

Dysmenorrhea Impact and Insights: A Statistical Analysis among Allied Health Professional Students in West Bengal, India

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Abstract: *Introduction:* Dysmenorrhea is a prevalent gynecological disorder that is characterized by the presence of unpleasant menstrual cramps. This condition has been found to have significant medical, psychological, and social implications for individuals who experience it. Although commonly seen as an inherent characteristic of a properly functioning reproductive system, it can potentially operate as a diagnostic tool for underlying illnesses. Regrettably, dialogues pertaining to dysmenorrhea are sometimes prohibited, particularly among males, within diverse cultural contexts.

Objective: The primary objective of this study is to evaluate the level of knowledge and attitudes among allied health professions students enrolled at various universities of West Bengal (WB), India with regard to dysmenorrhea. This study aims to examine the impact of cultural variables on the knowledge and communication surrounding dysmenorrhea, specifically within conservative Indian districts.

Methods: The study sample consisted of 494 students enrolled in allied health professions faculties at different universities of WB. Data collection took place from September 2021 to February 2023. A meticulously designed survey was employed to gather data pertaining to the various sources of knowledge, levels of awareness, attitudes toward discussing dysmenorrhea, and willingness to engage in conversations about menstruation with prospective females. Data interpretation involved the utilization of statistical analysis techniques, such as descriptive statistics and correlation analysis.

Results: In terms of demographic composition, the study consisted of 86% female participants and 14% male participants. The mean knowledge scores of females (14.41 ± 3.14) were found to be considerably higher compared to males (13.75 ± 4.56). The primary sources of information were the internet (58.3%), maternity figures (48.8%), and educational institutions (46.2%). An observed positive connection ($r = 0.244$) was found between age and knowledge levels. The participants exhibited a general hesitancy to openly engage in conversations on menstrual symptoms, however, they demonstrated a readiness to engage in discussions about menstruation with their prospective daughters.

Conclusions: The present study brings attention to the gender discrepancies in knowledge levels pertaining to dysmenorrhea among allied health professions university students of WB. Additionally, it emphasizes the influence of cultural norms on knowledge acquisition and communication around this topic. The statement underscores the need for destigmatization initiatives, comprehensive teaching on menstruation health, and fostering open communication within academic institutions and the broader community. The aforementioned findings offer valuable insights that can inform future educational endeavors and healthcare procedures within this particular subject.

Keywords: Dysmenorrhea, cultural perceptions, allied health professions students, knowledge assessment, attitude assessment.

1. INTRODUCTION

The initiation of menarche is a significant milestone in the life of a female, indicating the beginning of the regular menstrual cycle, which serves as an important indicator of both endocrine and reproductive health [1, 2]. During this reproductive cycle, the occurrence of menstruation is frequently accompanied by dysmenorrhea, which is characterized by the presence of uterine-derived cramping pain [3]. The etiology of dysmenorrhea is closely associated with prostaglandins, which initiate contractions of the myometrium, vasoconstriction, and increased sensitivity of nerve endings [4, 5]. The discomfort experienced by individuals usually occurs concurrently with the onset of menstruation and lasts for a period

ranging from 8 to 72 hours. The most severe expression of this discomfort is frequently noted on either the first or second day of the menstrual cycle [6]. Dysmenorrhea, a highly widespread condition, is a significant medical issue affecting females [7]. The stated prevalence of this phenomenon exhibits significant variation, ranging from 48% to 93% across a wide range of nations [8]. Notably, in West Bengal (WB), the prevalence reaches as high as 77.4% [9]. The highest point of its occurrence is observed during the mid to late adolescence period when ovulatory cycles become more established, afterward diminishing progressively as women approach menopause [10, 11]. It is important to acknowledge that dysmenorrhea can be categorized as either primary, which is caused by the physiological characteristics of the menstrual cycle, or secondary, which indicates an underlying disease [12, 13]. Approximately 10% of documented cases pertain to secondary dysmenorrhea, which is commonly linked to disorders such as endometriosis

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and pelvic inflammatory illnesses [13]. In addition to causing bodily discomfort, dysmenorrhea has a significant impact on social and psychological well-being. The aforementioned phenomenon has a detrimental impact on various aspects of individuals' lives, including their participation in higher education institutions, the quality of their sleep, their ability to concentrate, their interactions with others, their relationships with family members, their academic accomplishments, and their capacity for engaging in physical activities [14-16]. Moreover, it exerts a significant impact on mood, frequently acting as a catalyst for the development of anxiety and sadness [17]. Cognitive-behavioral strategies have been utilized to improve individuals' ability to cope with stress and reduce their perception of pain [7]. Furthermore, dysmenorrhea has been found to be associated with many risk factors, such as nulliparity, higher socioeconomic status, heavy menstrual bleeding, depression, smoking, anxiety, and physical inactivity [11]. Dysmenorrhea is a prevalent condition that affects women of reproductive age, and it is considered the primary cause of gynecological morbidity, regardless of factors such as age, nationality, or socioeconomic situation [3]. It is imperative to emphasize that dysmenorrhea carries a significantly higher burden compared to the collective impact of all other gynecological diseases [18]. Additionally, it is worth noting that societal conventions can play a role in fostering a cultural hesitancy to engage in open discussions about menstruation, thereby resulting in limited understanding and the perpetuation of misunderstandings [1].

