

The Cost of Menstrual Cycle and its Association with Hygiene among the Women of Bhaktapur, Nepal

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ABSTRACT

Introduction: Menstruation is a normal physiological process occurring every month in a woman's life. Purchasing menstrual products, which being costly, possesses a barrier to accessibility, leading to poor menstrual hygiene. This study is aimed to find the average cost of the menstrual cycle and its association with the hygiene of women.

Methods: A total of 324 women aged 18-45 years of Madhyapur Thimi Municipality participated in this quantitative, cross-sectional study. The study was conducted via a semi-structured questionnaire which was designed in English and nepali. Data collection was done through face-to-face interview methods.

Results: The total average monthly cost of menstrual cycle was found to be NPR 358.12 and an average menstrual cost for a lifetime was found to be NPR 163,302.72. 23.1% of the participants were unable to afford sanitary pads most of the time, 53.3% often avoided changing pads due to their high cost, 65.4% had poor menstrual hygiene practices and the association between menstrual cost and menstrual hygiene was found to be statistically significant ($p = 0.001$ i.e. < 0.005).

Conclusions: Unaffordability of sanitary products due to their high cost has resulted in poor hygiene practices. The constitution of Nepal affirms, as a fundamental right under Article 38(2), the rights of women includes the right to safe motherhood and reproductive health, considering menstrual products as a basic necessity for a woman, the tax imposed on menstrual products should be removed to reduce the price of the sanitary products.

Keywords: *Menstrual cost; Menstrual hygiene; Menstrual product.*

INTRODUCTION

Globally, approximately 52% of feminine population are of reproductive age.¹ Menstruation is a part of the reproductive cycle occurring monthly.² Menstrual cost is the amount spent by women for purchasing menstrual products, including expenses for treatment of menstrual disorders.³

Menstruating women are expected to spend around \$1,000 in menstrual products in their lifetime.⁴ Due to high menstrual cost, women face period poverty which refers to social, economic, political, and cultural barriers

to menstrual products, education, and sanitation.⁵

In Nepal, 83% of girls were found to use cloth.⁶ and only one in ten practices good menstrual hygiene.⁷ Despite menstruation being a biological and hygienic need of over half of the population of Nepal,⁸ our current legislation imposes VAT on sanitary napkins making accessibility harder.⁹ This study was conducted to find the cost of the menstrual cycle and its association with menstrual hygiene.

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METHODS

A community-based cross-sectional study was conducted among women aged 18-45 years within the ward 8 of Madhyapur Thimi, Bhaktapur. The study was conducted in a period of 6 months from Magh 2078 to Ashar 2079. Ethical approval was taken from the National Academy for Medical Sciences, Madhyapur Thimi Municipality and the respective ward office. Verbal and written informed consent was taken from each participant, ensuring privacy and confidentiality. Women of the age group 18-45 years among the residential population of Madhyapur Thimi- 8, Bhaktapur were included. Pregnant women and females who have gone through early menopause were excluded from the study along with the participants who were not willing to respond were excluded.

In this research study, Madhyapur Thimi Municipality was selected purposively, considered as a sampling unit, and the women of age 18-45 years as a study unit. Also, conveniently the ward-8 and study population were selected. The cost of the menstrual cycle was calculated as per the cost spent for sanitary pads, treatment, medication, heating pads and food cravings during the last menstrual period.

SAMPLE SIZE

According to a study in India - October 2010, it was found that around 70% of women can't afford to buy sanitary napkins.¹⁰ Hence, the sample size of the study was determined by using the formula i.e the prevalence rate to be 70% with 95% confidence interval and 5% margin of error, sample size was calculated by using the following statistical formula for infinite population.

$$\text{Sample size (n)} = Z^2 pq/d^2$$

Where,

n= Sample size with infinite population

Z= Z Statistic for a level of confidence (1.96)

P= Prevalence of period poverty in India (70%)= 0.7

q = 1- p

$$= 1 - 0.7$$

$$= 0.3$$

d= Acceptable margin error (5%)

Now,

$$n = [1.96^2 \times 0.7 \times 0.3] \div (0.05)^2$$

$$= 0.81 \div 0.0025$$

$$= 324$$

So, the calculated sample size of the study was 324.

