ORIGINAL ARTICLE

A Pilot study on "Assessment of Knowledge and Attitude of disposing the used napkin of HIV infected women visiting in HIV specific Clinic in King George's Medical University, Lucknow

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ABSTRACT

Background: Human immunodeficiency virus (HIV) continues to be a major global health concern according to the World Health Organization (WHO).Rapid population growth, extensive urbanization, and cultural diversity all contribute to this problem in the nation. Menstrual hygiene products, especially disposable sanitary napkins, are a major waste management concern. **Aims & Objectives:** This study aimed to assess the knowledge, attitudes, and practices of HIV-infected women regarding the disposal of used sanitary napkins, with a focus on their awareness of health and environmental risks and the influence of education on hygienic practices. **Methodology-**We conducted a cross-sectional study among 61 females. We used a pre-tested self-administered questionnaire to assess HIV-infected women's knowledge and attitude towards disposing of used napkins. **Results:** The results show that there was a strong link between education and knowing that bad hygiene during menstruation can lead to infections (p=0.0001), between education and practicing good hygiene (p=0.0026), between education and using menstrual products (p=0.000), and between education and how often changing menstrual products (p=0.0009). **Conclusion:** Addressing menstrual hygiene through education, healthcare, and sanitation reduces health risks and environmental harm. Proper disposal of biomedical waste, including HIV-contaminated materials, vital for preventing infections and ensuring sustainability.

KEYWORDS

HIV Infections; Women's Health; Menstrual Hygiene Products; Sanitary Napkins; Refuse Disposal; Health Knowledge, Attitudes, Practice; Environmental Health; Biomedical Waste; Infection Control

INTRODUCTION

Modernization, industrialization, and rapid urbanization in India have led to increasing solid waste generation, with menstrual waste remaining a neglected concern. Out of 336 million women of reproductive age in India, only about 36% use disposable sanitary napkins, generating nearly 150 kg of non-biodegradable waste per woman over a lifetime (Balasubramanian, 2018). Improper disposal of menstrual products poses serious health and environmental risks. Studies highlight that disposal practices vary across rural and urban areas, with methods such as burning, burying, or discarding in garbage bins being common (Chandar et al., 2018; Chapparbandi & Nigudgi, 2017). Cultural taboos, misconceptions, and lack of adequate disposal infrastructure further worsen the issue (Das et al., 2015; Jogdand & Yerpude, 2011). For HIV-positive women, improper handling of used sanitary products not only harms the environment but also increases the risk of infection transmission. The World Health Organization (2023) reports that 39 million people are living with HIV globally, making safe disposal of biomedical waste, including menstrual waste, a critical public health concern. Addressing knowledge, attitudes, and practices around menstrual waste disposal among HIV-infected women is therefore essential for improving health outcomes and ensuring environmental sustainability.

Objectives:

- To assess the knowledge and attitude of the HIV infected women regarding dispose of used Napkin
- To assess the level of knowledge of general people how to dispose their infected things

MATERIAL & METHODS

Study Type & Design

This was a pilot study conducted using a random sampling technique among female patients with a confirmed HIV diagnosis. It was designed as an open-label, interview-based survey study.

Study Setting

The study was carried out in the Outpatient Department (OPD) of King George's Medical University, Lucknow, Uttar Pradesh.

Study Population

Female patients with a documented diagnosis of HIV and supporting medical evidence were included.

Study Duration

The study was conducted over 1 month.

Sample Size

Since the pilot study was planned within a limited timeframe, 61 eligible patients visiting the OPD during the study period were recruited. Thus, the sample size was fixed at 61. The study continued until this target was achieved.

Inclusion Criteria

- Patients providing written informed consent (ICF).
- Patients with a documented clinical diagnosis of HIV confirmed by a physician.

Exclusion Criteria

Pregnant women.

Randomization Criteria

This was an open study; no blinding or concealment was applied.

Withdrawal Criteria

- Patients were free to withdraw at any time without penalty.
- Investigators had the discretion to withdraw a patient from the study if necessary.
- Withdrawn patients were replaced to maintain the sample size.

Strategy for Data Collection

The study was interview-based. No biological sample collection was done. Data were obtained through a pre-tested, self-administered questionnaire.

Since the pilot study was planned within a limited time frame of one month, only 61 patients visiting the OPD met the inclusion criteria. Therefore, we set the sample size at 61.