The cultural context of WB, a state situated in the Eastern part of India, is characterized by deeply ingrained societal standards. Within this context, there exists a widely acknowledged social stigma pertaining to men's reluctance to engage in conversations related to menstruation and gynecological matters, such as dysmenorrhea. There is a prevalent inclination towards refraining from engaging in discussions pertaining to these issues, and the dynamics of gender and age exert a substantial influence on the formation of power dynamics inside households [19]. Within this hierarchical framework, it is evident that both men and senior women possess a discernible advantage, which can significantly impact decision-making processes about medical healthcare. For example, men may tend to overlook and dismiss subjective symptoms such as dysmenorrhea, even when these symptoms require medical intervention. As a study team consisting exclusively of female members, we are motivated to examine the knowledge and attitudes of young males

regarding dysmenorrhea. This knowledge enables individuals to have a deeper understanding of the experiences of women within their familial context, enhancing their ability to offer significant support. This study aims to evaluate the level of knowledge and attitudes among allied health professions university students of WB in India with regard to dysmenorrhea, an issue that has received limited attention and is associated with significant challenges [20]. The primary aim of this study is to perform a comparative analysis of Knowledge and Attitude elements among different genders, with the intention of dispelling prevalent misconceptions concerning dysmenorrhea.

2. MATERIALS & METHODS

2.1. Methodology of the Study and Subjects

The present study employs a cross-sectional research approach and focuses on undergraduate students pursuing allied health professions in the state of West Bengal, India. The study sample included both male and female students from many faculties within the allied health professions, including physiotherapy, optometry, radiology & medical imaging technology, and medical laboratory technology. The data collection period was from September 2021 to February 2023, with a cohort of 494 student participants. It is worth noting that in health professions faculties, the gender distribution tends to consist of approximately 86% girls and 14% males. However, it is worth noting that there are specific academic disciplines that demonstrate a comparatively lower proportion of male representation, with percentages as low as 4% or 14%.

2.2. Calculation of the Sample Size

In the absence of prior data on this particular subject, we projected that a minimum of fifty percent of the population might have some limited knowledge of menstruation health. This estimate was made on the conservative side. Assuming that at least half of the population may have limited information about menstrual health, using a confidence level of 95% and an acceptable margin of error of 5%, the appropriate size of the sample (without considering the incomplete questionnaires) is calculated approx 384.16 in the following manner:

$$n = \frac{Z^2 p(1-p)}{E^2} \quad \text{(Equation 1)}$$

$$\Rightarrow n = \frac{(1.96)^2 \cdot 0.05(1-0.05)}{(0.05)^2}$$

$$\Rightarrow n = \frac{3.8416 \cdot 0.25}{0.0025} \Rightarrow n \approx 384.16$$

Where, n , Z , p , and E represent sample size, Z score, estimated proportion, and margin of error respectively.

The proportion of the population that is estimated to have low knowledge is equal to half, or 0.5.

The confidence level, or C.L., is equal to 95%.

The margin of error, or E , equals 5%.

It is estimated that 10% of the questionnaires are incomplete.

Now taking the incomplete questionnaires into account, the total sample size is calculated at approximately 426.84 in the following manner-

$$\begin{aligned} \text{Total Sample Size} &= \frac{n}{(1 - I)} && \text{(Equation 2)} \\ \Rightarrow \text{Total Sample Size} &= \frac{384.16}{(1 - 0.10)} \\ \Rightarrow \text{Total Sample Size} &= \frac{384.16}{0.90} \\ \Rightarrow \text{Total Sample Size} &\approx 426.84 \end{aligned}$$

With a total population of 494, a sample size of about 427 individuals would be appropriate to obtain the necessary level of confidence and margin of error while adjusting for the possibility of incomplete questionnaires. This would be determined by rounding the entire population number up to the nearest whole number.

The questionnaire for the survey was carried out in the English language, and the research team communicated with participants using the instant messaging platform WhatsApp. The study team worked together with the representatives of the class, who then spoke with the other students in the class and gave them the link to the questionnaire. All of the participants were made fully aware that their participation in the study would be completely voluntary and kept confidential at all times.

