ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 11, Issue, 10, pp.7492-7497, October, 2019

DOI: https://doi.org/10.24941/ijcr.36931.10.2019

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

A STUDY TO ASSESS THE KNOWLEDGE, ATTITUDE AND PRACTICES REGARDING USE OF SANITARY NAPKIN VENDING MACHINE AND INCINERATOR AMONG FEMALE STUDENTS OF SELECTED GOVT. SCHOOLS AND COLLEGES OF DISTRICT FARIDKOT

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ARTICLE INFO

Article History:
Received 24th July, 2019
Received in revised form
29th August, 2019
Accepted 05th September, 2019
Published online 30th October, 2019

Key Words:

Knowledge, Attitude, Practice,
Sanitary Napkin Vending Machine,
Incinerator, Sanitary Napkin,
Female Students,
Menstrual Waste Disposal,
Amodini Project.

ABSTRACT

Introduction: Around the world, women have developed their own personal strategies to cope with menstruation. The issue of menstrual hygiene is inadequately acknowledged and has not received proper attention. Use of sanitary pads is essential practices to keep menstrual hygiene. Government launched 'Amodini (happy girl child) Menstrual Health and Hygiene Programme' on May 28, 2016. Under this project sanitary napkin vending machine and incinerator were installed in government schools and colleges. The project aimed at breaking menstrual taboos that jeopardize the health of millions of girls every day. **Aim:** To assess the knowledge, attitude and practices regarding use of sanitary napkin vending machine and incinerator among female students of selected govt. schools and colleges of district Faridkot. **Materials and Methods:** Descriptive study with Non-Experimental research design was conducted. 500 study subjects were chosen by convenience sampling. Structured Questionnaire, 5-point Likert Scale and Self-reported checklist were used to assess the knowledge, attitude and practices regarding sanitary napkin vending machine and incinerator. **Results:** The results revealed that more than half i.e. 57.6% female students had adequate knowledge. 99.2% of female students had positive attitude and 0.8% had negative attitude. Practice of using sanitary napkin vending machine and incinerator was found to be as low as 2.8%. Majority of the study subjects did not use these machines. **Conclusion:** Hence it can be concluded that 'Amodini Project' did not achieve the desired goals of menstrual hygiene and safe disposal of menstrual waste.

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Citation: Simranpal Kaur and Mrs. Bhupinder Kaur. **2019.** "A study to assess the knowledge, attitude and practices regarding use of sanitary napkin vending machine and incinerator among female students of selected govt. schools and colleges of district Faridkot.", *International Journal of Current Research*, 11, (10) , 7492-7497.

INTRODUCTION

Menstrual hygiene is an important issue that affects healthy adolescent girls and premenopausal adult women monthly. Around the world, women have developed their own personal strategies to cope with menstruation, which vary from country to country and depend on economic status, the individual's personal preferences, local traditions and cultural beliefs and education status (Baisley, 2009). Every year approximately 10 % of women worldwide are exposed to genital infections including urinary tract infections and bacterial vaginosis, and 75 % of women have a history of a genital infection. Specifically, the common risk factors for vaginal infections include pregnancy and poor hygiene (both perineal and menstrual hygiene) (Reid, 2003). Globally, according to 2005 World Health Organization (WHO) estimates, 448 million new cases of curable STIs (syphilis, gonorrhea, chlamydia, and trichomoniasis) occur annually in adults aged 15-49 years. In India, the annual incidence of STIs is estimated to be 5%. The prevalence of self-reported morbidity varies in different regions in India. Various community-based studies in India have shown the prevalence of RTIs to range from 39% to 84% (Bang, 1989). The issue of menstrual hygiene is inadequately acknowledged and has not received proper attention. Use of sanitary pads is essential practices to keep menstrual hygiene. Women and girls of reproductive age need access to clean and soft absorbent sanitary products which in the long run protect their health from various infections (Narayan, 2001). Unhygienic menstrual practices can affect the health of the girls and there is an increased vulnerability to reproductive tract infections and pelvic inflammatory diseases and other complications (Ten, 2007). Absorbent pads used to manage menstrual blood loss are an important need for adolescent girls. Though sanitary pads are used universally in high-income countries, a large study in India showed that only 12% of menstruating women used sanitary pads and 70% of women cited cost as a major barrier for using them (Kounteya Sinha, 2011).

