



## Impact on Women's Social Participation through CBO Before and After the Commencement of JASSN Scheme

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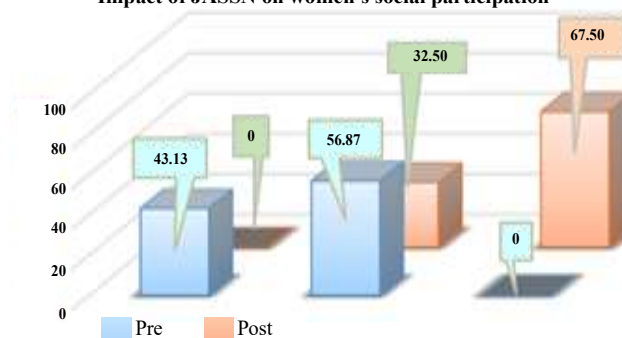
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### HIGHLIGHTS

- Women's social participation during menstruation is a vital aspect of gender equality and social progress for women.
- Community workers (ASHA & JEEViKA) have played a pivotal role in removing social barriers and enhancing women's social participation by 67.5 % during menstruation.
- PMBJP & JASSN's helps in promotion of women empowerment.

### GRAPHICAL ABSTRACT

Impact of JASSN on women's social participation



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### ABSTRACT

*Context:* The societal pressure to keep menstruation a taboo significantly affects women's health-related behaviour in response to menstrual concerns. Understanding their decisions becomes more accessible while considering the social context in which women reside.

*Context:* However, societal norms still stigmatize women's social exposure and participation during menstruation. Therefore, evaluating the level of social participation of women during menstruation become important.

*Objective:* To find the level of social participation before and after the introduction of JASSN was evaluated using Pre-test-Post-test assessment methods.

*Method:* The study was conducted in a purposively chosen area, characterized by established Jan Ausadhi Kendra structures, and neighbouring villages in Muzaffarpur and Samastipur district of Bihar among 160 respondents.

*Results and Discussion:* Results indicated positive changes in the level of social participation in the rural community. The significance level was examined using the parametric Paired comparison't' test and non-parametric Wilcoxon Singed Pair Rank test. Finally, the level of social participation using paired 't' test was 10.68750, the 'Z' value of Wilcoxon Singed Pair Rank Test was -10.979, and the significance level was 1 percent. Thus, JASSN, along with the support of Community Based Organizations (CBO) viz., ASHA & JEEViKA. Both the ASHA (Accredited Social Health Activist) and JEEViKA (Bihar Rural Livelihoods Promotion Society) play crucial roles in community healthcare and livelihood promotion in rural areas. It also enhances women's social participation during menstruation by providing accessible menstrual hygiene products and raising awareness, breaking societal barriers, and fostering gender inclusivity.

**H**istorically, menstruation has been surrounded by various cultural and social taboos that have limited women's participation in certain activities or spaces (Buckley & Gottlieb, 1988). Surprisingly, even after three decades, such restrictive practices continue to persist at various societies, hindering women's participation during menstruation (Tiwary, 2018). These taboos often arise from myths, superstitions, or religious beliefs and they can result in discrimination, exclusion, or shame associated with menstruation. There is a unique aspect related to menstruation and temple worship in the case of the Kamakhya Temple in Assam, India (Bharadwaj *et al.*, 2019). The Kamakhya Temple is a significant pilgrimage site dedicated to the goddess Kamakhya, and it has a distinct association with menstruation, the Kamakhya Temple is closely linked to the fertility goddess Kamakhya who is believed to undergo her own menstrual cycle (Singh, 2011). During the annual Ambubachi Mela festival held at the temple, it is believed that the goddess menstruates, during this specific time, women devotees are not barred from entering the temple but are instead encouraged to visit and take part in the celebrations. But, there is a growing global movement to challenge and break these taboos. Efforts are being made to promote menstrual hygiene, raise awareness about menstruation, and advocate for equal participation and rights for individuals who menstruate. For this initiative, Govt. of India also started supply for sanitary napkins which are only of 1Rs. /pad (Srivastava *et al.*, 2023) named Climate-Friendly Oxo-Biodegradable (Srivastava *et al.*, 2022) Jan Aushadhi Suvidha Sanitary Napkins under the scheme of Pradhan Mantri Bhartiya Jan Aushadhi Pariyojna. To foster social participation during menstruation, it is crucial role of community based organization and people who works for community such as ASHA (Accredited Social Health Activist), JEEViKA (Bihar Rural Livelihoods Project), JAK (Jan Aushadhi Kendra), etc. Through Community based organization it is easy to create an inclusive and supportive environment for girls and women of rural areas, and also they provide various information about menstruation such as, social participation, education, access to menstrual products, empowering women, creating supportive environment, challenging stereotypes etc. By addressing all these aspects, community based organization can work towards such taboos and ensuring that menstruation does not hinder social participation or perpetuate inequality.