2.3. Survey or Questionnaire

A detailed questionnaire that was written in English was included as part of the research instrument. Its construction was guided by previously published works, and it consisted of the following three sections:

This component of the survey asked seven questions about the respondent's demographic

information, including their gender, age, nationality, marital status, faculty, major, and academic year.

Knowledge

The knowledge component consisted of 29 questions that were aimed to evaluate the participants' prior knowledge, the sources from which they obtained their knowledge, and their current understanding of dysmenorrhea. This understanding included the condition's potential causes, risk factors, symptoms, and treatment options.

Attitude

The attitude section consisted of sixteen questions that were designed to probe the participants' attitudes regarding seeking medical advice, publicly discussing dysmenorrhea, engaging in or avoiding showering and physical activities, altering dietary habits, missing classes, influencing decision-making, and considering the role of the husband in matters related to dysmenorrhea.

2.4. Analysis of the Data

The Statistical Package for the Social Sciences (SPSS) version 23.1 was utilized throughout the process of doing the data analysis. A preliminary investigation of the data was carried out in order to determine the breakdown of the demographic percentages. Analysis of Variance (ANOVA) tests were used to evaluate whether or not there were significant differences in total knowledge scores between the various categories of socio-demographic factors that were included in the sample. We used cross-tabulation in conjunction with the chi-square test to investigate whether or not there was a significant difference in the attitudes held by respondents according to their gender.

3. RESULTS

Table 1 offers a detailed summary of the sociodemographic attributes of the individuals involved in the study. The average age of the participants was 20.57 years, with a standard deviation of 1.9572. The study encompassed a sample of 426 individuals who identified as female, accounting for 86% of the total participants, while 68 individuals identified as male, constituting 14% of the sample. In relation to the aspect of nationality, a significant majority of the participants self-identified as Indian, accounting for 99.6% of the sample. Conversely, a small proportion of the participants (0.4%) belonged to other nations. The

Table 1: Characteristics of the Respondents' Socio-Demographic Components (N = 494)

Variable	Category	N (%)
Age	Mean \pm SD: 20.57 \pm 1.9572	
	Teenagers (18-19)	387 (78.34%)
	Adults (20 and above)	107 (21.66%)
Gender	Female	426 (86%)
	Male	68 (14%)
Nationality	Single	483 (98%)
	Married	7 (1.4%)
	Divorced	4 (0.8%)
Marital Status	Single	483 (98%)
	Married	7 (1.4%)
	Divorced	4 (0.8%)
Major	Physiotherapy	232 (47%)
	Optometry	80 (16%)
	Medical Laboratory Technology	140 (28%)
	Radiology & Medical Imaging Technology	42 (9%)
Academic Year	First year	163 (33%)
	Second year	99 (20%)
	Third year	74 (15%)
	Fourth year	70 (14%)

findings regarding marital status indicate that the majority of participants, namely 98%, reported being single. In contrast, a small proportion of participants, approximately 1.4%, reported being married, while an even smaller percentage, approximately 0.8%, reported being divorced. The participants in the study represented a diverse range of academic majors, including Physiotherapy, Optometry, Medical Laboratory Technology, and Radiology & Medical Imaging Technology. Physiotherapy was the most prevalent major, accounting for 47% of the sample, followed by Optometry at 16%, Medical Laboratory Technology at 28%, and Radiology & Medical Imaging Technology at 9%. The distribution of participants across academic years revealed that 33% were enrolled in their first year, 20% in their second year, 15% in their third year, and 14% in their fourth year. The presented table provides a concise overview of the sociodemographic characteristics of the participants, which contributes essential information for understanding the background and interpretation of the study.

The findings displayed in Table 2 illustrate the results of a survey that was done with the aim of examining the perceptions of menstruation discomfort

among the participants. The study encompassed a sample size of 494 participants and provided valuable insights across various dimensions. Significantly, a significant majority (88.2%) correctly identified the ideal frequency of menstruation for women in their reproductive years. Furthermore, a substantial majority (94%) of participants reached a consensus about the common occurrence of menstrual discomfort. Interestingly, a portion of the participants (13.8%) held the belief that menstruation discomfort is frequently overstated. The recognition of age-related factors in menstruation discomfort was evident, with 69.6% of participants accurately identifying the age group that is most usually affected. In addition, it was observed that a significant proportion of participants (68.3%) exhibited a level of consciousness regarding the possibility of menstruation discomfort being indicative of underlying medical issues. However, it is worth noting that only a minority, specifically 10.3%, were able to appropriately identify and recognize other symptoms that could potentially indicate the presence of these illnesses. The research findings also unveiled a range of viewpoints regarding the underlying factors contributing to physiological menstrual discomfort, with a majority of respondents (72.9%) expressing various

Table 2: Respondents' Level of Knowledge Regarding Menstrual Pain (N = 494)

