"A STUDY TO ASSESS THE EFFECTIVENESS OF HOT APPLICATION ON PAIN AND SLEEP QUALITY AMONG FEMALE STUDENTS DURING DYSMENORRHEA AT SHARDA UNIVERSITY, GREATER NOIDA, UTTAR PRADESH.

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Abstract

Dysmenorrhea is a persistent discomfort in the lower abdomen and lower back that disrupts menstruation. It is a complex public health issue with 15%-20% prevalence worldwide. Primary dysmenorrhea requires proper therapy and can cause back discomfort, nausea, vomiting, mood changes, and lower abdominal pain. A study at Sharda University assessed pain levels and sleep quality in female students experiencing dysmenorrhea before and after hot application. Results showed that 20 (50%) of the 40 participants had moderate dysmenorrhea and 20 (or 50%) had severe dysmenorrhea during the pre-test. Out of 40 participants, only 3 (7.5%) reported no dysmenorrhea following the 20- minute hot application intervention, while the majority (34,0r 85%), had mild pain and around 3 (7.5%) had moderate pain. No participant reported experiencing severe pain (dysmenorrhea) during the post test. Pre-test sleep quality showed that out of 60 participants, 24 (60%) having mild sleep problems and 16 (40%) having moderate or severe sleep problems. The follow up result showed that 90 % of participant had mild sleep trouble, while 10 % had moderate or severe problems. The Pittsburgh sleep Quality Index (PSQI) was used to assess theses scores.

Keywords: Effectiveness, Hot application, Dysmenorrhea, Sleep Quality:

INTRODUCTION

Women's reproductive health, which involves mental, physical, and social changes during the menstrual cycle, is essential for their wellbeing and growth. For adults to be active, these changes must be addressed. Menstrual interval abnormalities, hypomenorrhea, and hypermenorrhea are all typical menstrual problems. Alternative remedies can be used to treat painful periods and ease back and lower abdominal discomfort. Young girls go through hormonal, physiological, cognitive, and physical changes during puberty, which makes them into sexually mature women. Complex public health issue of menstrual discomfort is frequently disregarded by women and their families. With a 15%–20% incidence rate, primary dysmenorrhea is frequently linked to puberty and ovulatory cycles. Lower back discomfort, exhaustion, sadness, headaches, nausea, diarrhoea, poor mood, irritability, bloating, and frequent hot flushes are typical symptoms. A frequent

gynaecological problem that causes pain and discomfort is dysmenorrhea. Both pharmaceutical and non-pharmacological treatment options are available, such as heat application and stretching exercises. Dysmenorrhea has an impact on adolescent daily functioning, sleep patterns, academic performance, and social interactions.

Therefore, it is critical to screen women for primary dysmenorrhea and to offer them evidence-based therapy and education on the condition. The purpose of the current study is to determine if applying heat as a non-pharmacological intervention can improve pain and sleep quality in female Sharda University students who are suffering from dysmenorrhea.

METHODOLOGY

Among female students with dysmenorrhea, a pre-experimental (one group pre-test follow-up test) research strategy was used to carry out the investigation. The female students living at Sharda University's Girl's Hostel were the study's target group. For the study, a total of 40 female students were chosen using a purposeful sampling approach. Pre- and post-hot application data were collected using a self-structured questionnaire, symptoms checklist, Visual Analogue Pain Scale, and Pittsburgh Sleep Quality Index. A hot application was given on the lower abdomen for 20 minutes during dysmenorrhea.

SAMPLING CRITERIA-

Inclusion Criteria

✓ Female students at a selected girl's hostel at Sharda University.
✓ Female students who are having dysmenorrhea.
✓ Female students who are able to participate at the time of data collection and who are willing or interested in taking part in the study.

Exclusion Criteria

✓ Female students who are day-scholar.
✓ Female students who are diagnosed with Gynaecology disorders.
✓ Female students who are not present during the time of data collection.

Ethical approval:

The Sharda University's Research Ethical Committee granted approval for the study. Permission was acquired from the Inter-Hostel Administration (IHA) Chief Warden and the School of Nursing and Research (SNSR), both at Sharda University in Greater Noida.

TOOLS AND METHODS FOR GATHERING DATA

The following instruments were employed in this study:

Tool 1: A Self-structured questionnaire

✓ Section A- Self structured questionnaire used to collect demographic variables
✓ Section-B- Questionnaire which contains questions related to menstrual characteristics

✓ Section C- checklist of symptoms of dysmenorrhea.

Tool 2: Visual Analogue Scale for Pain (VAS): Scoring Pain on 100 mm Line- To assess the pain score (0-10) of dysmenorrhea before and after intervention.