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In June 2011, the Government of India launched a new scheme to make sanitary pads available in some areas at a subsidized cost of Rs 6 per pack of six sanitary pads by accredited social health activists (ASHAs) who are village-based frontline health workers (Press Information Bureau, 2010). The Government envisaged that sanitary pads would be manufactured by self-help groups to strengthen their economic activities (Matharu, 2011). Government launched 'Amodini (happy girl child) Menstrual Health and Hygiene Programme' on May 28, 2016 following a survey of 15 schools in Ludhiana in which they found that only 20% of the girls know about the menstrual cycle, and the importance of maintaining hygiene during these days. Under the Amodini project, government installed pad-dispensing machines and incinerators in 14 government schools (Sharma, 2018). With the installation of sanitary vending machines, the government realized that hardware component needs to be followed by software component through which the school staff and girls could be sensitized that it was not only about procuring sanitary napkins, but also about understanding the significance of using hygienic means. A majority of adolescent girls and women in the world did not have access to adequate information about menstruation or access to sanitation or hygiene products (Hindustan Times, 2017).

Till today, they are left to manage their days with solutions at hand, such as cloth, paper or clay and no access to private toilets, water or soap. Sanitary products such as napkins are unaffordable or simply unavailable, urinary or reproductive tract infections are common. As a result, girls miss valuable days in school and women are unable to work, stifling productivity and advancement (Hindustan Times, 2017). According to a study conducted in Bangalore, around 34% participants were aware of menstruation prior to menarche, and mothers were the main source of information among both groups. Overall, 69% of adolescent girls were using sanitary napkins as menstrual absorbent, while 6% were using both cloth and sanitary napkins. Almost half of the rural participants dried the absorbent inside their homes (Kartik, 2016). Recently in a school in Tamil Nadu, a 12-year-old schoolgirl of 7th class committed suicide after menstrual shaming. According to her mother, her periods started during a class where she was given a duster cloth to be used as a pad. Then reportedly, she was forced to leave the classroom when her clothes got stained by blood. The next day she did not bear the humiliation and committed suicide due to harassing and torturing by the teacher in the class as written in the suicide note (BBC News,, 2017).

The project aimed at breaking menstrual taboos that jeopardize the health of millions of girls every day, raise the awareness on menstrual hygiene and empower girls, as menstruation should not hold women back to participate fully in society socially, educationally and professionally (Hindustan Times, 2017). Not only the maintenance of menstrual hygiene is important but proper disposal of menstrual waste is also crucial. Appropriate disposal of used menstrual material is still lacking in many countries of the world. Most of the countries have developed techniques to manage their fecal and urinary wastes but, because of lack of menstrual management practices in the world, most of the women dispose of their sanitary pads or other menstrual articles into domestic solid wastes or garbage bins that ultimately become a part of solid wastes. Inappropriate disposal of menstrual waste is problematic. Toilet facilities in India lack bins for the disposal of sanitary pads and hand washing facilities for menstruating women to handle menstrual hygiene. In urban areas, where modern disposable menstrual products are used they dispose of them by flushing in toilets and throwing in dustbins or through solid waste management (Ashley, 2005). Used sanitary napkins that have not been disposed of properly sometimes block the drainage system (Meenakshi Lekhi, 2016). According to a study conducted on Piloting a low-cost hardware intervention to reduce improper disposal of solid waste in communal toilets in low-income settlements in Dhaka, Bangladesh. Waste disposal into latrines can block the outflow pipes, rendering the toilets non-functional. They developed behavior change communication materials to discourage waste disposal in toilets and promote the use of waste bins. Barriers to appropriate waste disposal included lack of private location for disposal of menstrual hygiene products, limited options for formal waste collection and disposal (Yeasmin, 2017).

One of the best ways to dispose of menstrual waste is to incinerate sanitary napkins using electrical or physical fire-based incinerators without allowing the smoke generated in the process to escape into the atmosphere. This incinerator is small in size and very easy to use. Napkins must be incinerated immediately after they are used, without giving time for pathogens to grow on them. In an effort to promote proper disposal of menstrual waste, sanitary napkin incinerators were also installed along with the vending machines under the "Amodini Project" (Meenakshi Lekhi, 2016). It is imperative that we take the initiative to promote menstrual hygiene and proper disposal of menstrual waste forward by creating awareness, encouraging every woman to use sanitary napkin vending machine and eco-friendly incinerators. The aim of this study was to assess the knowledge, attitude and practices regarding use of sanitary napkin vending machine and incinerator among female students of selected govt. schools and colleges.

