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# Study on Assessment of Menstrual Hygiene and Its Clinical and Social Impact in Low to Middle Income Groups in India

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## ABSTRACT

**Background:** This study aimed to collect observational data on the awareness of menstrual health and hygiene among women in the armed forces and its effect on their social lives and gynecological outcomes.
**Methodology:** This was a cross-sectional study conducted on 200 women of reproductive age group who reported to the Obstetrics and Gynecology department with complaints of Abnormal uterine bleeding (AUB), chronic pelvic pain, leucorrhea, sexually transmitted diseases (STIs), pelvic inflammatory disease (PID), or infertility issues. All the females were subjected to pelvic examination, and data were collected through Google Forms using a pre-tested questionnaire. Survey data were subjected to both descriptive and analytical statistics.
**Results:** The present study reveals that the majority (89.5%) of respondents were aware of menstruation and associated issues. Around 57.5% of females acknowledged the connection between menstrual disorders and infertility. The majority of participants (63.5%) recognized the potential influence of an adequate diet in alleviating menstrual disorders, and 85.0% of them acknowledged applying a heating pad to the abdomen for controlling menstrual pain. Nearly 74 % of respondents recognized the potential harm of self-medication for regularizing the menstrual cycle. Half of the respondents (36.5%) found intermenstrual bleeding to be unacceptable. A substantial majority (67.5%) agreed that menstrual cups/ tampons are safe to use with proper hygienic techniques, and 72.5% of participants considered using cloth during menstruation as unhealthy.
**Conclusion:** The present study highlights prevalent gaps in knowledge about reproductive health, fertility, and menstrual disorders across diverse populations. Targeted educational initiatives and awareness campaigns can play a pivotal role in bridging these knowledge disparities.
***Keywords:*** Menstrual health, Menstrual hygiene, Women in armed forces.

## INTRODUCTION

From puberty to menopause, women's health outcomes are significantly influenced by their menstrual cycles [1]. Menstrual hygiene practices by women of reproductive age group during their menstrual life course have been a major focus of many researchers, particularly in low socioeconomic countries, because it is handled in secret in the majority of households in third-world countries and is linked to numerous myths and taboos [2]. Since access to safe reproductive health is a

fundamental human right, women suffer from poor menstrual hygiene practices and gynecological morbidities as a result of these deficiencies stemming from a lack of information and social limitations [3].
Understanding the subtleties of menstrual hygiene in the military is crucial for maintaining the health, dignity, and general efficacy of female military personnel and their families [4,5]. Menstrual hygiene is a critical aspect of women's well-being. The study provides important insights that can guide focused treatments and policies catered to the particular requirements of women in the armed services by evaluating awareness levels and investigating the social and clinical effects of menstrual hygiene practices [6,7]. In addition to supporting women's physical health, raising knowledge and encouraging improved menstrual hygiene practices also has a favourable impact on their social integration and general quality of life [8,9].

**Aim:** This study aimed to collect observational data to study the awareness of menstrual health and hygiene in our women of the armed forces and its effect on their social lives and gynecological outcomes.

## MATERIAL AND METHODS

### Study Design

This is a cross-sectional observational study conducted on all gynecological patients reporting to the obstetrics and gynecology department of the Government hospitals and the University.

### Inclusion Criteria

Two hundred women of reproductive age who complained of Abnormal Uterine bleeding (AUB), persistent pelvic discomfort, leucorrhea, sexually transmitted diseases (STIs), pelvic inflammatory disease (PID), or infertility problems were included in our study. To determine their gynecological morbidity, the included females were evaluated for reproductive tract infections, PAP smears, pelvic ultrasounds, and high vaginal swabs for culture and sensitivity.

### Exclusion Criteria

We have excluded all antenatal cases, premenopausal females beyond 40 years, and all menopausal females from this study.

### Ethical Issues

The institutional ethical committee approval was taken before conducting the study (15965/5545/2021/DGAFMS/DG-3B). All participants were asked to voluntarily participate in this study, and they had the option to withdraw anytime during questionnaire filling if they so desired.

### Data Collection

All the included females were subjected to pelvic examination, and thereafter, data were collected through Google Forms. The Google Forms were filled out along with an informed consent form and submitted by the participants in the form of an electronic questionnaire. Some participants were sent the questionnaire forms via email, too. All questions were in a multiple-choice format without much technical jargon so as to make it easily understandable. For each question, the respondents had the option to agree, disagree or ‘not aware’. The responses were graded using a numerical grading system where knowledge gradient was assessed and statistically significant neutral response or lack of knowledge was considered noteworthy.