Tool 3: Pittsburgh Sleep Quality Index to assess the sleep quality (PSQI)

The process for gathering data

After the pre- assessment of the level of dysmenorrhea, hot application is given by using hot water bag or heat pad on lower abdomen for 20 minutes, on the 1st day during menstruation, then follow-up test level of dysmenorrhea was assess by using Visual analogue pain scale (VAS) and Pittsburgh Sleep Quality Index.

Analysis of Data

✓ Descriptive statistics or approaches that employ frequencies and percentages to describe demographic characteristics.

✓ A paired "t" test was utilised to determine if a hot application was effective $P<0.005$.

✓ The one-way ANOVA test is used to determine the connection between pains and sleep quality with certain demographic factors, such as age, religion, education, etc.

FINDINGS:

Table 1.0: Pre-test and follow-up tests were carried out to compare the frequency and percentage distribution of the participants depending on the degree of dysmenorrhea (level of menstrual discomfort) among the participants.

(N=40)

S.NO.	Level of pain (Dysmenorrhea)	Category Scores	VAS: Pre-Test		VAS: Follow-up test	
			F (n)	Percentage (%)	F (n)	Percentage (%)
1	No pain	0	0	0	3	7.5%
2	Mild pain	1-3	0	0	34	85%
3	Moderate pain	4-6	20	50%	3	7.5%
4	Severe pain	7-10	20	50%	0	0
	Total		40	100%	40	100%

Table 1.1: Participants' sleep quality was evaluated before taking the test and again following it, using the Pittsburgh Sleep Quality Index (PSQI).

(N=40)

S.No	Variables	PSQI: Pre-Test		PSQI: Follow-up test	
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
1	**What time do you typically go to sleep at night?**				
A	08-09 pm	0	0	8	20%
B	09-10 pm	0	0	0	0
C	10-11 pm	3	7.5%	18	45%
D	>12 am	37	92.5%	14	35%
2	**How long does it typically take you to fall asleep each night, measured in minutes?**				
A	15-30 min	0	0	17	42.2%
B	30-45 min	0	0	2	5%
C	45-60 min	0	0	0	0
D	>60 min	40	100%	21	52.5%
3	**What time do you typically wake up in the morning?**				
A	06-07 am	7	17.5%	15	37.5%
B	07-08 am	30	75%	22	55%
C	09-10 am	2	5%	3	7.5%
D	Other	1	2.5%	0	0
4	**How many hours did you actually sleep last night?**				
A	>7 hours	9	22.5%	30	75%
B	6-7 hours	5	12.5%	6	15%
C	5-6 hours	25	62.5%	4	10%
D	<5 hours	1	2.5%	0	0

Pre-test and follow-up test frequency and percentage of subjective sleep quality domains of the participants according to Pittsburgh Sleep Quality Index (PSQI). The current study demonstrates that during the pretest, out of 40 individuals, 30 (or 75%) of them rate their subjective quality of sleep as being quite excellent. According to the survey, 95% of individuals slept for more than 60 minutes after going to bed, and 50% said they slept for 5 to 6 hours. 75% of people reported sleep problems, and 85% reported habitual sleep efficiency of ≥ 85%. The majority of individuals had never used sleep aids to induce sleep. Most women had daytime dysfunction less than once a week during their menstrual cycle. 90% of subjects said their subjective sleep quality was fair after the intervention. Most individuals reported sleep problems and had habitual sleep efficiency of > 85%. The majority of subjects reported never used any kind of sleep aid to induce sleep.

Sleep troubles experienced by the participants according to Pittsburgh Sleep Quality Index (PSQI) during the past month. The study revealed that 37.5% of 40 participants struggled to get sleep within 30 minutes three or more times a week, 40% of people report waking up throughout

the night or early in the morning. Most people reported using the restroom during sleep and not having any breathing issues, coughing, or snoring. Most participants never experienced cold, hot, or bad dreams. Pain was experienced by 52.5% of participants less than a week, and 77.5% experienced no significant problems in the past one month. The majority of participants reported no breathing issues, coughs, snores, or colds during sleep, and no pain less than a week.

Evaluation of participants' usage of sleep drugs in accordance with the Pittsburgh Sleep Quality Index (PSQI). The study revealed that 92.6% of participants never took any sleep medication for induction of sleep, while 2.5% took it less than once a week, once or twice a week, or three or more times a week. After the intervention, all 40 participants (100%) had not taken any sleep medication for induction of sleep.