Question	Correct Response (n%)
How frequently should menstruation occur in women of reproductive age?	436 (88.2%)
Is it considered normal to experience menstrual discomfort?	464 (94%)
Do you believe menstrual pain is often exaggerated?	68 (13.8%)
Are most females with physiological menstrual discomfort under or over 25 years of age?	344 (69.6%)
Can menstrual pain be an indicator of an underlying medical condition?	338 (68.3%)
What are the additional symptoms accompanying menstrual pain that may signal an underlying medical condition?	51 (10.3%)
What is the root cause of physiological menstrual discomfort, in your opinion?	360 (72.9%)
Which of the following symptoms may co-occur with menstrual pain? Please select all that apply	326 (66%)
Does menstrual pain have the potential to impact the quality of sleep?	328 (66.4%)
Does smoking elevate the likelihood of experiencing menstrual pain?	443 (89.7%)
Can stress contribute to an increased risk of menstrual discomfort?	140 (28.3%)
Might hereditary factors play a role in menstrual discomfort?	415 (84%)
Can a higher socioeconomic status influence the risk of developing menstrual discomfort?	377 (76.2%)
Is the risk of menstrual discomfort greater with increased menstrual flow?	219 (44.3%)
Does prolonged menstruation raise the likelihood of menstrual discomfort?	130 (26.3%)
Does the intensity of pain change after giving birth?	238 (48.2%)
How does the intensity of menstrual pain vary with age?	338 (68.2%)
At what times does menstrual pain typically occur?	362 (73.2%)
What criteria define when menstrual pain is considered normal?	356 (72%)
Which approach do you think is most effective for alleviating menstrual discomfort?	342 (69.2%)
Do you believe oral contraceptive pills (OCPs) can be used to manage menstrual pain?	227 (45.9%)
In your view, how can menstrual pain be effectively treated?	304 (61.5%)

ideas. Regarding the co-occurring symptoms, a total of 66% of the participants exhibited accuracy. A significant proportion of participants, specifically 66.4%, expressed recognition of the potential influence of menstruation pain on the quality of their sleep.

Recognizing the potential health ramifications, a significant majority (89.7%) of individuals correlated smoking with an elevated probability of experiencing menstruation pain. The findings of the study revealed a significant acknowledgment (84%) of the role of genetic variables in contributing to menstruation discomfort. The opinions of the participants exhibited a range of perspectives about the influence of socioeconomic factors, with a majority (76.2%) expressing differing viewpoints. Furthermore, there was a lack of consensus among participants on the relationship between heightened menstrual flow and discomfort, with approximately 44.3% expressing limited awareness or understanding. Furthermore, a notable

proportion of participants, specifically 26.3%, associated extended menstruation with increased levels of discomfort. Regarding the postpartum component, it was shown that 48.2% of participants held the belief that there is a variation in the severity of discomfort experienced after giving birth. In relation to age-related differences, a significant majority of 68.2% accurately perceived changes in the intensity of menstruation discomfort. Significantly, a notable proportion of 73.2% of participants demonstrated accurate identification of commonly occurring times for menstruation pain. The process of defining normal pain was informed by the viewpoints of 72% of the participants. There was a divergence of opinions on the efficacy of various techniques for alleviating symptoms, with 69.2% of respondents expressing differing views. Additionally, a significant proportion of participants (45.9%) held the belief that oral contraceptive tablets could effectively manage discomfort. The findings of the study revealed that 61.5% of participants provided

Table 3: Correlation across Sociodemographic Attributes and Knowledge Scores (N=494)

Variable	Categories	N (%)	Knowledge Score (Mean ± SD)	P-Value
Age*	Mean Age ± SD (Age): 20.57 ± 1.9572	Correlation/score = 0.244	0	0
Gender	Female	426 (86%)	13.78 ± 3.52	0
	Male	68 (14%)	12.24 ± 4.12	
Nationality	Indian	391 (99.4%)	13.98 ± 3.68	0.681
	Other	3 (0.6%)	13.86 ± 3.65	
Marital Status	Single	386 (98%)	14.10 ± 3.49	0
	Married	5 (1.3%)	7.66 ± 6.65	
	Divorced	3 (0.8%)	8.66 ± 8.50	
Major	Physiotherapy	185 (47%)	13.36 ± 7.90	0.003
	Optometry	63 (16%)	13.06 ± 2.16	
	Medical Laboratory Technology	110 (28%)	13.72 ± 2.86	
	Radiology & Medical Imaging Technology	36 (9%)	13.9 ± 2.88	

valuable perspectives on the efficacy of treatment methods. A small proportion of participants (14.4%) acknowledged the significance of dietary choices, while a majority (56.3%) acknowledged the potential benefits of warm showers for alleviating symptoms. The aforementioned data provide a comprehensive overview of the many beliefs surrounding menstruation discomfort in women of reproductive age. These perceptions encompass both true knowledge and misconceptions within this domain.