## METHODOLOGY

The study was conducted in a purposively chosen area, characterized by established Jan Aushadhi Kendra structures, and neighbouring villages. From Muzaffarpur district, two JAKs were selected, and similarly, two JAKs were chosen from Samastipur district. Specifically, Pilkhi Gajpatti and Mahammadpur Dharam villages in Muzaffarpur district, and Chakla waini and Bishanpur Bathua villages in Samastipur district were selected. All these villages were in close proximity to Jan Aushadhi Kendras. A total of 160 respondents were selected, 40 from each village, who were familiar with the JASSN scheme or had experience using JASSN. The respondents were interviewed using a mixed-method approach involving a survey, knowledge test, structured interview schedule, and open discussion method. The study emphasized primary data collection as it is experimental research, on the other hand (Workneh and Ponnusamy, 2016) employed a combination of both primary and secondary data sources for their study conducted in India. Notably, the research employed an experimental research design, setting it apart from the more commonly used ex-post facto research design in social science (Singh *et al.*, 2022; Pooja *et al.*, 2023; Bandhavya *et al.*, 2022; Yadav *et al.*, 2023). To evaluate the change in women's social participation before and after the introduction of Jan Aushadhi Suvidha Sanitary Napkins, a series of questions related to social engagement were asked to the selected respondents in both Pre-test and Post-test formats. Each question had four response options. Data analysis involved assessing each statement individually, calculating frequency, percentage (Chauhan *et al.*, 2022), paired 't' test and Wilcoxon Signed Rank test. It is important to note that while entering the data in software was taken care that post should be filled prior and pre later, so that result should come positive. In examining hypothesis experiments involving correlated samples, as basis of 't' test is correlation (Chauhan *et al.*, 2022) the paired sample t-test emerged as a suitable tool to compare the means of the two populations (Buruah *et al.*, 2023), while the utilization of the z-test was recommended for sample sizes exceeding 30 (Kumari *et al.*, 2022). This paired t-test serves as a valuable means of comparing population means when dealing with paired observations, such as before-and-after data on the same subjects (Shier, 2004). Before- and-after study is very common in gender studies (Rosenfeld *et al.*, 2004), medical science (Cheng *et al.*, 2020), consumer science

(Levin et al., 1988), Social Science (Lee *et al.*, 2009) etc. Moreover, the significance level was also assessed using the Wilcoxon Signed Rank test, which is rooted in non-parametric or distribution-free methodologies. Similar to the sign test, this approach is aimed at testing the hypothesis that a distribution's median is equivalent to a specific value. The Wilcoxon Signed Rank test can effectively replace a one-sample t-test or a paired t-test and can be applied to order categorical data where a numerical scale is unsuitable but ranking of observations is feasible (Davis and Pecar, 2013; Siegel, 1956).

## RESULTS

*Social Participation of Rural Women Before and After the Commencement of Jan Aushadhi Suvidha Sanitary Napkin: A Pre-Test and Post-Test Analysis:* This table presents the assessment of rural women's social participation before and after the introduction of JASSN, using a pre-test and post-test analysis and the finding showed that change in social participation for each respondent, indicating the impact of the JASSN initiative.

Firstly, Statement 1 from Table 1 shows that there has been an increase in the percentage of respondents who feel comfortable discussing menstruation and its impact on social participation (pre: 15% to post: 44.375%). However, there are still some who find it uncomfortable (pre: 36% to post: 10%) or only discuss it with close friends or family (pre: 20% to post: 15.625%) which means having access to affordable and quality sanitary napkins has made women more open to discussing menstruation-related issues, breaking the taboo surrounding the topic etc. Secondly, statement 2 in table 1 indicates that there has been a decrease in the percentage of respondents who strongly agree with cultural restrictions on women's social participation during menstruation (pre: 56.25% to post: 25%). On the other hand, the percentage of those who strongly disagree with such restrictions has increased (pre: 7.5% to post: 35%) which shows JASSN's accessibility seems to have influenced a shift in cultural beliefs, leading to a reduction in the strict adherence to traditional restrictions on women's activities during menstruation. Additionally, statement 3 from table 1 suggests that there has been an improvement in the availability of facilities and resources for managing menstrual hygiene at home. The percentage of respondents who report having sufficient resources