Participants' pre- and follow-up test frequency and percentage of problems with personal and social activities on the Pittsburgh Sleep Quality Index (PSQI). Of the 40 individuals who took the PSQI pre-test, 28 (or 70%) of them said they had no problem remaining awake when driving, eating, or participating in social events. Only 5 (12.5%) of the individuals said they experienced problems less frequently than once per week.

Only 8 (20%) of the participants were completing their task with the same level of passion as previously, whereas 28 (70%) of the participants were doing it less frequently than once per week in the previous month. Out of 40 individuals who took the PSQI follow-up test, 29 (72.5%) of them said they had no problem remaining awake when driving, eating, or participating in social activities. Only 5 (12.5%) of interviewees said they have experienced.

According to the Pittsburgh Sleep Quality Index (PSQI), participants rated how well they slept. Participants' sleep patterns throughout the previous month. A majority of 7 participants (17.5%) evaluate their sleep quality as quite terrible and 1 person (2.5%), extremely awful. 30 participants (75%) report having a reasonably decent night's sleep. Out of 40 individuals in the PSQI follow-up test, 35 (87.5%) of them reported having generally decent sleep, and just 5 (12.5%) said the same about their sleep after receiving treatment for dysmenorrhea.

Pittsburgh Sleep Quality Index (PSQI) pre-test and follow-up test scores. During pre-test out of 40 participants, majority 24(60%) or the participants had score between 1-7 which indicates mild sleep difficulty and 16(40%) participants had score between 8-14 Moderate sleep difficulty or severe difficulty in 2 areas. During the follow-up test out of 40 participants after intervention the global score obtained from the participants according to Pittsburgh Sleep Quality Index (PSQI). Major 36(90%) of the participants had score between 1-7 which indicates mild sleep difficulty and 4(10%) participants had score between 8-14 Moderate sleep difficulty or severe difficulty in 2 areas after intervention

Table 1.4: The results of the participants' pre-test and follow-up tests using the Visual Analogue Pain Scale (VAS) and Pittsburgh Sleep Quality Index (PSQI) are used to describe the effectiveness of heat application on pain (dysmenorrhea) and sleep quality.

(N=40)

PAIN LEVEL					
DYSMENORRHEA	**Mean**	**Standard Deviation**	**Mean difference**	**Paired t-test**	**p value**
VAS pre test	3.50	0.506			<0.001
VAS follow-up test	2.00	0.392	1.5	18.735	(S)
SLEEP QUALITY					
PSQI score pre test	1.40	0.496	0.300	3.674	<0.001
PSQI score follow-up test	1.10	0.304			(S)

(p<0.05 Significant level) S= Significant

The connection between the pre-test pain scores and the subjects' pre-test demographic characteristics: There was no statistically significant (p<0.05) correlation (relative to the pre-test pain ratings) between the pre-test pain scores and the subjects' pre-test demographic characteristics.

The connection between pain scores on the follow-up exam and participants demographic traits: According to the results, there was no statistically significant correlation (p<0.05) between the participants' demographic data and their pain levels for dysmenorrhea in the follow-up test.

The connection between the PSQI (pre-test) global sleep quality scores and participants demographic factors: It demonstrates that there was no statistically significant correlation between the pre-test global score for sleep quality and a few of the individuals' demographic factors (p<0.05).

Connection between sleep qualities with selected demographics variables of the participants in the follow-up test of the participants: It demonstrates that there was no statistically significant relationship between the follow-up test global score for sleep quality and a few of the individuals' demographic factors (p<0.05).

RESULT:

The research investigation found that female students had a significant frequency of primary dysmenorrheal with 50% experiencing severe and 50% experiencing moderate symptoms on the first day of menstruation. The study also found that dysmenorrhea negatively affected academic life, with 42.5% missing classes on the first day. Around 75% reported disturbed sleep patterns

due to dysmenorrhea. Most participants had previous sources of information about hot applications, with 47.5% being informed by family members. After 20 minutes of hot application, 95% of participants felt relief from pain and sleep disturbances. However, there was no statistically significant relationship between dysmenorrhea along with a few demographic factors, and sleep quality. The study highlights the need for more effective treatments for dysmenorrhea among female students.

CONCLUSION

The study found that 37.5% of female students experienced dysmenorrhea during their menstrual cycle, with 50% experiencing severe and 50% experiencing moderate dysmenorrhea. Most missed their studies due to dysmenorrhea. Most participants (95%) used hot application during dysmenorrhea, with most having family knowledge about its use. 75% reported disturbed sleep but relieved after using hot application. The study found a significant difference in pain scores and sleep quality global scores, indicating that hot application was effective for female students.

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