Table 3 presented a thorough statistical examination of the associations between sociodemographic characteristics and knowledge scores among a sample of 494 participants. It is worth mentioning that there was a moderate positive association ($r = 0.244$, $p < 0.001$) between age and knowledge scores, suggesting that older individuals tended to achieve better scores. The results indicate that there were statistically significant gender differences ($p = 0.000$). Specifically, females obtained higher scores (mean = 13.78, SD = 3.52) compared to males (mean = 12.24, SD = 4.12). The results indicate that marital status had a significant effect ($p = 0.000$) on knowledge scores. Specifically, individuals who were single obtained the highest scores (mean = 14.10, SD = 3.49). In a similar vein, it is worth noting that the academic year had a substantial impact on scores ($p = 0.000$), with fourth-year students achieving the highest scores (mean = 14.45, SD = 4.66). Significant differences were seen among majors ($p = 0.003$), with Radiology & Medical Imaging Technology majors exhibiting the highest scores (mean = 13.9, SD = 2.88). There was no statistically significant correlation

between nationality and knowledge scores ($p = 0.681$). This analysis offers a thorough examination of the relationship between sociodemographic characteristics and knowledge scores, thereby enhancing our comprehension of the factors that influence participants' levels of knowledge.

The primary sources of information regarding dysmenorrhea, as indicated in Figure 1, were predominantly derived from the Internet. According to the data, a significant proportion of individuals, specifically 57.4% (283), identified as moms, while 47.9% (236) were affiliated with educational institutions. Similarly, 47.3% (233) of the participants were associated with schools. The sources that received the lowest selection rates from the participants were sisters (0.4%) (2) and gynecologists (0.8%). The data presented includes four academic sources (4) and one personal source, which accounts for 1.2% of the total sources (6). To highlight the inquiry, "Which symptoms may manifest alongside menstrual pain?" The phrase "Choose all that apply" was considered valid when three or more correct answers were selected.

Table 4 presents a thorough statistical analysis of the associations between knowledge scores and attitudes toward menstruation discomfort within a sample of 494 people. The study utilized Pearson correlation coefficients and appropriate statistical tests to analyze the relationships between participants' responses and their related knowledge ratings. Significant findings of the study indicate that participants who held the belief that general public

Table 4: Correlation between Knowledge and Attitude Scores (N=494)

Variable	Response	N (%)	Knowledge Score (Mean ± SD)	P-Value
Do you believe the general public possesses adequate knowledge about menstrual (period) pain?	Yes	40 (8.1%)	13.3 ± 3.14	0.107
	No	454 (91.9%)	14.14 ± 1.91	
Are you curious to learn more about menstrual (period) pain?	Yes	434 (88.8%)	14.16 ± 1.84	0.25
	No	55 (11.2%)	13.33 ± 3.29	
Do you consider menstrual (period) pain overhyped?	Yes	98 (19.9%)	13.31 ± 3.56	0.015
	No	396 (80.1%)	14.26 ± 1.66	
Should females monitor their menstrual schedule/symptoms?	Yes	480 (97.2%)	14.2 ± 1.73	0.025
	No	14 (2.8%)	9.71 ± 4.78	
Do you think a female should change her diet when experiencing menstrual (period) pain?	Yes	250 (49.9%)	14.72 ± 1.12	0
	No	244 (50.1%)	13.42 ± 3.68	
Should a female abstain from physical activities during menstrual (period) pain?	Yes	165 (33.3%)	13.91 ± 3.18	0.73
	No	329 (66.7%)	14.15 ± 1.77	
Should a female refrain from showering while experiencing menstrual (period) pain?	Yes	121 (24.5%)	13.22 ± 3.48	0
	No	373 (75.5%)	14.34 ± 1.39	
Is menstrual (period) pain a valid reason to miss classes/work?	Yes	383 (77.7%)	14.54 ± 1.41	0
	No	111 (22.3%)	12.42 ± 4.74	
Are female decisions influenced by menstrual (period) pain?	Yes	379 (76.9%)	14.44 ± 1.47	0
	No	114 (23.1%)	12.85 ± 4.62	
Do females tend to exaggerate their menstrual (period) pain?	Yes	63 (12.6%)	13.34 ± 3.38	0.127
	No	432 (87.4%)	14.17 ± 1.69	
Do you believe husbands should assist their wives during menstrual (period) pain?	Yes	471 (95.3%)	14.21 ± 1.65	0.026
	No	23 (4.7%)	11.22 ± 5.62	
Should husbands provide support during their wife's menstrual (period) pain?	Yes	453 (91.7%)	14.26 ± 1.59	0.007
	No	41 (8.3%)	12 ± 4.21	
Would you engage in discussions about menstruation and menstrual pain with your (future) daughter?	Yes	477 (96.5%)	14.23 ± 1.71	0.013
	No	17 (3.5%)	9.47 ± 4.96	
Would you discuss menstruation and menstrual pain with your (future) son?	Yes	387 (78.3%)	14.47 ± 1.49	0
	No	107 (21.7%)	12.61 ± 4.98	

