



Attitude and perceptions related with menstrual practices among adult men from rural and urban areas of Anand district of Gujarat, India

Dr Jasmine Gujarathi^{1*}, Dr Asokan V²

¹ PhD Scholar, Parul Institute of Ayurveda, Parul University. Professor & HOD, Dept of Prasuti tantra and Stri roga, GJ Patel Institute of Ayurvedic studies and Research, New V. V. Nagar, CVM University, Anand, Gujarat.

² Professor and HOD, Dept of PG Studies in Prasooti Tantra and Stree Roga, Alva's Ayurveda Medical College, Moodubidire. Karnataka. Affiliation: RGUHS, Bengaluru. 636740431

Corresponding Author Details:

Dr Jasmine Gujarathi, Email: jassyleo@gmail.com

Abstract: It is many times forgotten that menstruation is all about reproductive health. In many areas it is seen as pollution and menstrual restrictions and practices are considered as taboos. Strong campaigns to eradicate such myths have been prevailing since decades. Men's attitude can accentuate the behaviour of women. The present study is conducted with an aim to know the attitude and perception of menstrual practices amongst adult men and to know their perception related with menstruation. 121 men of age 20 to 81 years of rural and urban area of Anand district of Gujarat were studied through mixed methodology of qualitative and quantitative survey. Cultural origins and observation of practices by female members of family were discussed. The results were analysed in three different domains, knowledge, practices, and attitude. The study revealed that cultural and traditional practices prevailed and most of the myths have been eradicated. The female members were given freedom to decide about practices and support from men for rest during menstruation was highlighted. The study signifies that all menstrual practices should not be termed as taboos and understanding of perception of men will help to eliminate unnecessary prohibitions and supporting female during menstruation.

Keywords: Menstrual practices, taboos, Attitude, men

Introduction:

Society, especially men's attitude towards menstruation play an important role in behaviour and attitude of women. Perception, beliefs and values play important role in attitude towards menstruation. Contemporary research on menstruation are centred on biology and reproduction. Cultural practices, subjective experiences are neglected or framed as taboos.¹ Menstrual practices like prevention from performing religious activities, cooking, not entering kitchen, isolation etc have been practiced since ages. In qualitative research, ample amount of literature is available for female – adolescent, young and adult about menstrual hygiene practices and other practices throughout the world.² Attitude of men towards menstrual practices are not studied at large. A change in the society regarding menstrual practices demands involvement of both men and women especially in male dominated culture like India. Few qualitative research on menstrual hygiene management with awareness, knowledge and attitude of adolescent men and young boys shows ignorance and negative attitude.^{3,4}

The men of the family are highly influential in deciding the limitations of menstrual practices by female at home and this in turn determine the barriers in education, work and health practices amongst women. In this present study both qualitative and quantitative research was conducted on adult men on attitude and perception of menstrual practices. Till date the cultural restrictions were believed to induce hygiene issues and shame. Culture is not static and to note change in practices related to menstruation, perception of menstruation with participation of boys and girls, men and women is essential.

Objectives :

1. To know the attitude and perception of menstrual practices amongst adult men.
2. To study the beliefs of men related with menstruation.

Methodology : Survey with structured open and closed ended questionnaire, focus group discussions and in depth interviews of adult men of Anand district of Gujarat.

Study design : First quantitative method was used to collect the data through survey. 121 respondents of age 20 to 81. Based on collected data, qualitative method through focus group discussion and in depth interviews were conducted to understand the findings of quantitative data. Male field assistant were included for interview and FGD. Total 8 focus group discussions and 4 in depth interviews done. The transcript of interview and discussions was prepared. The study was conducted from January 2022 to December 2022.

The structured questionnaire used likert 5-point rating scale for understanding the attitude towards menstrual practices. The questionnaire included demographic data and socio-economic background with questions related to objectives of the study. The questions suggested whether they are strongly disagreeing and strongly approving with menstrual practices.

Validation of questionnaire was done by peers and questions were refined according to suggestions.