### Data Analysis

The raw data obtained from the online survey were analyzed using the statistical program SPSS version 23.0. Survey data were subjected to both descriptive and analytical statistics.

## RESULTS

A total of 200 women from the armed forces who were in the reproductive age range were enrolled in the study, including serving female officers, their spouses, and junior and non-commissioned officers. Apart from menstrual irregularities these women also

suffered from gynaecological conditions such as pelvic pain, dysmenorrhea, dyspareunia, vaginal discharge, itching, and infertility.

The mean age of study participants was 37.1 ± 8.9 years, and the median age was 37 years. The majority of participants were between 31 and 40 years of age, constituting 40% of the total sample, followed by those up to 30 years (29.5%) and those over 40 years (30.5%). Regarding education levels, the highest proportion of participants were postgraduates, making up 49% of the total, while undergraduates constituted 35.5%. A smaller percentage of individuals had intermediate (8.5%) and high school (7.0%) education levels (Table 1).

**Table 1: Sociodemographic characteristics of study subjects.**

| Parameter | Frequency | Percentage |
|---|---|---|
| **Age** | | |
| • **Up to 30 years** | 59 | 29.5 |
| • **31-40 years** | 80 | 40.0 |
| • **> 40 years** | 61 | 30.5 |
| **Education** | | |
| • **High school** | 14 | 7.0 |
| • **Intermediate** | 17 | 8.5 |
| • **Undergraduate** | 71 | 35.5 |
| • **Postgraduate** | 98 | 49.0 |
| **Total** | **200** | **100.0** |

**Table 2: Awareness of study participants regarding basic understanding of menstrual physiology.**

| Understanding of menstrual physiology. | Frequency | Percentage |
|---|---|---|
| **Menstruation is a bloody discharge from the uterus to the vagina** | | |
| No | 12 | 6.0 |
| Not sure | 9 | 4.5 |
| Yes | 179 | 89.5 |
| **Heavy menstrual flow is an example of a menstrual disorder** | | |
| No | 46 | 23.0 |
| Not sure | 27 | 13.5 |
| Yes | 127 | 63.5 |
| **An imbalance in the level of body hormones can cause menstrual disorders** | | |
| No | 11 | 5.5 |
| Not sure | 23 | 11.5 |
| Yes | 166 | 83.0 |
| **Stress can cause menstrual disorders** | | |
| No | 20 | 10.0 |
| Not sure | 7 | 3.5 |
| Yes | 173 | 86.5 |

**Table 3: Awareness of study participants regarding factors associated with menstrual disorders**

| Factors associated with menstrual disorders | Frequency | Percentage |
|---|---|---|
| **Women who have never given birth have higher risk of experiencing severe cramps during menstruation** | | |
| **No** | 64 | 32.0 |
| **Not sure** | 80 | 40.0 |
| **Yes** | 56 | 28.0 |
| **Menstrual disorders may be associated with infertility** | | |
| **No** | 44 | 22.0 |
| **Not sure** | 41 | 20.5 |
| **Yes** | 115 | 57.5 |
| **Diseases of reproductive organs can lead to menstrual disorders** | | |
| **No** | 31 | 15.5 |
| **Not sure** | 53 | 26.5 |
| **Yes** | 116 | 58.0 |
| **Comorbidities like high blood pressure (BP) and diabetes can affect menstrual cycle** | | |

| | | |
|---|---|---|
| **No** | 55 | 27.5 |
| **Not sure** | 53 | 26.5 |
| **Yes** | 92 | 46.0 |
| **Menstruation can occur in other parts of the body other than the uterus** | | |
| **No** | 155 | 77.5 |
| **Not sure** | 15 | 7.5 |
| **Yes** | 30 | 15.0 |
| **Total** | **200** | **100.0** |

**Table 4: Awareness of study participants regarding lifestyle factors and menstrual disorders.**

| Lifestyle factors | Frequency | Percentage |
|---|---|---|
| **Consumption of adequate diet could help alleviate some menstrual disorders** | | |
| **No** | 32 | 16.0 |
| **Not sure** | 41 | 20.5 |
| **Yes** | 127 | 63.5 |
| **Excessive weight gain can cause menstrual problems** | | |
| **No** | 26 | 13.0 |
| **Not sure** | 37 | 18.5 |
| **Yes** | 137 | 68.5 |
| **Menstrual disorder is common in women with a sedentary lifestyle** | | |
| **No** | 35 | 17.5 |
| **Not sure** | 44 | 22.0 |
| **Yes** | 121 | 60.5 |
| **Engaging in exercise can help to relieve menstrual cramps** | | |
| **No** | 37 | 18.5 |
| **Not sure** | 16 | 8.0 |
| **Yes** | 147 | 73.5 |
| **Total** | **200** | **100.0** |