Participants' Primary Point of Dysmenorrhea Information

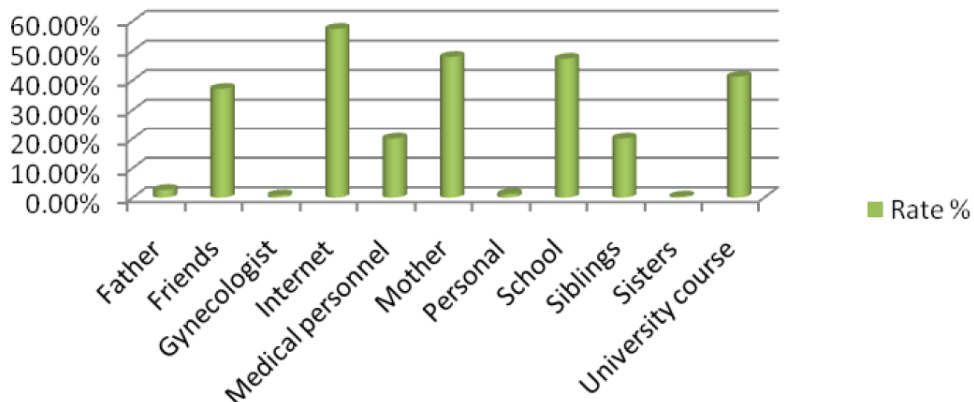


Figure 1: Participant's primary point of Dysmenorrhea Information.

awareness regarding menstrual discomfort is sufficient (8.1%) had a knowledge score of 13.3 ± 3.14

Conversely, participants who disagreed with this belief (91.9%) obtained a mean knowledge score of 14.14 ± 1.91 . However, statistical analysis revealed no significant difference between these two groups ($p = 0.107$). Participants who expressed curiosity in acquiring further knowledge regarding menstrual pain (88.8%) exhibited a higher average knowledge score (14.16 ± 1.84) in comparison to those who lacked interest (11.2%), who obtained a score of 13.33 ± 3.29 ($p = 0.25$). Significant associations were found between attitude responses and knowledge scores for various statements. These statements included perceiving menstrual pain as exaggerated ($p = 0.015$), monitoring menstrual symptoms ($p = 0.025$), altering diet in response to menstrual pain ($p = 0$), husbands assisting wives ($p = 0.026$), and engaging in conversations about menstruation with future children ($p < 0.05$). The aforementioned findings highlight the complex associations between attitudes and knowledge scores about menstruation pain, offering valuable insights into the viewpoints of participants and their correlation with levels of knowledge.

In this study, Table 5 utilizes cross-tabulation and Chi-Square analysis to investigate the association between gender and attitude traits in a sample of 494 people. The scrutiny of each attitude feature is based on replies from both males and females. Several attitudes exhibit notable disparities based on gender. The data indicates that there is no significant difference in the proportions of males (25.3%) and females (18.8%) who disagree with the notion that menstrual pain is overhyped ($p = 0.186$). However, there is a significant difference in the proportions of males (11.9%) and females (27.1%) who advocate refraining from showering during menstrual pain ($p = 0.003$). Furthermore, there is a significant difference in the proportions of males (63.3%) and females (47.3%) who view pain as a valid reason to miss work/classes ($p = 0.009$). Additionally, there is a significant difference in the proportions of males (53.2%) and females (82.4%) who acknowledge that female decisions can be influenced by menstrual pain ($p = 0$). Moreover, there is a significant difference in the proportions of males (41.8%) and females (7%) who hold differing beliefs about husbands assisting wives during pain ($p = 0$). Lastly, there is a significant difference in the proportions of males (86.1%) and females (98.6%) who engage in discussions about menstruation with their future sons ($p = 0$). In contrast, it is worth noting that

there are no substantial gender discrepancies observed in relation to other attitude characteristics, hence emphasizing the intricate gender dynamics that surround the perceptions of menstruation pain.

4. DISCUSSION

Dysmenorrhea, also referred to as menstrual cramps, is a widely widespread concern that impacts a substantial proportion of the female demographic. While the majority of prior research has been concentrated on females, the present essay examines a recent study that distinguishes itself by incorporating participants of both genders. The objective of this study is to investigate gender disparities, examine sources of knowledge, and comprehend the effects of dysmenorrhea on the overall well-being of individuals.