Data collection was done via semi-structured questionnaires. The information was collected through a face to face interview method. It was designed in both Nepali and English language and it composed of five different sections which are; socio-demographic/economic status section, information related to the menstruation section, menstrual hygiene practices section, menstrual cost section, and perception of the cost of menstruation section. Pretesting was done among similar groups in 10% of the sample size. The questionnaire was developed based on the objectives and also the results of similar studies were taken as a reference for generating the questions. The collected data were entered and analyzed in SPSS version 20.0. The association between the variables was measured using the Chi-square test. A descriptive analysis was done and presented using frequency and percentage.

RESULTS

Total Average Cost of Menstrual Cycle

As shown in Table 1, six specific parameters were taken to calculate the average cost. The cost of each parameter was calculated which were then added and divided by 6. Hence, the average cost of the menstrual cycle was found to be NPR.358.12 among the women (18-45 years) of Madhyapur Thimi, Bhaktapur.

Table 1. Total average cost of menstrual cycle (n=324)

| Variables | Average menstrual cost (NPR) | Total average cost of menstrual cycle |
|----------------|------------------------------|---------------------------------------|
| Sanitary pads | 111.36 | |
| Transportation | 1.39 | |
| Medication | 7.87 | NPR. 358.12 |
| Treatment | 75.31 | |
| Heating Pads | 101.23 | |
| Food cravings | 60.96 | |

Average menstrual cost (per menstruation) = NPR. 358.12

Average menstrual cost in a year = NPR. 358.12*12 = NPR. 4,297.44

Average menstrual cost for a lifetime (i.e. 38 years) = NPR.4,297.44 * 38 = **NPR.163,302.72**

Association of Menstrual cost with Menstrual hygiene

As shown in table 2, the results show that there was a significance between menstrual cost and menstrual hygiene (p<0.05). Those who spent less cost on menstruation had poor hygiene whereas those who were able to spend more cost had good hygiene.

Table 2. Association of menstrual cost with Menstrual hygiene (n=324)

| Factors | Menstrual Cost | | P- value N=324 |
|-----------------------------------|----------------|--------------|-------------------|
| | Low cost | High cost | |
| Menstrual Hygiene Practice | | | |
| Poor Hygiene | 142 (72.44%) | 70 (54.68%) | 0.001* |
| Good Hygiene | 54 (27.55 %) | 58 (45.31 %) | |

Information related to menstruation

Table 3 shows, most of the females (53.1%) had their first menstruation at the age of more than 13 years and only 0.9% had their first menstruation below the age of 10 years. The study shows that the majority of women (77.5%) had regular menstrual cycles whereas 22.5% had irregular menses. The duration of flow was found to be less than 4 days in 51.2% followed by 4-7 days of flow in 41%.

Table 3. Information related to menstruation (n=324)

| Variables (n=324) | n(%) |
|-----------------------------------|--------------|
| Age at menarche | |
| <10 years | 3 (0.9%) |
| 10-13 years | 149 (46.0%) |
| >13 years | 172 (53.1%) |
| Total | 324 (100 %) |
| Regular menstrual cycle | |
| Yes | 251 (77.5%) |
| No | 73 (22.5%) |
| Total | 324 (100.0%) |
| Duration of menstrual flow | |
| Less than 4 days | 166 (51.2%) |
| 4-7 days | 133 (41.0%) |
| More than 7 days | 25 (7.7%) |
| Total | 324 (100.0%) |
| Menstrual hygiene practice | |
| Poor hygiene | 212 (65.4%) |
| Good hygiene | 112 (34.6%) |
| Total | 324 (100.0%) |