MATERIALS AND METHODS

A quantitative research approach and non-experimental descriptive design was used for the study. The present study was conducted at various government schools and colleges in district Faridkot. The total sample size was 500 female students, studying in selected government schools and colleges. Total of 4 tools were used for the study. Tool 1 was socio-demographic profile sheet consisted of 6 items to measure demographic data of the subjects was used. These variables were age, institute, class, area of living, menarche attained and source of information. Tool 2 was self structured questionnaire to assess the knowledge of the female students regarding sanitary napkin vending machine and incinerator. In this tool, 15 items were included. It was a multiple-choice questionnaire. Tool 3 was 5 Point Likert scale to assess the attitude of the female students regarding sanitary napkin vending machine and incinerator. This tool consisted of 22 items in which 11 positive statements and 11 negative statements were there. The statements were developed for respondents to respond on five points. Likert scale i.e. strongly agree, agree, uncertain, disagree and strongly disagree. Tool 4 was self-reported checklist was used to assess the practices. It included 8 items. Each item had a score (1) if practice was followed and (0) score if practice was not followed.

Ethical considerations: Ethical approval was taken from the Institutional Ethical Committee. A written informed consent was taken from each participant.

Statistical methods: The data were analyzed using descriptive and inferential statistics. Chi-square test was used to find out the association between variables.

RESULTS

Table 1 presents frequency and the percentage distribution of female students according to selected demographic variables. Maximum (40.2%) of the female students were in the age group 14-16 followed by only (4%) of the patients in the age group 23-25.

Table 1. Frequency and Percentage distribution of female students according to selected demographic variables

N=500

S. No.	Variables	Frequency (n)	Percentage (%)
1	Age (in years)		
	14-16	201	40.2
	17-19	165	33.0
	20-22	114	22.8
	23-25	20	4.0
2	Institute		
	School	366	73.2
	College	134	26.8
3	Class		
	8^{th}-10^{th}	207	41.4
	11^{th}-12^{th}	159	31.8
	Graduation	117	23.4
	Post Graduation	17	3.4
4	Area of Living		
	Rural	141	28.2
	Urban	359	71.8
5	Menarche Attained		
	Yes	500	100
	No	0	0
6	Source of information		
	about menstruation	86	17.2
	Peer Group	317	63.4
	Family	5	1.0
	Mass media	92	18.4
	Institute	0	0
	Other		

The majority (73.2%) of students was from school and only (26.8 %) were from college. Most of the students were from class 8^{th} to 10^{th} i.e. (41.4%) followed by (3.4%) of Post-graduate students. Maximum students were from urban community i.e. (71.8 %) and (28.2%) were rural. All the students i.e. (100 %) have had attained menarche. Source of information about menstruation was family in most cases (63.4%) and mass media was least (1%). Table: 2(a) shows mean, median and standard deviation of knowledge score of female students. The mean score of knowledge was 7.39; median was 8.0 and standard deviation 1.86. The minimum obtained score was 04 and maximum obtained score was 12. Table: 2(b) depicts the Frequency and Percentage distribution of female students according to level of knowledge regarding sanitary napkin vending machine and incinerator. 288 (57.6%) of female students were having adequate knowledge and 212 (42.4%) of students were having inadequate knowledge. Table 3 depicts the frequency and Percentage distribution of female students according to their attitude toward use of sanitary napkin vending machine and incinerator. Majority 496(99.2%) of female students had positive attitude toward sanitary napkin vending machine, 4(0.8%) of female students were having negative attitude.

Table 4 depicts the frequency and Percentage distribution of female students according to their practice towards use of sanitary napkin vending machine and incinerator. All the female students 500 (100%) use sanitary napkin during menstruation. Maximum number of female students 488 (97.6%) purchase sanitary napkin from the market. Majority of students i.e. 474(94.8%) have never operated sanitary napkin vending machine. Maximum number of students 484 (96.8%) did not used sanitary napkin vending machine to dispense napkins. Only 12 (2.4%) used sanitary napkin vending machine and incinerator every time during menstruation. Majority of students 498 (99.6%) used dustbin to dispose used napkins. Maximum number of students 480 (96%) never operated incinerator. Only 18 (3.6%) female students used incinerator to dispose used napkins. To assess the association of knowledge with attitude, chi square value was computed. Chi square value of 0.095 and p value was 0.75 was found to be non-significant at 0.05. There is no significant association of knowledge with attitude regarding use of sanitary napkin vending machine and incinerator among female students. In order to explore association between knowledge and practice, chi square value was computed. Chi square value of 0.341 and p value of 0.55 was found to be non significant at 0.05. There is no significant association of knowledge with practices regarding sanitary napkin vending machine and incinerator among female students. Knowledge of female students regarding sanitary napkin vending machine and incinerator was significantly associated with age, institute, class and source of information about menstruation. Attitude of female students regarding sanitary napkin vending machine and incinerator was not significantly associated with any socio-demographic variables. Practices of female students regarding sanitary napkin vending machine and incinerator were significantly associated with institute and source of information about menstruation.