available has increased (pre: 13.75% to post: 37.5%), while the percentage of those with limited resources has decreased (pre: 13.125% to post: 29.375%) which indicate that indicates that JASSN has played a role in addressing the lack of menstrual hygiene resources, making it easier for women to manage their menstruation comfortably. Furthermore, statement 4 from table 1 represent that there has been an increase in awareness about menstrual health education and awareness programs in the community. The percentage of respondents who are fully aware has risen (pre: 11.25% to post: 27.5%), while the percentage of those who are not aware has decreased (pre: 22.5% to post: 27.5%). JASSN's presence and promotion have likely contributed to spreading awareness about menstrual health and hygiene, reaching more women in the community. In the same vein, statement 5 from table 1 suggests that there has been a decrease in the percentage of women who tend to avoid specific social activities or events during menstruation due to social barriers. For instance, the percentage of those avoiding religious places has decreased (pre: 53.125% to post: 23.75%), and more women now report not avoiding any activities during menstruation (pre: 11.875% to post: 40%). This suggests that JASSN's accessibility has helped reduce social barriers, allowing women to participate more freely in various activities during menstruation.

Similarly, statement 5 from Table 1 shows that there has been an improvement in the level of support from family members, friends, and partners in accommodating women's social participation during menstruation. The percentage of respondents reporting high support and understanding has increased (pre: 10% to post: 54.375%), while the percentage of those reporting very less support has decreased (pre: 39.375% to post: 8.125%). This indicates that JASSN's availability has influenced a positive change in the attitudes of family members and friends, leading to greater support for women during menstruation. Moreover, statement 7 from Table 1 indicates an increase in awareness about the potential role of community workers in removing social barriers during menstruation. More respondents now recognize that community workers can play a vital role through door-to-door awareness campaigns (pre: 8.125% to post: 38.125%). JASSN's distribution and awareness efforts seem to have highlighted the important role that community workers can play in promoting menstrual

**Table 1. Social Participation of rural women apropos menstruation before and after the commencement of JASSN**

Statements	Options	Pre	Post
		No.(%)	No.(%)
Do you feel comfortable while discussing about menstruation and its impact on social participation?	No (find it uncomfortable and avoid discussing it)	73(45.625)	24(15)
	Sometime (when it is necessary)	32(20)	25(15.625)
	Only with close friends or family	31(19.375)	40(25)
	Yes (find it comfortable)	24(15)	71(44.375)
Are there any cultural or traditional beliefs in your community that restrict women's social participation during menstruation?	Strongly agree (strict restrictions)	90(56.25)	40(25)
	Agree (not overly strict)	46(28.75)	41(25.625)
	Disagree	12(7.5)	23(14.375)
	Strongly disagree	12(7.5)	56(35)
Are you provided with adequate facilities and resources to manage their menstrual hygiene in social settings at your home?	No	44(27.5)	14(8.75)
	Very less resource	73(45.625)	39(24.375)
	Limited (when it is necessary)	21(13.125)	47(29.375)
	Yes (sufficient resources are available)	22(13.75)	60(37.5)
Do women in your community have access to comprehensive menstrual health education and awareness programs?	Fully not aware	81(50.625)	35(21.875)
	Not aware	36(22.5)	44(27.5)
	Partially aware	25(15.625)	37(23.125)
	Fully aware	18(11.25)	44(27.5)
Are there specific social activities or events that women tend to avoid during menstruation due to social barriers?	Yes (Religious places)	85(53.125)	38(23.75)
	Mostly (Physical Activities)	31(19.375)	22(13.75)
	Sometimes (Social Gatherings)	25(15.625)	36(22.5)
	No	19(11.875)	64(40)
How supportive your family members, friends, or partners in accommodating women's social participation during menstruation?	Very less supportive	63(39.375)	13(8.125)
	Less supportive (sometime when it is needed)	54(33.75)	24(15)
	Supportive	27(16.875)	36(22.5)
	Highly supportive and understanding	16(10)	87(54.375)
How can community workers (ASHA, JEEVIKA, JAK) in your areas play a vital role in removing social barriers during menstruation for women?	Not aware	73(45.625)	27(16.875)
	Very less interaction with community worker	49(30.625)	29(18.125)
	Often (During any social gathering only)	25(15.625)	43(26.875)
	Door- to- door (Raising awareness and promoting access to menstrual hygiene product)	13(8.125)	61(38.125)
What challenges do you face in accessing and purchasing sanitary napkins, impacting your social participation?	Social stigma	52(32.5)	0
	Lack of awareness	58(36.25)	0
	Limited availability and financial constraints	28(17.5)	0
	There is no any challenge	22(13.75)	160(100)
Are there any initiatives or programs in your community aimed at addressing the social barriers faced by women during menstruation?	Fully not aware	0	0
	Not aware	0	0
	Partially aware (Some initiative but needed more efforts)	121(75.625)	0
	Fully aware (PMBJP & JASSN)	39(24.375)	160(100)
	Don't know about JASSN	0	0
How was the availability of JASSN in your rural community contributed to enhancing your social participation as a woman?	Don't know the role of JASSN to enhancing your social participation as a woman	98(61.25)	0
	Increased access, affordability, awareness	41(25.625)	0
	Overall, JASSN empower women and promote social participation of women during menstruation	21(13.125)	160(100)