Reliability was tested with Cronbach's Alpha test. The alpha score of 20 item questionnaire came to 0.63 which is acceptable. The questionnaire was then translated in vernacular language (Gujarati).

Data analysis was done with help of MS excel. Descriptive statistics was used to analyse the data.

Ethical Clearance : PU No. PU/PIA/IEC/02/2021/016 dated 24/07/2021

CTRI Registration : CTRI/2021/12/038623 dated 15/12/2021

Results :

The findings of quantitative survey are presented below in tabular format.

Table I : Background of participants.

Background characteristics	Respondents (N)	Percentage
Age	119 respondents	
20-30	63	52.94
31-40	25	21.01
41-50	14	11.76
51-60	11	9.24
61-70	4	3.36
71-80	2	1.68
Education	119 respondents	

Less than 10 th	3	2.5%
SSC (10 th)	15	12.6%
HSC (12 th)	16	13.4%
Graduate	54	45.4%
Postgraduate	23	19.3%
Doctorate	8	6.7%
Demographic area	119 respondents	
Rural	51	42.9%
Urban	54	45.4%
Semi urban	14	11.8%
Occupation	118 respondents	
Business	22	18.6%
Service	65	55.1%
Student	13	11%
Labour work	18	15.3%
Marital status	121 respondents	
Married	88	72.7%
Unmarried	33	27.3%
Socio-economic status	121 respondents	
Lower middle	17	14%
Middle	82	67.8%
Upper middle	21	17.4%
Upper	1	0.8%
Religion	118	
Hindu	107	90.7%
Muslim	10	8.5%
Christian	1	0.8%

Maximum respondents were between age group of 20 to 30 years (52.94%), the average age being 34.41 years. Most of the adult men were in service (55.1%) and maximum (88%) were married with socio economic status as middle class (67.8%). The demographic area surveyed was both urban (45.4%) and rural (42.9%). The respondents of survey questionnaire were maximum of Hindu religion (90.7%). Most of the respondents were graduates (45.4%).

The result of qualitative study is presented in different domains as.

1. Knowledge and awareness of menstruation.
2. Menstrual prohibitions and restrictions followed by female members of family.
3. Attitude towards menstrual practices.

Knowledge of menstruation.

To understand the knowledge about menstruation amongst adult men, out of 110 respondents, 54 male (46.6%) agreed and 39 (33.6%) strongly agreed that menstruation is related with reproductive function in female. 10 (8.6%) respondents remained neutral and 4 (3.4%) and 8 (6.9%) disagreed and strongly disagreed respectively. During the inquiry of source of menstrual blood, 65 (56%) respondents answered uterus and 43 (37.1%) answered vagina. This showed that the adult men were aware about the reproductive function. Nevertheless, there was variation in reply to the menstrual blood being same as normal blood.

Table II: Menstrual blood and blood

Menstrual blood same as normal blood	N=114
Strongly disagree	20 (17.5%)
Disagree	38 (33.3%)
Neutral	27(23.7%)
Agree	25(21.9%)
Strongly agree	4(3.5%)

Maximum respondents were towards negation and disagreeing about both being same 20 and 38, whereas 27 respondents remained neutral. When asked if they are not same then what is the difference, only 34 respondents answered this open ended question. The reply of many respondents was that it is 'Bagadvalu' in Gujarati which means it contains waste. Some said it is 'Durgandhvalu' in Gujarati which means smelly. Others mentioned it being more thick than normal blood. 3 respondents only claimed that they don't know because they have never seen it. As maximum respondents were graduates, few mentioned menstrual blood being shedding of endometrium, containing less blood cells, with presence of vaginal secretions. One of the respondents even responded as "Both are essentially the same blood but the color and consistency of menstrual blood varies due to presence of endometrial tissue in it." Menstrual blood causes negative aura and is vitiated blood was also some of the responses.

Menstrual prohibitions and restrictions followed by female members of family

The chart displayed below shows the prohibitions observed by female members in the family during menstruation. Religious rituals and prayers is followed by maximum 73.9% and 67% out of 115 respondents.

