

Evaluate the Effectiveness of Hot Water Application on the Levels of Dysmenorrhea among the Girls at Chhattisgarh

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Abstract

Dysmenorrhea is a painful menstruation caused by strong uterine contraction that causes ischemia of the uterus. Change in menstrual pattern and associated manifestation can disrupt activities of daily living and create anxiety. The study was under taken to evaluate the effectiveness of hot water application on the levels of dysmenorrhea among the girls at Sandipani Academy, Pendri (Masturi) Bilaspur-Chhattisgarh. A quantitative research approach and pre experimental one group pre-test and post-test research design was adopted. 40 girls were selected by non-probability convenient sampling technique and their existing level of dysmenorrhea was assessed by 11 point numerical pain rating scale. Hot Water Application was given to the samples on 1st and 2nd day of dysmenorrhea for about 20 minutes and then assessed post-test level of dysmenorrhea with the same scale. The effectiveness was analysed by descriptive statistic (Mean, Mode and Standard Deviation) and inferential statistics ('t' test). The results show that among 40 girls in pre-test 20 (50%) girls had moderate pain, 11 (27.5%) girls had mild pain, and 9 (22.5%) girls had severe pain. In Post-test 30 (75%) girls had mild pain, 9 (22.5%) girls had no pain and 1 (2.5%) girl had moderate pain. The mean and standard deviation of pre-test and post-test was 3 ± 0.70 and 4.2 ± 0.46 respectively with 't' value is 9.23 ($p < 0.05$) which found statistically highly significant. The result of the present study suggested that the use of hot water application reduced the levels of dysmenorrhea. Therefore it can be used safely as an alternative therapy for girls with dysmenorrhea.

Keywords: Dysmenorrhea; Menstruation; Hot Water Application; 11 Point Numerical Pain Scale

Introduction

Health is 'a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity' (WHO, 1948) [1]. Worldwide there are some 1.2 billion adolescents aged between 10 and 19 years and a round 90% of them live in developing countries, and approximately 600 million are female [2,3]. Paying due attention to the health of girls and women today is an investment not just for the present but also for future generations [4].

Adolescent transitions to adulthood have been identified as an important phase of life for short-term and long-term health, happiness and wellbeing. Evidence indicates that health promoting behaviours in adolescence may have a long-term impact into adulthood. Therefore, prevention approaches during adolescence, might lead to lasting improvements in adult health, happiness and wellbeing [5].

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The initiation of menstruation, called menarche, usually happens between the ages of 12 and 15. The word menstruation has been replaced by a variety of euphemisms, such as “the curse”, “my period”, “and my monthly”, “my friend”, and “the red flag” or “on the rag” [6]. In the days the periods start, the adolescence may feel tense or emotional, gain water weight and feel bloated, pain in the abdomen, back or legs that last few hours or more. Yet many women across range of different cultures experience menstrual problem that range from mild discomfort to acute pain, it is termed as dysmenorrhoea [7]. This painful menstruation caused by strong uterine contraction that causes ischemia of the uterus [8]. Change in menstrual pattern and associated manifestation can disrupt activities of daily living and create anxiety [9].

The two types of dysmenorrhea are primary when no pathology exists and the secondary, when pelvic disease is the underlying cause. Women describe pain either sharp, crampy or gripping or as steady dull where pain may radiate to the lower back or upper thighs [10]. This symptom is due to the elevated prostaglandin level were found in endometrial fluid of women with dysmenorrhea and correlated with the degree. A 3 fold increase in endometrial prostaglandins occurs from the follicular phase to luteal phase, with a further increase during menstruation. The increase prostaglandin in the endometrial after the fall in progesterone in the late luteal phase results in increased myometrial tone and excessive uterine contraction [11,12].

Management of primary dysmenorrhea depends on the severity of the problem and an individual women’s response to various treatment like pharmacological, heat application, massaging and exercise, heat application has been found to help in reducing pain [10,13].

Application of heat means the use of an agent warmer than the skin, which may be applied in either a moist or a dry form. It can be applied to produce a local or system effect or both. It’s also serving as comfort measures. Physiological changes due to application of heat are increased capillary permeability, increased blood flow; reduce muscles tension and increased blood viscosity [11].

Objectives of the Study

- To assess the levels of dysmenorrhoea before and after hot water application among the girls.
- To compare the pre-test and post-test effectiveness of hot Water application on levels of dysmenorrhoea among the girls.
- To associate the levels of dysmenorrhoea with the selected demographic variables among the girls.
- To correlate the level of dysmenorrhoea and age group.

Hypotheses

- H1: There is significant difference between the levels of dysmenorrhea before and after hot water application.
- H2: There is significant association between the levels of dysmenorrhea with the selected demographic variables among the girls.
- H3: There is a significant correlation between the levels of dysmenorrhea and age group.