DISCUSSION

Sanitary napkin vending machines and incinerators were installed under the 'Amodini Project" was started in May 2016. Knowledge among female students regarding use of sanitary napkin vending machine and incinerator is necessary for prompt use of this project. Menstrual hygiene and disposal methods were reviewed for this study. As no research studies have been conducted in this important area till now, no literature was found directly related to the use of sanitary napkin vending machine and incinerator. So to evaluate the benefits of this project which is mostly unknown to the public, knowledge, attitude and practices were assessed and are discussed below: Present study revealed that 57.6% female students had adequate knowledge and 42.4% had negative attitude regarding use of sanitary napkin vending machine and incinerator. Supportive findings given by Rebecca Dillu (2017) revealed 81% of the adolescents have fair knowledge regarding menstrual hygiene, 11% have poor knowledge and only 8% have good knowledge. Similarly Yadav et al (2018)[17] reported that 67.4% respondents had fair knowledge and 26.4% respondents had good knowledge regarding menstrual hygiene. Contradictory findings were found in a study by Anjali Mahajan (2017) which revealed 29% study subjects had adequate knowledge, 71% had negative attitude about menstrual hygiene. According to the findings of the present study, 99.2% female students had positive attitude where as only 0.8% had negative attitude toward sanitary napkin vending machine and incinerator.

Table: 2(a) Mean, median and standard deviation of knowledge score of female students

N=500

Area	Maximum possible score	Maximum obtained Score	Minimum obtained score	Mean	Median	S.D.
Knowledge regarding sanitary napkin vending machine and incinerator	15	12	04	7.39	8.00	1.86

Table: 2(b). Frequency and Percentage distribution of female students according to level of knowledge regarding sanitary napkin vending machine and incinerator

N=500

Level of knowledge	Frequency (n)	Percentage (%)
Adequate >07.39 (mean score)	288	57.6
Inadequate <07.39 (mean score)	212	42.4

Table 3. Frequency and Percentage distribution of female students according to their attitude toward sanitary napkin vending machine and incinerator

N=500

Attitude	Frequency (n)	Percentage (%)
Positive (> 66)	496	99.2
Negative (< 66)	4	0.8

Table 4. Assessment of practices of female students regarding use of sanitary napkin vending machine

N=500

S.No.	Practice Question	Yes F (%)	No F (%)
1	Do you use sanitary napkin during menstruation?	500 (100)	0 (0)
2	Do you purchase sanitary napkin from the market?	488 (97.6)	12 (2.4)
3	Have you ever operated sanitary napkin vending machine?	26 (5.2)	474(94.8)
4	Do you use sanitary napkin vending machine to dispense sanitary napkins?	16 (3.2)	484 (96.8)
5	Do you use sanitary napkin vending machine every time when you are menstruating?	12 (2.4)	488 (97.6)
6	Do you use dustbin to dispose used napkin?	498 (99.6)	2 (2.4)
7	Have you ever operated incinerator?	20 (4)	480 (96)
8	Do you use incinerator to dispose used napkins?	18 (3.6)	482 (96.4)

Table 5. Association of knowledge with attitude regarding sanitary napkin vending machine and incinerator among female students

N=500

Knowledge	Attitude		Total	Chi-square	df	p value
	Positive n (%)	Negative n (%)				
Adequate	286 (57.2)	2 (0.4)	288 (57.6%)	0.095	1	0.75^{NS}
Inadequate	210 (42)	2 (0.4)	212 (42.4%)			
Total	496 (99.2%)	04(0.8%)	500 (100%)			

Table 6. Association of Knowledge with Practice regarding sanitary napkin vending machine and incinerator among female students

N=500

Knowledge	Practices		Total	Chi-square	df	p value
	Used n (%)	Not Used n (%)				
Adequate	7 (1.4)	281 (56.2)	288 (57.6%)			
Inadequate	7 (1.4)	205 (41)	212 (42.4%)	0.341	1	0.55^{NS}
Total	14 (2.8)	486 (97.2)	500 (100%)			