Chart I: Menstrual restrictions observed by female members of family.

What kind of restrictions / prohibitions are followed by female members in your family during menstruation (you can select multiple)

115 responses

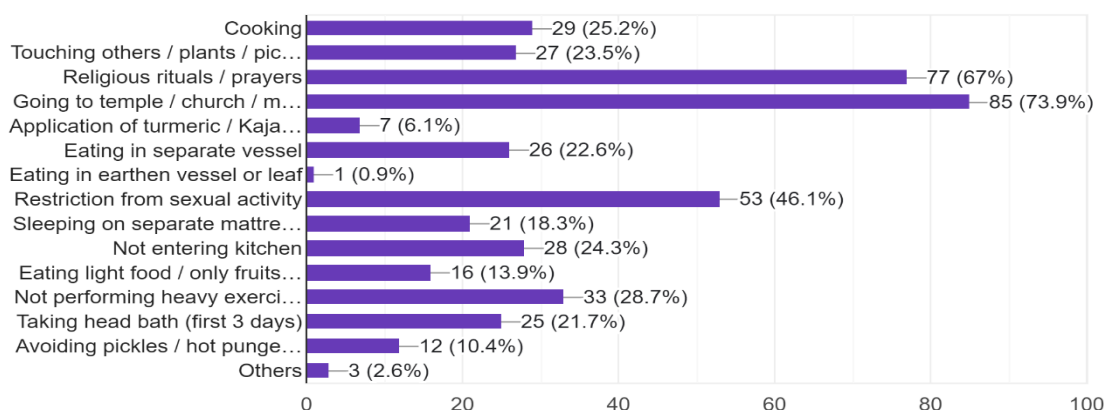


Table III: Female members observing menstrual restrictions

Female members of family following restrictions	N = 115
Mother	78 (67.8%)
Grandmother	32(27.8%)

Mother-in-law	24(20.9%)
Sister	33(28.7%)
Wife	58(50.4%)
Daughter	15(13%)
Others	10(8.7%)
No one	5(4.3%)

Mother was amongst the maximum number responded by volunteers as female member observing menstrual restrictions (67.8%) followed by wife (50.4%).

When volunteers were asked the reason for agreeing such prohibitions and restrictions, 75 (59.5%) selected culture and religion, whereas 17 volunteers (13.5%) didn't know any reason and 15 (11.9%) selected the response as told to do so by elders in family. 8(6.3%) and 6(4.8%) respectively. In response to the question about who told them about such menstrual restrictions out of 90 respondents, 41(45.55%) replied information given by elders in family, whereas 23(25.55%), information was given by mother. Rest all responded as the information given by friends. To identify the source of restrictions, the volunteers were asked, from where these restrictions came from? Volunteers reply varied and maximum answered that these were traditions and present since ages and come through generations from their ancestors as tradition and heritage. Some replied as these restrictions as old, religious and cultural beliefs, as 'Dharma' (moral duty). Few replied that they had no idea from where these prohibitions came from, just observed in the society and family and never questioned them.

Qualitative findings.

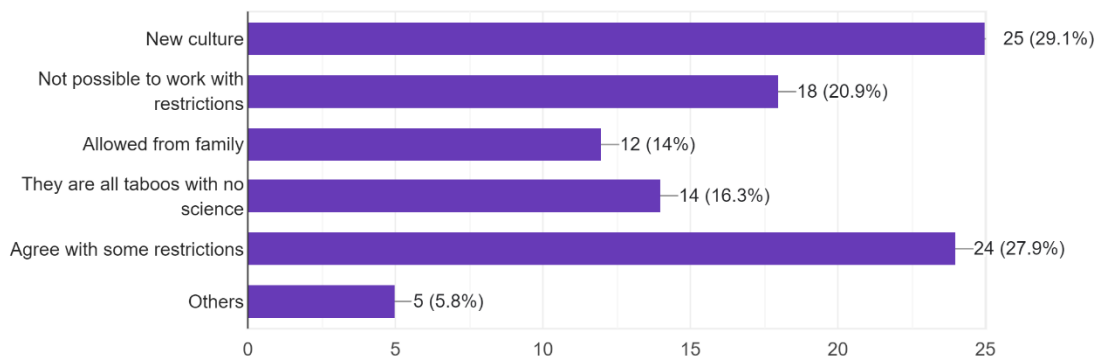
Few respondents tried to explain on scientific basis replying as follows.