Research Methodology

A quantitative experimental research approach and pre experimental one group pretest and posttest research design was adopted for this study. The study has enrolled 200 girls during the study period at Sandipani Academy, Pendri Bilaspur (C.G.) among which 40 girls had dysmenorrhea. The study was carried out after obtaining permission from institutional ethical committee and written consent from the study participant.

Data collection procedure consists of two tools. Tool 1. Demographic data of the study participant and Tool 2: numerical pain rating scale. This consist of 3 phases:

- Phases 1: Pre- Test (Pain levels were assessed before intervention by using numerical pain rating scale.

- Phases 2: Intervention (hot water application with the help of hot water bag on the lower abdomen once a day on 1st and 2nd day of menstruation for 20 minutes.
- Phases 3: Post - Test (Pain levels were assessed after intervention by using numerical pain rating scale).

Result and Findings

The demographic data of the sample shows that majority of girls 27 (67.5%) were between the age group of 18 - 20 year, 36 (90%) girls belongs to Hindu religion, 18 (45%) girls family income were Rs. 9000 - 15000, 23 (57.5%) girls attained their menarche between age group at 14 - 15 and 100% girls having regular menstrual rhythm. 13 (32.5%) girls were using pain killer and others not using neither pain killer nor home remedies.

Score	Pain Level
0	No pain
1 - 3	Mild pain (Nagging, annoying, interfering little with ADLS)
4 - 6	Moderate pain (Interferes signification with ADLS. Adults and Children)
7 - 9	Severe pain (Disabling, unable to perform ADLS)
10	Worst pain

Table 1: The level of dysmenorrhea was assessed with 11 Point Numerical Pain.

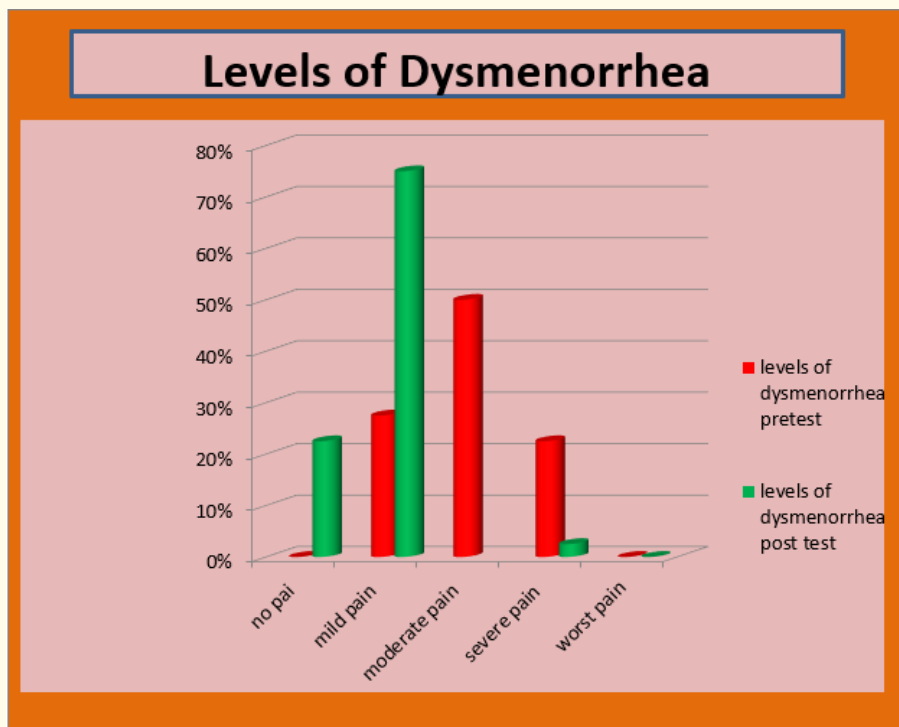


Figure 1: Frequency and percentage distribution of pre-test and post-test levels of dysmenorrhoea among the girls.

During pre-test out of 40 samples, 20 girls had moderate pain, 11 girls had mild pain, 9 girls had severe pain and none of girls had no pain and worst pain whereas in the post-test 30 girls had mild pain, 9 girls had no pain, 1 girl had moderate pain and none of girls had severe pain and worst pain.

	Mean	SD	Paired t-value	Effectiveness by p values
Pre test	3	0.70	9.23	P < 0.05 HS
Post test	4.2	0.46		

Table 2: Comparison of the pre and post-test level of dysmenorrhea among girls.