**Table 5: Awareness of study participants regarding relieving factors for menstrual disorders.**

| Relieving factors | Frequency | Percentage |
|---|---|---|
| **Applying a heating pad to the abdomen can help control pain during menses** | | |
| **No** | 15 | 7.5 |
| **Not sure** | 15 | 7.5 |
| **Yes** | 170 | 85.0 |
| **Adding certain nutrients in food can help prevent premenstrual syndrome** | | |
| **No** | 33 | 16.5 |
| **Not sure** | 37 | 18.5 |
| **Yes** | 130 | 65.0 |
| **Iron supplements can help control menstrual pain** | | |
| **No** | 37 | 18.5 |
| **Not sure** | 88 | 44.0 |
| **Yes** | 75 | 37.5 |
| **Total** | **200** | **100.0** |

**Table 6: Awareness of study participants regarding medication use for menstrual disorders.**

| Medication use | Frequency | Percentage |
|---|---|---|
| **Self-medication maybe harmful for regularizing menstrual cycle** | | |
| **No** | 35 | 17.5 |
| **Not sure** | 17 | 8.5 |
| **Yes** | 148 | 74.0 |
| **Intake of emergency contraceptive like I pill can disturb menstrual cycle** | | |
| **No** | 26 | 13.0 |
| **Not sure** | 51 | 25.5 |
| **Yes** | 123 | 61.5 |
| **Contraceptives can help relieve pain associated with menses** | | |
| **No** | 74 | 37.0 |
| **Not sure** | 75 | 37.5 |
| **Yes** | 51 | 25.5 |
| **Total** | **200** | **100.0** |

**Table 7: Awareness of study participants regarding common symptoms and menstrual disorders.**

| Common symptoms | Frequency | Percentage |
|---|---|---|
| **Inter menstrual bleeding is acceptable once in a while** | | |
| **No** | 73 | 36.5 |
| **Not sure** | 58 | 29.0 |
| **Yes** | 69 | 34.5 |
| **Spotting before and after menses is a normal occurrence** | | |
| **No** | 74 | 37.0 |
| **Not sure** | 31 | 15.5 |
| **Yes** | 95 | 47.5 |
| **Itching in vagina is common immediately after stoppage of menses** | | |
| **No** | 93 | 46.5 |
| **Not sure** | 32 | 16.0 |
| **Yes** | 75 | 37.5 |
| **Foul smelling frothy white discharge is common before menses** | | |
| **No** | 109 | 54.5 |
| **Not sure** | 18 | 9.0 |
| **Yes** | 73 | 36.5 |
| **Total** | **200** | **100.0** |

**Table 8: Awareness of study participants regarding menstrual hygiene and menstrual hygiene products**

| Study parameter | Frequency | Percentage |
|---|---|---|
| **Direction of cleaning vagina should be from backwards to front** | | |
| **No** | 124 | 62.0 |
| **Not sure** | 34 | 17.0 |
| **Yes** | 42 | 21.0 |
| **Disposal of menstrual material should be in dry bucket** | | |
| **No** | 42 | 21.0 |
| **Not sure** | 32 | 16.0 |
| **Yes** | 126 | 63.0 |
| **Although sanitary pads are easily available, menstrual cup and tampons are safe to use with proper hygienic techniques.** | | |
| **No** | 25 | 12.5 |
| **Not sure** | 40 | 20.0 |
| **Yes** | 135 | 67.5 |
| **Using cloth during menstruation is healthy** | | |
| **No** | 145 | 72.5 |
| **Not sure** | 24 | 12.0 |
| **Yes** | 31 | 15.5 |
| **One should change pads atleast 5-6hrly/ day during menstruation irrespective of its soakage to remain hygienic** | | |
| **No** | 21 | 10.5 |
| **Not sure** | 22 | 11.0 |
| **Yes** | 157 | 78.5 |
| **Total** | **200** | **100.0** |