1. 'Majority of these restrictions must've been imposed upon the society by elders in earlier times. Although some restrictions have some sort of scientific explanation, it is safe to assume that scientific community was minimally involved in establishing these restrictions if not involved at all.'
2. 'It owes its origin to archaic / old fashioned ideology.'
3. 'The ancestors having clear idea about it. but with passage of time, myths are added in this.'
4. 'Some of These restrictions started on the basis of science but later due to cultural hinderances and inability to understand the real science behind these restrictions people added certain not necessary restrictions.'
5. 'From Vedas.'
6. 'Manusmriti'

Chart II : Reason for disagreeing with menstrual prohibitions and restrictions

Why do you disagree for such restrictions ? (you can select multiple)

86 responses



New culture was selected by maximum volunteers 25(29.1%) out of 86 respondents as reason for disagreeing with observing menstrual prohibitions and restrictions. 24(27.9%) volunteers agreed with some restrictions. 18 volunteers (20.9%) selected the response as not possible to work with restrictions.

Attitude towards menstrual practices.

Table IV: Attitude towards menstrual practices

Sr No	Attitude	Strongly Disagree / Disagree	Neutral	Agree / Strongly Agree
1	Discussing the topic is embarrassing (N=117)	77 (65.81%)	15(12.82%)	25(21.36%)
2	Feel Free to discuss with female (N=117)	36(30.76%)	21(17.94%)	60(51.28%)
3	Feel free to discuss the topic with male (N=120)	15(12.5%)	12(10%)	93(77.5%)
4	Society reviews menstruation as natural process (N=120)	2(1.66%)	15(12.5%)	103(85.83%)
5	Approve with religious activities / prayers during menstruation (N=119)	59(49.57%)	27(22.68%)	33(27.73%)
6	Female members of family agree with menstrual restrictions (N=120)	16(13.33%)	22(18.33%)	82(68.33%)
7	Restrictions are for promoting gender inequality and hampers women empowerment	65(56.52%)	30(26.08%)	23(20%)

	(N=115)			
8	Observance of restrictions are for maintaining reproductive health and menstrual regularity (N=118)	25(21.18%)	21(17.79%)	72(61.01%)
9	Not following restrictions may effect health of family members (N=118)	76(64.40%)	18(15.25%)	24(20.33%)
10	Not following restrictions may affect pregnancy (N=118)	67(56.77%)	29(24.57%)	22(18.64%)
11	Male members of family (volunteers) decide about observance of restrictions (N=117)	83(70.94%)	13(11.11%)	21(17.94%)
12	Isolation is necessary during menstruation (N=119)	56(47.05%)	24(20.16%)	39(32.77%)
13	Female needs rest during menstruation (N=119)	6(5.04%)	8(6.72%)	105(88.23%)
14	Cooking can be done during menstruation (N=120)	17(14.16%)	11(9.16%)	91(75.83%)
15	People talk freely about menstruation now a days (N=118)	3(2.54%)	22(18.64%)	93(78.81%)
16	Change in attitude of younger generation towards menstruation (N=114)	5(4.38%)	15(13.15%)	94(82.45%)
17	Studying and work does not allow to follow all menstrual restrictions (N=113)	52(46.07%)	24(21.23%)	36(31.85%)
18	All the menstrual related prohibitions / restrictions should be banned (N=118)	36(30.50%)	40(33.89%)	42(35.59%)
19	Change is required regarding observance of restrictions (N=116)	23(19.82%)	34(29.31%)	59(50.86%)
20	Religious gurus / priests should change the prohibitions / ban the restrictions related to menstruation (N=109)	33(30.27%)	33(30.27%)	43(39.44%)