Working Definitions

- Proper disposal of sanitary napkins: Use of covered bins, incineration, or other recommended biomedical waste methods.
- Improper disposal: Discarding in open areas,

burning, burying, or mixing with household solid waste.

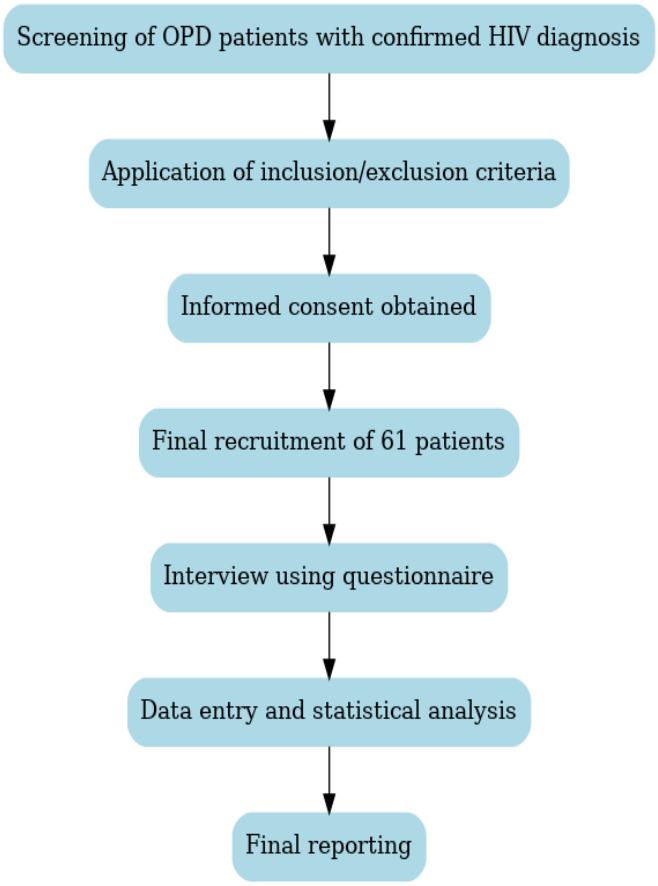
Ethical Issues & Informed Consent

The study received ethical approval from the Institutional Ethics Committee of King George's Medical University, Lucknow (Reference no: 3218/Research.Cell-13). Written informed consent was obtained from all participants. Illiterate patients provided thumb impressions, while literate patients signed the consent form. Patients were informed that participation was voluntary and that they could withdraw at any stage.

Data Analysis

Data were entered into Microsoft Excel and analyzed using SPSS version 16.0. Dichotomous categorical variables were analyzed using the Chi-square test, and continuous variables were also compared using the Chi-square test. A p-value < 0.05 was considered statistically significant.

Flow Diagram



RESULTS

Table1 Demographic Details

Information	Category	Frequency	Percentage
Age	Oct-19	3	4.91
	20-29	15	24.59
	30-39	32	52.45
	40-49	10	16.39
	50-59	0	0
	60-69	1	1.63
Religion	Hindu	41	67.21
	Muslim	19	31.14
	Sikh	`1	1.63
Marital Status	Married	40	65.57
	Unmarried	3	4.47
	married but not consummated	1	1.63
Education Level	Widow	17	27.86
	PRIMARY	15	24.59
	MIDDLE SCHOOL	6	9.83
	HIGH SCHOOL	3	4.91
	INTERMEDIATE	4	6.55
	GRADUATION AND ABOVE	4	6.55
	ILLITERATE	29	47.54
Type of Family	Nuclear	27	44.26
	Joint	34	55.73

Table 2: Association Between Education and Awareness, Practices, and Disposal of Menstrual Hygiene Products Among HIV-Infected Women"

S.no	Variables	Chi-square	p- value	Result	(Significant/

		value		non significant)
1.	Association between education and awareness that hygiene should be maintained	5.663	0.0173	Significant
2.	Association between education and awareness that poor hygiene during menstruation causes infection	14.664	0.0001	Significant
3.	Association between education and practice hygiene	9.075	0.0026	Significant
4.	Association between education and use of material during menstruation	32.475	0.0000	Significant
5.	Association between education and frequency of changing	11.032	0.0009	Significant
6.	Association between education and do you think that it may cause infection in society if proper method of disposal is not used	9.075	0.0026	Significant

DISCUSSION

The findings of this study highlight the strong association between education levels and menstrual hygiene awareness, practices, and disposal methods among HIV-infected women. The majority of the study population was illiterate, which negatively influenced hygiene behavior and disposal practices. This aligns with studies conducted in India and other low-resource settings, which reported that education significantly improves menstrual hygiene knowledge and disposal practices (Gupta et al., 2020; Sharma & Bansal, 2019).