hygiene and breaking taboos around menstruation. Next, statement 8 from table 1 suggests that there has been a significant improvement in access to sanitary napkins, as most respondents (post: 100%) no longer face challenges related to social stigma, lack of awareness, limited availability, or financial constraints. This demonstrates that JASSN has effectively addressed the barriers that hindered women's access to menstrual hygiene products in the past. Furthermore, statement 9 from table 1 represent that there has been an increase in awareness about initiatives or programs aimed at addressing the social barriers faced by women during menstruation. More respondents now recognize fully aware programs like PMBJP (Pradhan Mantri Bhartiya Jan aushadhi Pariyojana) and JASSN (Jan Aushadhi Suvidha Sanitary Napkins) (pre: 24.375% to post: 100%). PMBJP & JASSN's presence and promotion have increased awareness about these initiatives, helping more women access support and resources for managing menstruation. Lastly, statement from table 10 suggests that the availability of Jan Aushadhi Suvidha Sanitary Napkins (JASSN) has significantly contributed to enhancing the social participation of women during menstruation. More respondents now

recognize the positive impact of JASSN in empowering women and promoting their social participation (pre: 13.125% to post: 100%).

The Table 2 depicts impact of JanAushadhi Suvidha Sanitary Napkin on women's social participation during menstruation. Prior to JASSN, 43.13 per cent of women experienced low social participation and 56.87 per cent had medium participation, while none reported high participation. But after the commencement of JASSN, the percentages of low and medium participation decreased significantly to 0 per cent and 32.50 per cent respectively, and the percentage of women with high participation rose to 67.50 per cent.

Table 3 represent 't' value of 32.552\*\* (p value=.001) explaining that the commencement of JASSN is significant at one per cent level of probability. The lower and upper bounds indicate the margin of error within the confidence interval, significant at a 95% confidence level. Therefore, we can say that social participation of women increased after the commencement of JASSN. Paired comparison 't' test was also applied by Chauhan *et al.*, 2021 in barriers of women entrepreneurship in north eastern region of India.

When dealing with ordinal data, median analysis is favored over mean analysis, therefore, it was employed for the purpose of explanation of Table 4, the median for Pre-test of 160 respondents was 21, while for Post-test was 32. That means middle score (median) for a set of data for the Post- test is evidently greater than the Pre-test. Thus, from this it could be concluded that median leap for pre-test and post-test in terms of social participation was evidently more.

*Elucidating Wilcoxon Signed Ranks Test:* Out of 160 respondents the Negative Ranks for Post-test minus Pre-test were 0, while Positive Ranks were 160, this clear cut shows increase in social participation after the commencement of JASSN (Table 5).

Table 6 indicated that the asymptotic significance obtained from the Wilcoxon Signed Ranks Test for Post-test minus Pre-test was 0.000 ( $p < 0.01$ ), and the Z-value for SP Pre-SP Post was -10.979. The significance value demonstrated a Monte Carlo Significance at a 99 per

**Table 2. Impact of JASSN on women's menstrual social participation**

Impact	Pre-No. (%)	Post-No.(%)
Low (10-20)	69 (43.13)	0
Medium (21-30)	91 (56.87)	52 (32.50)
High (31-40)	0	108 (67.50)

**Table 3. Paired comparison 't' test of significance of difference between pre-test and post-test average mean scores of social participations of women (N =160)**

Test	Mean	Difference	95% CI of diff.	
			Lower	Upper
SP Post-test	31.9813	10.68750	9.83152	11.54348
SP Pre-test	21.2938			