The pre-test and post-test mean and standard deviation score were 3 ± 0.70 and 4.2 ± 0.46 respectively, with the calculated t-value is 9.23 show that, the p value ($p < 0.05$) is statistically highly significant. Therefore, it was inferred that the hot water application was effective in decreasing the levels of dysmenorrhea among girls.

The study also revealed that there was no significant association between level of dysmenorrhoea and demographic variables other than socio economic status of the girls.

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	90.4	3	30.133	3.649	0.044	3.490
Columns	70.5	4	17.625	2.134	0.139	3.259
Error	99.1	12	8.258			
Total	260	19				

Table 3: Anova-Comparison of the level of dysmenorrhoea with age group.

The different age groups are significantly different from one another regarding levels of dysmenorrhoea while different levels of dysmenorrhoea are not significantly different from one another.

Discussion

Menstruation and child bearing are processes exclusive to women. Historically these two events have been invested with enormous social significance. Thus the physical and psychological aspect of menstruation and menstrual disorder are closely interwoven [16].

Some teenage girls and women have cramps and abdominal pain during their periods, which can be so severe that it is difficult for them to attend studies or go to work for as many as one, two or three days. The usual medical treatments for painful periods (dysmenorrhoea) are painkillers (analgesics), generally non-steroidal anti-inflammatory drugs (NSAIDs like ibuprofen), or the oral contraceptive pill. Not everyone wants to take NSAIDs as they can cause adverse effects such as gastrointestinal discomfort and bleeding; they also do not effectively alleviate the pain for everyone [17].

There are many alternative approaches that aim to improve the experience of menstruation. Some are supported by good evidence while others may simply improve women’s sense of wellbeing. Research suggests some physical therapies such as local heat application (heat packs), TENS (transcutaneous electrical nerve stimulation), acupuncture and acupressure are helpful for reducing menstrual pain and cramps [18]. Hot water application is not cost effective, no need of skilled person it won’t produce any side effect.

Many studies have been conducted to assess the effectiveness of hot water application on level of dysmenorrhea. Dr. R. Shankar Shanmugam, Dr. C. Susila, Dr. S. Ani Grace Kalaimathi, conducted a study to assess the effectiveness of hot application on dysmenorrhea. Adolescence were selected by purposive sampling technique and hot application was given using hot water bag on lower abdomen for 20 - 30 minutes, once a day for two days during menstruation and the results revealed that in pre-test most of adolescent girls 16 (53.3%) had very severe pain, 10 (33%) adolescent girls had severe pain and 2 (6.7%) had worst possible. But in post-test, 19 (63%) girls had no pain, 9(30%) had mild pain and only 2 (6.66%) had moderate pain. Paired 't' test shows 't' level of 20.93 which is significant at $p < 0.05$ level [19].

Dilek Coskuner Potur and Nuran Komurcu studied the effect of local low dose heat application on dysmenorrhea among female students in Istanbul-turkey. A total of 193 female students possessed the eligible criteria. The research control group consisted of 66 patients, the analgesia group consisted of 61, and the heat patch group consisted of 66. The control group did not use any treatments, while the self-medication group used analgesic medication (single dose), and the heat patch group applied a heat patch on the lower abdomen, against the skin, for an application period of 2 menstrual cycles. Using a visual analogue scale (VAS), the pain severity was recorded at the baseline, after 4 hours of intervention, and after 8 hours of intervention. The result of the study shows there were significant differences between the groups in terms of pain severity after 8 hours of application ($P < .001$). All groups had similar pain levels at baseline and during the fourth and eighth hours, with no significant differences between the groups during the first and the second menstrual cycles ($P > .05$). Therefore the authors conclude that the heat patch is an effective method for reducing dysmenorrhea [20].

Heba Ahmed Wetwet., *et al.* studied effect of Local Heat Application on Relieving Primary Dysmenorrhea among Nursing Students the result of the study shows that before local heat application, there was no statistically significant difference between the study and control groups regarding the severity of primary dysmenorrhea. After local heat application, there was a highly statistically significant difference between the study and control group ($p 0.001$), pain decreased in the study group more than control group. It was concluded that the local heat application by using small heated pillow filled with uncooked rice was effective in reducing the severity of primary dysmenorrhea and decreasing days of absenteeism in the study group than the control group [21-23].

Conclusion

The study findings revealed that there was a significant reduction in levels of dysmenorrhea among the girls after giving hot water application. This highlights that the health education programme regarding hot water application on the dysmenorrhea is to be introduced in the areas of the health care. This is a safe and an easiest method of administration which helps to reduce the number of absenteeism in schools and work places.

Limitation

Time consuming.

Recommendation

- Similar studies can be conducted to a larger group of population for generalization.
- Health education can be given to reinforce the use of hot water application among girls to relieve dysmenorrhea.
- Studies to find the extent of use of hot water application.

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