**Table 9: Awareness of study participants regarding practices during menstruation.**

| Practices during menstruation | Frequency | Percentage |
|---|---|---|
| **Taking bath during periods makes one infertile** | | |
| **No** | 143 | 71.5 |
| **Not sure** | 24 | 12.0 |
| **Yes** | 33 | 16.5 |
| **It is okay to have coitus during menstruation** | | |
| **No** | 82 | 41.0 |
| **Not sure** | 55 | 27.5 |
| **Yes** | 63 | 31.5 |

**Table 10: Common symptoms and emotional state of study participants during menstruation**

| Parameters | Frequency | Percentage |
|---|---|---|
| **I experience mood swings irritability and bloating just before periods which causes unpleasant behavior with my friends and family** | | |
| **No** | 45 | 22.5 |
| **Not sure** | 13 | 6.5 |
| **Yes** | 142 | 71.0 |
| **I experience lack of concentration and /or lack of sleep just before periods** | | |
| **No** | 111 | 55.5 |
| **Not sure** | 12 | 6.0 |
| **Yes** | 77 | 38.5 |
| **During periods I feel it's normal to skip classes or meetings or absenteeism at work due to the discomfort in those days.** | | |
| **No** | 100 | 50.0 |
| **Not sure** | 27 | 13.5 |
| **Yes** | 73 | 36.5 |
| **I expect more empathy from males at home or at workplace during menses** | | |
| **No** | 70 | 35.0 |
| **Not sure** | 27 | 13.5 |
| **Yes** | 103 | 51.5 |
| **I feel very low and depressed just before and during periods.** | | |
| **No** | 66 | 33.0 |
| **Not sure** | 37 | 18.5 |
| **Yes** | 97 | 48.5 |
| **Total** | **200** | **100.0** |

**Table 11: Work efficiency and impact on social life during menstruation among study subjects**

| Parameter | Frequency | Percentage |
|---|---|---|
| **Work efficiency** | | |
| **Absenteeism** | 31 | 15.5 |
| **Suboptimal efficiency** | 99 | 49.5 |
| **Carry on normal work** | 70 | 35.0 |
| **Impact on social life** | | |
| **Comfortable** | 21 | 10.5 |
| **Neutral** | 129 | 64.5 |
| **Uncomfortable** | 50 | 25.0 |
| **Total** | **200** | **100.0** |

**Table 12: Investigation findings among study subjects**

| Investigations | Frequency | Percentage |
|---|---|---|
| **PAP smear** | | |
| **Abnormal** | 53 | 26.5 |
| **No abnormality detected** | 88 | 44.0 |
| **Not done** | 59 | 29.5 |
| **Vaginal swab** | | |
| **Abnormal** | 67 | 33.5 |
| **No abnormality detected** | 45 | 22.5 |
| **Not done** | 88 | 44.0 |
| **Ultrasound** | | |
| **Abnormal** | 69 | 34.5 |
| **No abnormality detected** | 61 | 30.5 |
| **Not done** | 70 | 35.0 |
| **Total** | **200** | **100.0** |

**Table 13: Distribution of study subjects as per clinical diagnosis**

| Clinical diagnosis | Frequency | Percentage |
|---|---|---|
| **RTI/STI** | 55 | 27.5 |
| **Apparently healthy** | 145 | 72.5 |
| **Total** | **200** | **100.0** |

| | | |
|---|---|---|
| **Breakdown of clinical diagnosis** | | |
| **Bacterial vaginosis** | 20 | 10.0 |
| **Pelvic inflammatory disease** | 18 | 9.0 |
| **Cervicitis** | 12 | 6.0 |
| **Candidiasis** | 04 | 2.0 |

## DISCUSSION

The study subjects' sociodemographic traits show a varied and reasonably educated participant profile. The minimum age requirement of 20 years implies an adult population, but the majority of participants (40.0% of the total sample) and the mean age of 37.1 years (median age of 37 years) fall within the 31–40 age range, indicating a significant representation of people in their prime working and family-building years. With nearly half of the participants having postgraduate degrees (49.0%), 35.5% having undergraduate degrees, and a smaller proportion of people with intermediate (8.5%) and high school (7.0%) education levels, the study comprises a well-educated cohort.

According to the current study, most participants were aware of menstruation and related problems. The majority of participants (89.5%) demonstrated a solid grasp of this physiological process by accurately identifying menstruation as a bloody discharge from the uterus to the vagina. Additionally, 83.0% of research participants correctly associated hormonal imbalances with menstrual disorders, and nearly two-thirds (63.5%) identified heavy menstrual flow as an example of a menstrual disease. In contrast, the results of the study conducted in Jammu and Kashmir by Rajni Dhingra et al. revealed a general lack of knowledge among participants on the physiology of menstruation [10].

