perceptions regarding menstruation and practices during menstrual cycles among high school going adolescent girls in resource limited settings around Bangalore city, Karnataka, India, *International Journal of Collaborative Research on Internal Medicine & Public Health* 2012;4(7):1353. View at: [Google Scholar](#)
20. Erbil N, Felek N, Karakaşlı E. The relationship between attitudes towards menarche and current attitudes towards menstruation of women: A comparative study. *International Journal of Human Sciences* 2015;12(2):1120-1130. doi:10.14687/ijhs.v12i2.3239
 21. Nag RM. Calcutta: Medical Allied Agency; Adolescent in India 1982, 18-26. [[Google Scholar](#)]
 22. George A, Bhaduri A. Dysmenorrhea among adolescent girls-symptoms experienced during menstruation. *Health Promot Educ* 2002;17:4. [[Google Scholar](#)]
 23. Jayashree R, Jayalakshmi VY. Socio-cultural dimensions of menstrual problems. *Health Educ South East Asia* 1997;12:21-6. [[Google Scholar](#)]
 24. Kural M, Noor NN, Pandit D, Joshi T, Patil A. Menstrual characteristics and prevalence of dysmenorrhea in college going girls. *J Family Med Prim Care* 2015;4(3):426-431. doi:10.4103/2249-4863.161345
 25. Gerzson LR, Padilha JF, Braz MM, Gasparetto A. Physiotherapy in primary dysmenorrhea: literature review. *Revista Dor* 2014;15(4):290-5.
 26. Slyepchenko A, Lokuge S, Nicholls B *et al.* Subtle persistent working memory and selective attention deficits in women with premenstrual syndrome. *Psychiatry Res* 2017;249:354-362. 10.1016/j.psychres.2017.01.031 [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]
 27. Mohamadirizi S, Kordi M. Association between menstruation signs and anxiety, depression, and stress in school girls in Mashhad in 2011-2012. *Iran J Nurs Midwifery Res* 2013;18(5):402-407.
 28. Eman M. Epidemiology of dysmenorrhea among adolescent students in Assiut city, Egypt. *Life Science Journal* 2012;9(1):348-53.
 29. Sharma A, Taneja DK, Sharma P, Saha R. Problems of menstrual problems. *Health Educ South East related to menstruation and their effect on daily routine Asia* 1979;12:21-6.
 30. Singh MM, Devi R, Gupta SS. An awareness health seeking behavior of rural adolescent school girls on menstrual and reproductive health problems. *Indian Journal Medical Science* 2009;53(10):439-43.
 31. Gulsen E, Funda O, Turkan P. Dysmenorrhea among adolescents in eastern turkey: Its effects on school performance and relationships with family and friends. *Journal Pediatric Adolescent Gynecology* 2010;32:267-72.