Types of Sanitary Products and its issues

Table 4 shows that, out of the total respondents, 69.8% used sanitary pads during menstruation and 30.2% used reusable clothes. The study shows that 67.3% of total women who preferred sanitary pads(n=226) used it only because it is easily disposable, whereas 24.5% of total women using reusable clothes(n=98) felt that the clothes were affordable as compared to sanitary pads. Among the total participants (n=324), 65.4% had poor hygiene practices whereas 34.6% had good hygiene

practices.Among the total participants (n=324), 23.1% were most of the times unable to afford sanitary pads and 42% sometimes felt unable to afford sanitary pads whereas 34.9% never felt difficult to afford sanitary pads. Among the participants who used sanitary pads during their menstruation (n=226), 53.3% often avoided changing pads due to its high cost and 7.4% avoided it most of the time.

Table 4. Types of sanitary products and its issues

| Variables | n(%) |
|---|--------------|
| Use of sanitary product (n=324) | |
| Reusable clothes | 98 (30.2%) |
| Sanitary pad | 226 (69.8%) |
| Total | 324 (100.0%) |
| Reason for using sanitary pad (n = 226) | |
| Easily available | 24 (10.6%) |
| Comfortable | 48 (21.2%) |
| easily disposable | 152 (67.3%) |
| Affordable as compared to other products | 2 (0.9%) |
| Total | 226 (100.0%) |
| Reason for using reusable clothes (n = 98) | |
| Affordable as compared to pads | 24 (24.5%) |
| Pads are not easily accessible | 3 (3.1%) |
| Allergy from pads | 9 (9.2%) |
| Comfortable | 43 (43.9%) |
| Over bleeding | 19 (19.4%) |
| Total | 98 (100.0%) |
| Unable to afford sanitary pads (n=324) | |
| Most of the times | 75 (23.1%) |
| Sometimes | 136 (42.0%) |
| Never | 113 (34.9%) |
| Total | 324 (100.0%) |
| Avoid changing pads due to its high cost (n=226) | |
| Most of the time | 24 (7.4 %) |
| Often | 172 (53.3%) |
| Never | 30 (9.3%) |
| Total | 226 (100.0%) |

Socio-demographic characteristics of the respondents

Table 5 shows that, among the total respondents (n=324), 39.8% were of 26-35 years which was the highest percentage, 31.2% were of 36-45 years and 29% were of 18-25 years. The mean age of the respondent was 31.13 and standard deviation was 8.388. More than half participants were working women (51.85%), some were housewives (34.3%) and few were found to be

students (13.9%). Very few participants were engaged in agriculture (0.9%). Out of total participants (n=324), 32.1% had income of Rs. 20,000 to 30,000 whereas 2.8% had less than Rs. 10,000 and 27.5% had more than Rs.40,0000 monthly income.

Table 5. Socio-demographic characteristics of the respondents (n=324)

| Age of the respondent | n(%) |
|---|----------------|
| 18-25 years | 94 (29.0 %) |
| 25-35 years | 129 (39.8 5 %) |
| 35-45 years | 101 (31.2 %) |
| Total | 324 (100.0 %) |
| Occupation of the respondents | |
| Student | 45 (13.9%) |
| Housewife | 111 (34.35%) |
| Working | 168 (51.85 %) |
| Total | 324 (100.0%) |
| Average monthly income of the household | |
| Rs.<10000 | 9 (2.8 %) |
| Rs. 10000-20000 | 60 (18.5%) |
| Rs. 20000-30000 | 104 (32.1%) |
| Rs. 30000-40000 | 62 (19.1%) |
| Rs. >40000 | 89 (27.5%) |
| Total | 324 (100.0%) |