The current study explores participants' knowledge of the relationship between menstruation abnormalities and infertility; 57.5% of participants acknowledged this relationship, whereas 20.5% voiced doubt. Furthermore, 46.0% thought that comorbid conditions including diabetes and high blood pressure could affect the menstrual cycle, and 58.0% acknowledged that diseases of the reproductive organs could cause menstrual abnormalities. In contrast, 64% of younger women and 81.5% of adult women in a study conducted by Harshad Thakur et al. among women in a poor socioeconomic community in Mumbai expressed a lack of knowledge regarding the relationship between menstruation and fertility [11]. This highlights a widespread lack of information about how menstruation health affects reproduction in some groups.

In the current study, a significant majority of participants (63.5%) acknowledged that a healthy diet may help reduce menstruation disorders, while 20.5% were unclear and 16.0% believed that diet had no effect on menstrual disorders. Additionally, 60.5% of the participants recognized the prevalence of menstruation disorders among inactive women, and 68.5% of the participants thought that excessive weight gain could cause menstrual issues. Furthermore, 73.5% of respondents said that regular exercise would help ease menstruation cramps. Shrinjana Dhar et al. found a positive correlation between the consumption of specific foods and the likelihood of monthly discomforts, which is consistent with the results of our study and emphasizes the possible influence of dietary choices on menstrual health [12].

In the current study, 85.0% of participants admitted to using a heating pad on their belly to manage menstruation pain. 65.0% of respondents said that including specific nutrients in their diet could help prevent premenstrual syndrome. A significant portion (44.0%) were doubtful about the usage of iron supplements to manage menstruation discomfort, whereas 37.5% confirmed its efficacy and 18.5% denied it.

Shrinjana Dhar et al. found a favorable correlation between the risk of several menstrual discomforts and dietary choices, such as eating processed and fried foods [12]. According to Rohullah Sakhi et al., a sizable

percentage of study participants had particular opinions on menstruation-related behaviors, such as avoiding cold beverages and spicy foods [13]. These cultural beliefs contribute to the broader understanding of diverse perceptions and practices related to menstrual health, which is also observed in our study.

A significant percentage of participants in the current study (74.0%) acknowledged the possible risks associated with self-medication for menstrual cycle regularization. In a similar vein, 61.5% of respondents thought that using emergency contraceptives as I-pills could interfere with the menstrual cycle. 37.0% of respondents were against using contraceptives to reduce menstrual pain, 37.5% were doubtful, and just 25.5% agreed that there might be advantages. In contrast, Farhad Ahamed et al. discovered a strong correlation between the absence of contraceptive techniques and the existence of a menstrual abnormality [14]. This is consistent with the current study's investigation of attitudes toward self-medication and contraceptives and points to a possible connection between menstrual health and contraceptive behaviors. According to Kristen Johnson et al., 73% of individuals used medication, with the most popular type being painkillers (69%) [15]. The current study supports this conclusion by emphasizing the participants' widespread perception of the possible risks associated with self-medication.

In order to shed insight on the acceptability and commonality of menstruation symptoms, the current study investigated how participants perceived different symptoms. Interestingly, 36.5% of respondents thought intermenstrual bleeding was unacceptable, whilst 34.5% thought it was okay. Regarding spotting before and after menstruation, attitudes differed as well; nearly half of the participants (47.5%) thought it was common. These results provide intriguing insights when compared to research by Harshad Thakur et al., Sutanuka Sant, Gunjan Kumar et al., and SA Rizwan et al.

Dysmenorrhea (abdominal discomfort) was the most common concern reported in the study by Harshad Thakur et al., which is consistent with the current study's focus on intermenstrual bleeding as a perceived problem [11,16–19]. In the current survey, 72.5% of participants thought it was unhealthy to use cloth during menstruation, but a sizable majority (67.5%) believed that menstrual cups and tampons are safe to use with appropriate hygiene practices. Our study observed that a significant majority of participants favoured the use of sanitary napkins (78.5%), aligning with the broader trend observed in studies conducted by Deepika Chandar et al (94.1%) and Sharmin Sultana et al(100%) [19,20]. This illustrates how widely used and accepted commercially produced sanitary pads are. A small 15% of Indian women chose to use sanitary pads or locally made napkins during their menstrual cycles, according to Enu Anand et al. (DLHS-3 data) [21]. This disparity may be explained by regional differences in cultural customs, economic conditions, or accessibility problems.