NS: Non significant at > 0.05 level

Table 7. Association of knowledge with socio-demographic variables

N=500

S. No.	Selected Variables	Knowledge		Chi square (χ^2)	Df	P value
		Adequate	Inadequate			
1.	Age in years					
	14-16	80	121			
	17-19	91	74	76.47	3	0.00*
	20-22	97	17			
	23-25	20	0			
2.	Institute					
	School	171	195	66.17	1	0.00*
	College	117	17			
3.	Class					
	8^{th} -10^{th}	81	126			
	11^{th} -12^{th}	90	69	78.70	3	0.00*
	Graduation	100	17			
	Post graduation	17	0			
4.	Area of living					
	Rural	85	56	0.579	1	0.44^{NS}
	Urban	203	156			
5.	Menarche attained					
	Yes	288	212	-	-	_
	No	0	0			
6.	Source of information					
	Peer Group	44	42			
	Family	195	122			
	Mass media	0	5	10.95	3	0.01*
	Institute	49	43			
	Other	0	0			

Table 8. Association of Attitude with socio-demographic variables

N=500

S.No.	Selected Variables	Attitude		Chi square (χ^2)	df	P value
		Positive	Negative			
1.	Age in years					
	14-16	200	1			
	17-19	162	3	3.46	3	0.32 ^{NS}
	20-22	114	0			
	23-25	20	0			
2.	Institute					
	School	362	4	1.47	1	0.22 ^{NS}
	College	134	0			
3.	Class					
	8^{th} -10^{th}	206	1			
	11^{th} -12^{th}	156	3	3.70	3	0.29 ^{NS}
	Graduation	117	0			
	Post graduation	17	0			
4.	Area of living					
	Rural	140	1	0.02	1	0.88 ^{NS}
	Urban	356	3			
5.	Menarche attained					
	Yes	496	4	–	–	–
	No	0	0			
6.	Source of information					
	Peer Group	85	1			
	Family	316	1			
	Mass media	5	0	3.30	3	0.34 ^{NS}
	Institute	90	2			
	Other	0	0			

Table 9. Association of Practice with socio-demographic variables

N=500

S.No.	Selected Variables	Practice		Chi square (χ^2)	Df	P value
		Used	Not Used			
1.	Age in years					
	14-16	7	194	5.46	3	0.14^{NS}
	17-19	7	158			
	20-22	0	114			
	23-25	0	20			
2.	Institute					
	School	14	352	5.27	1	0.02 *
	College	0	134			
3.	Class					
	8^{th} -10^{th}	7	200			
	11^{th} -12^{th}	7	152	5.61	3	0.13^{NS}
	Graduation	0	117			
	Post graduation	0	17			
4.	Area of living					
	Rural	3	138	0.32	1	0.56^{NS}
	Urban	11	348			
5.	Menarche attained			–	–	–
	Yes	14	486			
	No	0	0			
6.	Source of information					
	Peer Group	3	83			
	Family	5	312			
	Mass media	2	3	28.12	3	0.00*
	Institute	4	88			
	Other	0	0			

Whereas study conducted by Yadav et al. (2018) reported around half of the respondents had positive attitude towards menstrual hygiene management related issues. Present study revealed that only 2.8% female students used sanitary napkin vending machine and incinerator. All the female students were using sanitary napkins but disposal techniques were not eco-friendly. As few as 3.6% female students used incinerator to dispose used napkins. Somewhat consistent findings reported by Elledge MF et al (2018)[19] showed that disposal of menstrual waste is often neglected, leading to improper disposal and negative impacts on users, the sanitation systems and the environment. Similar findings by Kaur R et al (2018) that women manage menstruation differently when they are at home or outside; at homes, they dispose of menstrual products in domestic wastes and in public toilets and they flush them in the toilets without knowing the consequences of choking.

Conclusion and recommendations

It is concluded from the present study that the knowledge of more than half of the female students regarding sanitary napkin vending machine and incinerator strategies is adequate. Female students have positive attitude toward sanitary napkin vending machine and incinerator strategies. But yet these machines were not used adequately. Menstrual hygiene and correct technique of disposal of menstrual waste is important in order to safeguard the females from RTI and for eco-friendly waste

management. Even though, most of the students were having positive attitude towards sanitary napkin vending machine and incinerator but they were not using the machines. Practice of sanitary napkin vending machine and incinerator in certain areas should be enhanced by removing the barriers that hinders them to use sanitary napkin vending machine and incinerator. Provision of some informative material like posters showing eco-friendly practices for safe disposal of menstrual waste so that these can serve as a reminder for female students to follow eco-friendly practices. Lectures and demonstrations on using sanitary napkin vending machine and incinerator should be arranged so that they can use these machines with safety and without any hesitation.

Financial support and sponsorship: Nil

Conflicts of interest: There are no conflicts of interest.

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