In contrast to previous investigations that exclusively focused on females, this study adopts a more inclusive approach by encompassing both males and females. Despite diligent attempts to include male participants, a significant gender imbalance became apparent, as males accounted for only 14% of the sample, while females comprised the remaining 86%. The current gender distribution necessitates an examination of the underlying causes for males' reluctance to participate, which is likely impacted by factors such as lack of interest or societal stigmas associated with female reproductive health.

Prior studies have emphasized the significant role of maternal influence as a main source of knowledge regarding dysmenorrhea [1, 5]. Nevertheless, recent research diverges from this pattern. MacDonald and Steenbeek conducted a study that examined cultural differences, illustrating that specific societies historically shared reproductive health knowledge through communal gatherings. Significantly, a majority of participants (57.4%) in the present study indicated that they obtained knowledge via the Internet, whereas a comparatively lower percentage (47.9%) reported relying on maternal supervision. The aforementioned transition highlights the progression of methods for distributing information, prompting inquiries regarding the impact of digital resources on the process of acquiring knowledge.

4.1. Students' Knowledge Level Regarding Dysmenorrhea

There were notable variations in knowledge based on gender, as females demonstrated better average

Table 5: Analyses of the Relationship between Sexes and Attitude Traits (N=494) Using Cross-Tab and Chi-Square

Variable	Response	Males	Males (%)	Females	Females (%)	P-Value
Do you believe the general public possesses adequate knowledge about menstrual (period) pain?	Yes	61	75.7%	378	91.3%	0
	No	19	24.1%	36	8.7%	
Are you curious to learn more about menstrual (period) pain?	Yes	9	10.1%	32	7.7%	0.475
	No	71	89.9%	382	92.3%	
Do you consider menstrual (period) pain overhyped?	Yes	21	25.3%	78	18.8%	0.186
	No	59	74.4%	336	81.2%	
Should females monitor their menstrual schedule/symptoms?	Yes	67	83.5%	366	81.2%	0.229
	No	13	16.5%	48	11.6%	
Do you think a female should change her diet when experiencing menstrual (period) pain?	Yes	77	94.9%	404	97.6%	0.194
	No	4	5.1%	10	2.4%	
Should a female abstain from physical activities during menstrual (period) pain?	Yes	29	35.4%	136	32.9%	0.891
	No	51	64.6%	278	67.1%	
Should a female refrain from showering while experiencing menstrual (period) pain?	Yes	10	11.9%	112	27.1%	0.003
	No	70	88.6%	302	72.9%	
Is menstrual (period) pain a valid reason to miss classes/work?	Yes	51	63.3%	196	47.3%	0.009
	No	29	36.7%	218	52.7%	
Are female decisions influenced by menstrual (period) pain?	Yes	43	53.2%	341	82.4%	0
	No	37	46.8%	73	17.6%	
Do females tend to exaggerate their menstrual (period) pain?	Yes	64	79.7%	316	76.3%	0.819
	No	16	20.3%	98	23.7%	
Do you believe husbands should assist their wives during menstrual (period) pain?	Yes	34	41.8%	29	7%	0
	No	46	58.2%	385	93%	
Should husbands provide support during their wife's menstrual (period) pain?	Yes	78	97.5%	393	94.9%	0.326
	No	2	2.5%	21	5.1%	
Would you engage in discussions about menstruation and menstrual pain with your (future) daughter?	Yes	75	93.7%	378	91.3%	0.485
	No	5	6.3%	36	8.7%	
Would you discuss menstruation and menstrual pain with your (future) son?	Yes	69	86.1%	408	98.6%	0
	No	11	13.9%	6	1.4%	

knowledge scores compared to males. The observed gap may be explained by the gender-specific characteristics of dysmenorrhea and the probably limited interest among male volunteers, even within the medical profession. It is worth noting that medical students, who have been exposed to a wide range of health issues, exhibited the highest levels of knowledge as measured by their scores. Furthermore, it is worth noting that there exists a positive association between age and knowledge, which emphasizes the significance of age and experience in comprehending health situations of this nature.

4.2. Students' Attitudes toward Dysmenorrhea

The research findings also revealed the extensive influence of dysmenorrhea on individuals' overall welfare. A significant proportion of female students, amounting to more than 65%, have reported experiencing mental impacts associated with menstrual discomfort, which may have the potential to hinder their academic performance. The study documented the presence of sleep disruptions, feelings of restlessness, and lack of focus during academic sessions. Additionally, participants exhibited fluctuations in mood,

heightened irritation, and impaired interpersonal relationships. This discovery emphasizes the need to acknowledge the comprehensive consequences of dysmenorrhea beyond mere physical distress.