In response to the questions associated with attitude on menstrual prohibitions and practices, 77(65.81%) respondents out of 117 did not find discussion on this topic to be embarrassing, whereas 25(21.36%) respondents agreed on discussion of the topic embarrassing. 60 (51.28%) agreed to feel free to discuss the topic with female and 93(77.5%) felt free to discuss topic with male. Whether the society reviews menstruation as natural process, 103(85.83%) agreed and 15(12.5%) remained neutral. 59 (49.57%) respondents disapproved religious activities and prayers during menstruation. 82(68.33%) replied that female members of their family agreed with menstrual restrictions. 65(56.52%) disagreed on these restrictions to be promoting gender inequality and hampering women empowerment, 30(26.08%) were neutral on this. Observing menstrual restrictions are for maintaining reproductive health and menstrual regularity received positive response from 72(61.01%) respondents. 76 (64.40%) and 67(56.77%)disagreed on non observance of menstrual restrictions to affect health of family members and affecting pregnancy respectively. 56(47.05%) and 39(32.77%) disagreed and agreed respectively on need of isolation during menstruation.

Qualitative findings

When asked about the logic and reason behind isolation, following points were discussed during interview and answered as in open ended question.

1. Giving female break from household chores helps her to get rest, body does not cooperate, to relieve fatigue.
2. During menstruation female or women goes through so much pain blood loss and mood swing and may she needs rest.
3. To maintain hygiene and health, as she is uncomfortable, foul smell, cleanliness.
4. To avoid desire for sexual intercourse, to avoid sexual intercourse.
5. They are considered impure when they have their periods.
6. It is *Dharma*, old belief, spiritual, might be religious based, inauspicious.
7. It is archaic sans logic.
8. Pheromones
9. From a scientific point of view, considering the emotional outflow of the females during menstruation, it is best to respect her wishes be it staying in isolation or staying socially active. Forcibly confining a female in an isolated space might worsen the emotional state of the female.
10. Cannot touch others.

105(88.23%) respondents agreed on female needing rest during menstruation. The reasons discussed during interview were as follows.

1. Adequate rest is needed during menstruation as blood is being lost from the body, lack of rest can result in fatigue and exertion, sleep schedule should be maintained as lack of sleep will raise cortisol levels and disturb the menstrual cycle and ovulation.
2. Due to pain, bleeding, tiredness, fatigue, headache.
3. Mental exhaustion, anxiety, mood swings; rest needed for mental peace.
4. As they are weak during this time, they are not able to work.
5. Metabolism is more.
6. It may help to alleviate the painful cramps, improve mood, reduce fatigue, discomfort.
7. For her health, to gain strength.

91(75.83%) responded as agreeing to cooking by female during menstruation. The reasons behind prohibition of cooking or agreeing with cooking were disclosed as below in questionnaire and during focus group discussion and interviews.

1. Elders in the family do not allow. They have been practices such prohibitions since ages, hence it should be continued.
2. Cannot afford hotel food every time, no other female member in family and they (male) don't know cooking hence cooking can be done.
3. It is not accepted in *Dharma* and religion, considered inauspicious, experiences shows may stale food, tulsi plant dries up.
4. *Agni, panchamahabuta*, effect of aura on food.
5. 'Female is undergoing fatigue and weakness due to bleeding, if she works in kitchen in heat, she may faint and cause accidental fire or trauma'. This was suggested by senior *Ayurveda* scholar.
6. The restriction on cooking revolves around the myth that females are impure during menstruation. Which is not true, a menstruating female is as hygienic and clean as any other female.

94 (84.45%) agreed that there is change in attitude related with menstruation practices in younger generation. Answering to the question whether studying and working does not allow all restrictions to be followed, 52(46.07%) disagreed, 36(31.85%) agreed and 24(21.83%) remained neutral.

In response to the question whether all such menstrual restrictions should be banned, mixed response was seen. 42(35.59%) agreed, 40(33.89%) remained neutral and 36(30.50%) disagreed on this. The discussion revealed following points related with banning menstrual prohibitions.