't' value 32.552\*\* (p value = .001); \*\*p value was significant at one percent level of probability

**Table 4. Descriptive Statistics of social participation for Wilcoxon Signed Ranks Test with mean rank**

	N	Mean	SD	Minimum	Maximum	Percentiles		
						25 <sup>th</sup>	50 <sup>th</sup>	75 <sup>th</sup>
Post	160	31.9812	2.90623	26.00	38.00	30.0000	32.0000	34.0000
Pre	160	21.2938	3.10527	15.00	29.00	19.0000	21.0000	23.0000

**Table 6. Wilcoxon signed ranks test statistics showing z value and significance level**

			SP (Pre&Post)
Z value			-10.979 <sup>a</sup>
Asymp. Sig. (2-tailed) <sup>b</sup>			.000
Monte Carlo Sig. (2-tailed)	Significance		.000
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000
Monte Carlo Sig. (1- tailed)	Significance		.000
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on positive ranks. b. Based on 10000 sampled tables with starting seed 2000000

**Table 5. Wilcoxon signed ranks test pre and post comparison**

SP Post-SP Pre	N	Mean Rank	Sum of Ranks
Negative Ranks	0 <sup>b</sup>	.00	.00
Positive Ranks	160 <sup>a</sup>	80.50	12880.00
Ties	0 <sup>c</sup>		
Total	160		

a. SP Pre < SP Post; b. SP Pre > SP Post; c. SP Pre=SP Post

cent confidence interval. Therefore, it can be concluded that there was significant distinction between Post-test and Pre-test scores.

**DISCUSSION**

The finding from Table 1 highlights how improved menstrual hygiene management through JASSN has positively affected women's confidence and participation in social activities during menstruation. Frequency and percentage were also applied by Chauhan *et al.*, 2022 on distribution of respondents according to information of enterprise to measure Effect of Entrepreneurship on Women Entrepreneurs. The results showed from Table 2 that change showed positive impact of JASSN among rural women through which social participation increased and this is due to combined effects of the JASSN's affordable price and the active involvement of ASHA and JEEViKA workers. The research utilized both Paired Comparison ‘t’ test and Wilcoxon Signed Ranks Test. The results indicated ‘t’ value of 32.552\*\* (p value = .001), signifying that the introduction of Jan Aushadhi Suvidha Sanitary Napkin is statistically significant at a one per cent probability level. Additionally, the Z-test for post yielded a value of -10.979, with the significance value indicating Monte Carlo Significance at a 99 per cent Confidence Interval. Asymptotic

significance and Monte Carlo Significance at 99 per cent confidence interval were also applied by Lal *et al.* (2016) to elucidate difference between four diverse sub-dimensions of constraints faced by the farmers post national calamity by using another non-paramedic test called Friedman ANOVA test. Similarly, Sinha *et al.* (2018) also applied asymptotic significance and Monte Carlo Significance at 99 per cent Confidence Interval to elucidate the knowledge gain of respondent in all four different aspects such as breeding, feeding, health-care and management for effectiveness of ICT based mobile app in knowledge gain apropos ‘environment-friendly dairy farming practices’.

**CONCLUSION**

As we know, the importance of women's social participation during menstruation is a vital aspect of gender equality and social progress for women. To promote and support women's active involvement during this menstrual phase is essential for women. The present study revealed that after the commencement of JASSN, there is an increased social participation of women during menstruation. The study also employed Paired comparison ‘t’ test and Wilcoxon Signed Ranks Test and the finding showed that ‘t’ value of 32.552\*\* (p value= .001) which means commencement of JASSN Napkin is significant at one per cent level of probability and the value of Z- test for Pre - Post was -10.979 The significance value demonstrated a Monte Carlo Significance at a 99% Confidence Interval. Therefore, it can be concluded that there was significant distinction between Post-test and Pre-test scores. Overall, results indicate positive changes in various aspects related to menstruation and social participation in the rural community, such as increased comfort in discussing menstruation, reduced cultural restrictions, improved access to menstrual hygiene

resources, better awareness of menstrual health education, reduced avoidance of social activities during menstruation, and increased support from family and friends. Additionally, community workers (ASHA & JEEViKA) and initiatives like JASSN have played a vital role in removing social barriers and enhancing women's social participation during menstruation.

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*Data availability:* The data utilised in this paper is available in the public domain and if demanded will be made available.

*Author's contribution:* The first author has conceptualized; second author has guided and third author has analysed.

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