The results of the survey unveiled a significant statistic, indicating that more than 40% of students made the choice to abstain from attending courses as a result of the incapacitating consequences of dysmenorrhea. According to extensive global research, menstruation discomfort continues to be the primary cause of female absenteeism from educational institutions, employment, and social engagements [1]. Dysmenorrhea is a significant factor leading to absence in scholastic and social activities among adolescents [4]. Additional evidence is provided by a separate study, in which it was shown that more than 15% of the individuals experienced repeated occurrences of nonattendance [2]. The issue was highlighted in a study conducted by Santina *et al.*, which revealed that 4.9% of females experienced regular absenteeism of two days per month as a result of menstruation. Additionally, a significant 41.4% of girls reported frequent or occasional absences from school [10]. Without a doubt, dysmenorrhea significantly affects an individual's ability to concentrate during academic lectures [11]. As a result, the combination of exercise intolerance and significant pain leads to the occurrence of absences from both school and work [14]. However, it is noteworthy to observe that a subset of highly educated, nervous women in the workforce display a lack of concern for their own well-being, despite the adverse impact of the menstrual cycle on mental health [21].

A notable finding of this study pertained to the prevalent perception among participants regarding the significant role husbands play in providing support to their women during menstruation, acknowledging the inherent difficulties associated with this physiological process. During the menstrual cycle, women experience alterations in their moods, actions, and sleep habits, which highlight the importance of a harmonious marital connection as a beneficial factor for overall well-being during this period. Husbands have the ability to offer a wide range of support, which includes the sharing of responsibilities, providing opportunities for rest, facilitating access to drugs, and aiding in the process of obtaining medical advice. Significantly, research conducted in WB, India has underscored the significant influence of marital dynamics on health outcomes [22].

The research findings also shed light on a general tendency observed among the participants, as the majority indicated their intention to engage in conversations about menstruation and menstrual pain with their prospective daughters. This phenomenon aligns with existing empirical findings that highlight parents, specifically mothers, as the primary providers of knowledge on the onset of menstruation and the menstrual cycle. In contrast, the impact of physicians, schools, and friends is comparatively diminished in this domain. As an illustration, a study conducted in India revealed that just 4.6% of participants reported having received formal instruction on menstruation and menarche throughout their educational trajectory [5]. This statement prompts an investigation of the limitations around the sources of knowledge that are accessible. Previous studies have indicated that conventional cultural norms contribute to a hesitancy in engaging in open conversations about menstruation. Interestingly, there appears to be a greater inclination among adolescent girls to participate in such conversations in contrast to adult women [15]. Additional investigation is necessary to comprehend the several elements that contribute to this disparity in information, alongside efforts designed to mitigate the constraints imposed by conventional cultural norms.

In the present study's framework, a significant majority of female participants expressed their endorsement of engaging in open dialogues regarding menstrual pain on public platforms. Curiously, despite this endorsement, there continues to exist a persistent societal taboo that limits the open discussion of menstrual periods and dysmenorrhea. The aforementioned inhibitory disposition is observed to persist even in informal discussions among acquaintances, as evidenced by the data presented in Table 5. The likelihood of students encountering in-depth conversations on the topic of the menstrual cycle is low unless they are in feminist courses or gynecologists' offices. However, this style of communication can facilitate a thorough comprehension of individuals' physical forms, debunk fallacies and incorrect information, and thereby diminish the negative associations associated with women's body encounters [23].

5. CONCLUSIONS

To sum up, our research illuminates the noteworthy consequences of dysmenorrhea, encompassing not only physical discomfort but also psychological and social implications, especially for women in their

reproductive years. It emphasizes how crucial it is to treat dysmenorrhea since it is a major cause of gynecological morbidity. The persistence of misconceptions and ignorance, particularly in conservative communities and among men, highlights the necessity of having inclusive conversations.

Our study, which had male participants, is consistent with earlier research and emphasizes the significance of filling in information gaps. Because there aren't many easily accessible sources of knowledge about dysmenorrhea, more research is required. Beyond cultural conventions, promoting candid and inclusive dialogues can educate people, clear up misunderstandings, and ease the difficulties related to dysmenorrhea.

In conclusion, this study provides a thorough analysis of the various elements of dysmenorrhea in the setting of West Bengal, India's allied health professional students. It emphasizes how dysmenorrhea has a major effect on students' involvement in their academic lives, especially for those who miss courses as a result of it. The study emphasizes the value of inclusive approaches and the necessity of thorough health education.

The study also shows how information resources and attitudes are changing, with the internet being a key factor in this. The need for inclusive health education is highlighted by disparities in knowledge depending on gender. The study highlights the complex interplay between cultural norms and attitudes as well as the important role that married partnerships play in reducing the effects of dysmenorrhea.

These results encourage future work to close knowledge gaps, dispel stigmas, and establish welcoming environments for people with dysmenorrhea in allied health professional programs in West Bengal, India. Understanding the complexities of this problem can help to advance inclusive conversations, well-informed decisions, and enhanced well-being for everyone living in the area.

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