1. Menstruation is a natural biological process. So prohibitions to be banned.
2. Some of the reasons are good for safety and health.
3. It is all natural process like heart beat in body.
4. It's depends on female how she wants to follow and it should be left on her to decide.
5. Women will get freedom from all restrictions which they dont like.
6. To maintain hygiene and health, to get healthy progeny.
7. Sometime these type of restrictions may discriminate one female from another in social functions etc.
8. Strongly agree because restrictions is mentally pressure all women.
9. Modern lifestyle, modernization, new generation do not agree and follow these restrictions.
10. Illness in family.
11. To avoid discrimination, it is related to human rights., it is against health and promotes gender bias.
12. Observance of restrictions does not hurt anyone.
13. Cannot explain to illiterate people, there is no space or platform for discussion also.
14. Restrictions are needed for the society, they should be continued to maintain order in society, for *Dharma*, tradition, culture, and religion.
15. Changed life scenario with changing demands female are well advised to perceive the archaic traditions.
16. Some relaxations should be given.

17. Certain restrictions have a scientific basis, like taking adequate rest, light diet, etc but most of these restrictions should be abolished now.

18. In certain families who follow restrictions, they should follow it is for *Stri Dhrama*.

19. New rules, new regulations for new generation needed.

59(50.86%) agreed to changes required regarding observance of restrictions.

Female herself can bring the changes required related to restrictions in the society was the reply given by 72(61.01%) from 118 respondents. Other respondents selected medical personnels(41(34.74%)), religious gurus((28(23.72%)), teachers (27(22.88%)) and government(18(15.24%)).

Response to the question whether Religious gurus / Priests should change the prohibitions or ban the restrictions, out of 109 respondents 43(39.44%) agreed, whereas 33(30.27%) were neutral and 33 disagreed.

Table IV: Attitude of female members of family towards menstrual practices (as asked to male members)

Attitude	Strongly Disagree / Disagree	Neutral	Agree / Strongly Agree
Female members of family agree with menstrual restrictions (N=120)	16(13.33%)	22(18.33%)	82(68.33%)
Female members in family decide about observing or not observing menstrual restrictions (N=117)	19(16.23%)	37(31.62%)	61(52.13%)
Female members of family are forced to follow prohibitions / restrictions (N=119)	87(73.10%)	15(12.60%)	17(14.28%)

Discussion

Recently studies on involvement of boys and men in menstrual hygiene management and its importance in Indian patriarchal society is highlighted. They have contributed to decision making about menstrual hygiene management in terms of providing privacy and toilet with help of WASH programme in Uttar Pradesh, India.⁵ Men can contribute a lot in changing cultural norms and attitude, yet their role is unexplored and the talk with men with these issues are limited due to gender inequality.

Contradictory to the above study, other study at rural village in Gambia revealed that boys expressed interest in learning about menstruation but were thought to not be included in discussion about menstruation.⁶

Before advocating role of men in menstrual hygiene management and other practices, their knowledge and perception about menstruation should be known, which is addressed very lesser extent. The qualitative studies about this have been done on adolescent and pubescent boys. 13 to 17 aged boys were interviewed from randomly selected one district across Maharashtra, Tamil Nadu and Chhattisgarh states of India. The only knowledge they got about menstruation

was either by observing girls or overhearing their private discussions, but they understood cultural restrictions placed on them during menstruation.⁷

In the present study the mean age of men was 34.41 years, and hence 80.2% of participants were aware of menstruation to be related with reproductive function in female. 50.8% of participants disagreed that blood and menstrual blood to be same, 25.4% responded both to be same and 23.7% remained neutral. The reason of them being different was quoted as menstrual being waste, smelly, and thick. It has been discovered that menstrual blood is complex biological fluid and proteomic analysis of menstrual blood shows 385 proteins were found unique to menstrual blood.⁸ Mesenchymal stem cells have been identified in menstrual blood which are highly regenerative in nature and helpful in regenerative and immune related diseases.⁹