DISCUSSION

Globally, the study on menstrual cost was found to be very limited. In Nepal only one research related to menstrual cost was found to have been conducted. This research was its first to calculate the average menstrual cost and its association with menstrual hygiene. We found average menstrual cost to be NPR 358.12 and an average menstrual cost for a lifetime to be NPR 163,302.72, which was nearly equal to a study conducted in Birat Medical College of Nepal i.e. NPR 480.41 monthly and lifetime cost of NPR 219,066.96.³ Studies conducted in developed countries showed that the women spent more money on menstruation than women in Nepal. For example: A study done in United States, revealed that the women spent \$13.25 (i.e. NPR 1,638) monthly and \$6360 (i.e. NPR 7,86,414) in a lifetime.¹¹ Another study, by a Menstrual cup brand Intimina, found a woman spends £10.24(i.e. NPR 1552.99) per month on menstrual products adding up to £4,916(NPR 745,560.56) during an average reproductive lifetime.¹² A huge difference in menstrual cost was found between a developing country like Nepal and developed American and European countries. This variation in cost could be due to differences in currency values, biological characteristics, lifestyle pattern and different measurement parameters.

In this study, the most common type of menstrual product

used during menstruation was disposable sanitary pads (69.8%), which was similar with the figure reports from other countries, for example, 64.3% of females in Nigeria used sanitary pads.¹³ Another study also figures that the use of sanitary pads (81.0%) were used more than other menstrual products;¹⁴ This study showed that 67.3% among the sanitary pads users, only used it because it was easy to dispose of. The similar results were found in a study conducted in Uganda where 66.7% used sanitary pads because they don't need to be washed and 51% felt it easier to dispose of.¹⁵ This study also revealed that 46.4% planned to switch to reusable clothes which was only found to be common in south east countries like India, where 88% women used reusable clothes during menstruation.¹⁰

An online survey of undergraduate women in the US reported that 10% of females are unable to afford menstrual products every month.¹⁶ Another study conducted among low-income women in St. Louis, Missouri revealed that 64% were unable to afford menstrual hygiene products.¹⁷ Similarly, according to a survey by Plan International UK, 15% have struggled to afford sanitary pads.¹⁸ A study done in India, revealed that 70% of women could not afford buying sanitary napkins and being unable to afford sanitary pads, they had to use of clothes, ashes, sands, toilet papers during their menstruation.¹⁰

After considering different parameters related to menstrual hygiene, this study showed that 65.4% had poor menstrual hygiene practice and 34.6% had good menstrual hygiene practice which was similar to a study done in Dang, Nepal, which found that 67% practiced good menstrual hygiene and only 33% practiced poor menstrual hygiene.¹⁹ However a study conducted in Chitwan, Nepal reported that 72.5% performed good menstrual hygiene practice.²⁰ The contrast between the results may be due to the difference in definition, measurements, tools and time duration of the study.

This study showed that there was significance between menstrual cost and menstrual hygiene ($p=0.001$ i.e. $p<0.005$); People with low menstrual cost had poor menstrual hygiene. The results also showed that 53.3% often avoided changing pads due to its high cost which hence resulted in poor menstrual hygiene practices, 73.8% felt menstrual products were expensive, 79.9% thought the tax imposed on menstrual product was the main reason behind it being expensive and about 82.7% thought that the tax on menstrual products like sanitary pads should be lifted by the government. Similar result was found in a study conducted in Birat medical college, 85.4% believed that sanitary napkins should cost less money and 91.1% believed that the tax imposed on sanitary napkins should be lifted.³ Removing tax on menstrual products will make it more accessible and will contribute towards improved menstrual hygiene practices.

CONCLUSIONS

Menstrual costs were found to add extra monthly costs and cause an economic burden on women's lives. About one-third of the respondents used reusable clothes as they found sanitary pads to be expensive and people with low menstrual costs were found to have poor menstrual hygiene. Majority of the participants found menstrual products expensive and taxation of it inappropriate; As the constitution of Nepal affirms, as a fundamental right, under Article 38(2), the rights of women includes the right to safe motherhood and reproductive health, considering menstrual products as a basic necessity for a woman, the tax imposed on menstrual products should be lifted by the government to reduce the price of the sanitary product and make it more more affordable and accessible and improve menstrual hygiene practices.

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CONFLICT OF INTEREST

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