During the premenstrual phase, the majority of participants (71.0%) reported feeling mood swings, irritability, and bloating; also, 38.5% reported having trouble focusing and/or sleeping. 51.5% of interviewees confirmed that they expected men to show empathy, whether they were menstruating at home or at work. Nearly half of the individuals (48.5%) said they felt gloomy and low right before and during their periods. According to a study by Rohullah Sakhi et al., the prevalence of mood swings was 53.1%, which is consistent with the current study and highlights how common emotional swings are during the premenstrual phase [13]. Stress, restlessness, exhaustion, and sleep issues were identified by Chandrima FA et al. as premenstrual symptoms, providing a wider range of psychological and physical manifestations [22]. The constancy and heterogeneity of premenstrual sensations are highlighted by this comparative analysis, underscoring the necessity of holistic

approaches to treat the various expressions of menstrual well-being.

In the current study, 35.0% of individuals were able to continue with their regular work, 49.5% reported unsatisfactory efficiency, and 15.5% reported absence during menstruation.

Around 10.5% of participants said they were comfortable with the impact on social life, 64.5% said they were neutral, and 25.0% said they were uncomfortable. In contrast, Li Ping Wong et al. observed comparable functional impairment and a detrimental impact on quality of life, with outcomes including low class performance, difficulty interacting with friends, limitations on social and recreational activities, and poor class focus [23]. Despite their variations, the provided percentages consistently show how much menstruation interferes with daily activities and social engagement. Reducing absenteeism and creating a more welcoming atmosphere for people with menstrual issues can be achieved by increasing awareness of and empathy for menstrual health, as well as by offering sufficient resources and assistance.

In this study, 26.5% of patients had abnormal PAP smear results, with inflammatory smears accounting for the majority (17.0%), followed by atypical squamous cells of unknown significance. The bulk of inflammatory alterations in the smear samples were of low intensity (37.4%), according to Azam Maleki et al.'s Iranian study. In 4.04% of the cases, abnormal atypical alterations in the epithelial cells were found [24]. In terms of ultrasound results, 34.5% of research participants reported aberrant findings, with fluid in the Douglas pouch being the most frequent. Despite being identical, their study's results showed a comparatively greater frequency of abnormal PAP smear results, which can be explained by a number of variables, such as differences in study populations, geographical areas, and medical procedures.

In the case of PAP smear abnormalities, Imtiaz Ahmad et al, which identified bacterial vaginosis as a prevalent abnormality, followed by candida infection [25].

In the present study, the diagnosis of reproductive tract infections (RTIs) and sexually transmitted infections (STIs) revealed that 27.5% of participants had an identified condition, while 72.5% showed no apparent illness. Bacterial vaginosis was the most common diagnosis (10.0%), followed by pelvic inflammatory disease (9.0%), cervicitis (5.5%), candidiasis (2.0%), and ectropion (0.5%). In comparison, Sutanuka Santra reported a slightly higher prevalence of RTIs (37.5%), while SA Rizwan et al found that 60% experienced at least one RTI symptom during the study period [16,18]. A descriptive observational study led by Deepa Lokwani Masand et al reported a comparable prevalence of bacterial vaginosis (53%), candidiasis (14%), chlamydia trachomatis infection (16%), and Trichomonas vaginalis infection (6%) among cases with identifiable causes [26].

The differences in prevalence between the present study and others may stem from variations in sample characteristics, geographical locations, healthcare-seeking behavior, and diagnostic criteria, however the prevalence of RTIs was relatively lower in our study which may be because of the fact that army personnel and their families have comparatively better hygiene and sanitation.

## CONCLUSION

Key findings include participants' awareness of the link between menstrual disorders and infertility, recognition of the impact of diet and lifestyle on menstrual health, and diverse attitudes toward exercise during menstruation. The study also explored perceptions of menstrual symptoms, absenteeism, and social impacts, shedding light on the complex interplay between menstrual health and daily life. Additionally, the study assessed reproductive health outcomes, revealing the prevalence of reproductive tract infections (RTIs) or sexually transmitted infections (STIs) and associated factors such as knowledge about recommended cleaning directions. The study provides valuable insights into the menstrual health landscape, emphasizing the need for

comprehensive education and awareness programs.

### *Declaration by Authors*

**Ethical approval:** Approved by the Institutional Ethics Committee.

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**Conflict of interest:** The authors declare that none of the authors have a conflict of interest.

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