Socio cultural restrictions observed by menstruating female are termed as taboos and myths and superstition being the reason behind such taboos. Low socio-economic condition, poor knowledge and education about reproduction are thought to be the main explanation behind menstrual practices.¹⁰ In the present study, spiritual restrictions were observed more as compared to dietary, cultural, physical and social restrictions. Nuclear families with absence of another female member and deficiency in skill of cooking by male is the foremost reason of disappearance of entering the kitchen and cooking restriction. Many followed the restrictions only because it is present in their family through generations and as their culture, they need to follow the same. Very few female members observed any dietary restrictions during menstruation unlike other studies where 70% female avoided meat and diary products as they may cause gastro intestinal disorders.¹ Negative attitude towards menstruation was endorsed more by men than women and heteronormative sexist attitude and less knowledge of menstruation were the reasons pointed out for negative attitude in a cross sectional survey study.¹¹ Unlike this, in present study revealed more positive approach of men towards women favouring resting and disagreeing that not observing menstrual prohibitions will have any affect on health of family members or pregnancy. On the contrary 70.94% members replied that men do not decide about observance of restrictions in family and in 52.23% of cases female member of family decide about restrictions. 11.11 & 31.62% were neutral in this respectively. 73.10% responded that female members are not forced to observe restrictions. Positive response in open ended questions for observation of few practices was seen. Rest during menstruation was essential according to 88.23% respondents.

In survey of adolescent girls, cultural and social practices during menstruation by adolescent girls are highlighted as myths and taboos^{12,13} 84.45% respondents in present study agreed on change in attitude related with menstruation practices in younger generation. 61.01% agreed that female herself can bring changes in the society about menstrual practices rather than government, medical officials, teacher or religious gurus. Mixed response about role of religious gurus in changing or banning the menstrual restrictions was seen. This suggests that knowledge, perception and attitude of female about menstruation in the society can help to identify the practices which can help her in maintaining health. Code of conduct for women during menstruation is elaborately discussed in Ayurveda science. Certain dietary and lifestyle restrictions may prevent oxidative stress during menstruation and hence help her to maintain her reproductive health.^{2,14} All menstrual practices should not be emphasized as taboos.

Conclusion

This study substantiates the role of men in attitude towards menstrual practices. Instead of studies on adolescent boys who are ignorant and unaware of menstruation, the present study conducted on adult men with mean age of 34 years gives proper insight of attitude and help in understanding the perception of menstrual practices and the reason behind the same. Any change required in menstrual practices requires addressing the male in patriarchal society. The positive attitude of men towards menstruation can improve the behaviour and reproductive health of women. Group discussions further evaluated the female member attitude and support from men for her decisions. Further studies in large groups still needed to understand full extend of men's role in such practices. Understanding the significance of existence of menstrual practices in reproductive role and femininity will be of great importance.

References:

1. Sumedha & Singh. Space and Culture, India 2019; Vol 7(3): PP 86-98
<https://doi.org/10.20896/saci.v7i3.523>
2. Gujarathi Jasmine, Asokan V. Pragmatic approach towards menstrual practices: a contemporary, cultural, and ayurveda science review. March 2021;8(1):3056-63.
<https://doi.org/10.47070/ayushdhara.v8i1.692>
3. Chang, Y.-T., Hayter, M. and Lin, M.-L. Pubescent male students' attitudes towards menstruation in Taiwan: implications for reproductive health education and school nursing practice. Journal of Clinical Nursing, 2012; Vol 21: 513-521. <https://doi.org/10.1111/j.1365-2702.2011.03700.x>
4. Mason L, Sivakami M, Thakur H, Kakade N, Beauman A, Alexander KT, van Eijke AM, Laserson KF, Thakkar MB, Phillips-Howard PA. 'We do not know': a qualitative study exploring boys perceptions of menstruation in India. Reprod Health. 2017 Dec 8;14(1):174. doi: 10.1186/s12978-017-0435-x. PMID: 29216895; PMCID: PMC5721687.
5. Mahon T, Tripathy A, Singh N. Putting the men into menstruation: The role of men and boys in community menstrual hygiene management. Waterlines. 2015; 34(1):7–14.
6. Shah, V., Nabwera, H.M., Sosseh, F. et al. A rite of passage: a mixed methodology study about knowledge, perceptions and practices of menstrual hygiene management in rural Gambia. BMC Public Health 19, 277 (2019). <https://doi.org/10.1186/s12889-019-6599-2>
7. Mason L, Sivakami M, Thakur H, Kakade N, Beauman A, Alexander KT, van Eijke AM, Laserson KF, Thakkar MB, Phillips-Howard PA. 'We do not know': a qualitative study exploring boys perceptions of menstruation in India. Reprod Health. 2017 Dec 8;14(1):174. doi: 10.1186/s12978-017-0435-x. PMID: 29216895; PMCID: PMC5721687
8. Yang H, Zhou B, Prinz M, Siegel D. Proteomic analysis of menstrual blood. Mol Cell Proteomics. 2012 Oct;11(10):1024-35. doi: 10.1074/mcp.M112.018390. Epub 2012 Jul 20. PMID: 22822186; PMCID: PMC3494145.
9. Mandal S, Jaiswal V, Sagar MK, Kumar S. Formulation and evaluation of carica papaya nanoemulsion for treatment of dengue and thrombocytopenia. Plant Arch. 2021;21:1345-54.
10. Mandal S, Shiva K, Kumar KP, Goel S, Patel RK, Sharma S, Chaudhary R, Bhati A, Pal N, Dixit AK. Ocular drug delivery system (ODDS): Exploration the challenges and

- approaches to improve ODDS. *Journal of Pharmaceutical and Biological Sciences*. 2021 Jul 1;9(2):88-94.
11. Mandal S, Jaiswal DV, Shiva K. A review on marketed *Carica papaya* leaf extract (CPLE) supplements for the treatment of dengue fever with thrombocytopenia and its drawback. *International Journal of Pharmaceutical Research*. 2020 Jul;12(3).
 12. Mandal S, Vishvakarma P, Verma M, Alam MS, Agrawal A, Mishra A. *Solanum Nigrum* Linn: An Analysis Of The Medicinal Properties Of The Plant. *Journal of Pharmaceutical Negative Results*. 2023 Jan 1:1595-600.
 13. Mou XZ, Lin J, Chen JY, Li YF, Wu XX, Xiang BY, Li CY, Ma JM, Xiang C. Menstrual blood-derived mesenchymal stem cells differentiate into functional hepatocyte-like cells. *J Zhejiang Univ Sci B*. 2013 Nov;14(11):961-72. doi: 10.1631/jzus.B1300081. PMID: 24190442; PMCID: PMC3829645
 14. Garg S, Anand T. Menstruation related myths in India: strategies for combating it. *J Family Med Prim Care*. 2015 Apr-Jun;4(2):184-6. doi: 10.4103/2249-4863.154627. PMID: 25949964; PMCID: PMC4408698.
 15. Eyring, J.B., Crandall, A. & Magnusson, B.M. A Modified Menstrual Attitudes Scale: Heteronormative Attitudes, Sexism, and Attitudes Toward Menstruation in Male and Female Adults. *Arch Sex Behav*. 2023 ;52: 1535–1547 <https://doi.org/10.1007/s10508-023-02565-y>
 16. Kumar A, Srivastava K. Cultural and social practices regarding menstruation among adolescent girls. *Soc Work Public Health*. 2011;26(6):594-604. doi: 10.1080/19371918.2010.525144. PMID: 21932979.
 17. Puri, S.; Kapoor, S.. Taboos and Myths Associated with Womens Health among Rural and Urban Adolescent Girls in Punjab. *Indian Journal of Community Medicine*. Oct–Dec 2006 ;31(4):p 295
 18. Gujarathi J & Gujarathi R. Maintaining Women Health Through Ayurveda – A Review Study. *International Ayurvedic Medical Journal*. 2019; Vol 7(11); pp 2076-2080 : { http://www.iamj.in/posts/images/upload/2076_2080.pdf }