Graduates in this study demonstrated higher awareness, consistent hygiene practices, and safer disposal of menstrual products. Similar findings were reported in Ethiopia, where women with higher education levels were more likely to use sanitary napkins and adopt proper disposal methods (Tegegne & Sisay, 2021). Education thus emerges as a critical determinant of safe menstrual hygiene management (MHM).

The study also highlights risks associated with poor disposal practices, which carry both health and environmental consequences. HIV-related menstrual waste poses an added biomedical hazard. Inadequate awareness and cultural taboos surrounding menstruation further compound unsafe practices, consistent with recent reviews on menstrual health management challenges in South Asia (Hennegan et al., 2022).

Overall, this study matches its objectives by identifying the gaps in awareness and practices among HIV-infected women and emphasizing education as a key factor. However, limitations such as small sample size and reliance on self-reported data must be considered.

CONCLUSION

The study underscores the urgent need to integrate menstrual hygiene education and biomedical waste management into HIV care. Education strongly influences hygiene awareness, product use, and disposal practices, demonstrating its public health importance. These findings are consistent with recent evidence that education-driven interventions improve menstrual hygiene and reduce health risks (Sumpter & Torondel, 2019; Hennegan et al., 2022).

By highlighting the link between education and safer practices, the study contributes to current knowledge by focusing on a vulnerable group HIV-infected women whose menstrual waste poses additional infection risks. Addressing these issues through awareness programs, policy integration, and infrastructure development will reduce both health hazards and environmental burden.

RECOMMENDATION

- Educational Interventions: Develop targeted awareness programs for HIV-infected women on safe menstrual hygiene and disposal practices through counseling sessions, posters, and community workshops.
- Policy Integration: Incorporate menstrual waste management guidelines into existing HIV care protocols to ensure standardized counseling and follow-up.

- Infrastructure Development: Provide easily accessible disposal facilities such as color-coded bins and small-scale incinerators in healthcare centers and community settings.
- Capacity Building: Train healthcare professionals and community health workers to deliver structured education on menstrual hygiene management and biomedical waste disposal.
- Community Engagement: Conduct mass awareness campaigns to address stigma, promote safe disposal practices, and highlight the environmental and health risks of improper waste management.
- Research Expansion: Encourage larger, multicentric studies to further validate findings and inform regional and national policy frameworks.

LIMITATION OF THE STUDY

- Small Sample Size: The study was conducted on a limited number of participants, which may not fully represent the broader population of HIV-infected women.
- Self-Reported Data: The findings rely on self-reported responses, which may be subject to recall bias or social desirability bias.
- Lack of Longitudinal Data: The study provides a snapshot of knowledge, attitudes, and practices at one point in time but does not assess long-term behavioral changes.
- Limited Generalizability: The study was conducted in a single healthcare setting, limiting its applicability to other regions or healthcare systems.
- Infrastructure Constraints: The absence of proper disposal facilities in many areas could have influenced participants' disposal practices.

RELEVANCE OF THE STUDY

This study adds to the growing body of knowledge by linking education level with menstrual hygiene practices and safe disposal awareness among HIV-infected women. It highlights gaps in education-driven hygiene awareness and the urgent need for policy-backed public health interventions.

AUTHORS CONTRIBUTION

RM: Conceptualized the study, supervised methodology, data analysis, and manuscript preparation. RM: Assisted in study design, data collection supervision, and statistical analysis. ST: Contributed to interpretation of findings, literature review, and manuscript drafting. AM: Collected data, ensured ethical compliance, and maintained participant confidentiality. All Authors: Reviewed the final manuscript, approved its content, and take responsibility for the integrity of the work.

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Nil

CONFLICT OF INTEREST

There are no conflicts of interest.

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DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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