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Dysmenorrhea and Its Effects on School Absenteeism and School Activities among Adolescents in Selected Secondary Schools in Kollam, Kerala

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ABSTRACT
Dysmenorrhea has been identified as the most common menstruation-related cause of short-term school absenteeism among young girls age group 11-18 years. Dysmenorrhea refers to aching menstruation and is the most common gynecological condition experienced by women causing pain in the lower abdomen, extending to the lower back or legs. Menstruation in young girls may be characterized with variableness in volume and pattern as well as connected pain and discomfort which is known as dysmenorrhea. Recurrent school absenteeism has negative impacts on adolescent girls by reducing contact time for their learning which may have implications on the quality of education they receive and this has been reported to be of national and economic value.Dysmenorrhea has, therefore, been identified as a public health problem because of its high prevalence, the degree of discomfort felt by the sufferer as well as the reduction in the quality of life of female students.
KEYWORDS:--Dysmenorrhea, menstruation, pain, Adolescent, absenteeism, stress, Exercise.

INTRODUCTION

The incidence of dysmenorrhea among girls was documented to be as high as 82.5% in one study, and this was linked with poor school attendance.Secondary school education has been considered as the foundation for higher academic learning and the foundation of the educational system in the 21st century. It is the gateway to the opportunities and benefits of economic and social development and also a vital step in an educational journey. Recurrent absenteeism at this period can lead to academic underachievement and is likely to affect future job prospects.Most young girls do not seek medical help as they seem to accept the discomfort as part of the physiological process of the transition between adolescence and adulthood, and as something that cannot be ameliorated.This study was, therefore, aimed to determine the prevalence of dysmenorrhea and absenteeism among female students in Bhopal, with a view to determine its severity as well as preventive measures adopted by the girls. Research findings will provide information on opportunities for interventions that will enlighten girls on what they can do to reduce the severity of pain experienced and therefore reduce school absenteeism This study aimed to determine the prevalence of dysmenorrhea, effects on school activities, and associated school absenteeism among secondary school girls inKollam, Kerala.

Study regarding DYSMENORRHEA among adolescent girls

This cross-sectional study was among 200 students from all girls' only secondary schools inKollam,Kerala, using a cluster sampling method. Data were collected using questionnaires and focus group discussions. The severity of dysmenorrhea was categorized as mild, moderate, and severe. Data collected were analyzed using descriptive statistics and Chi-

square tests performed to determine significant associations. Level of statistical significance was set at 5%.

Prevalence of dysmenorrhea and school absenteeism was 74% and 14.1%, with the severity of dysmenorrhea being 38.5%, 44.8%, and 19.8% for mild, moderate, and severe dysmenorrhea. Other school activities affected were as follows: class concentration, class participation, social, and sports activities (18.6%, 15.2%, 11.9%, and 5.6%). Main sources of medication for pain relief were family (16.8%) and self (14.7%). Age and duration of menstruation predicted dysmenorrhea. Respondents opined that analgesic drugs should be available in school to prevent school absenteeism.This cross-sectional descriptive study involved adolescent female students (aged 10–19) in all the 10 public girls' only senior secondary (SS) schools in the five urban local governments inKollam.employing a one-stage cluster sampling technique (with the local governments representing the single stage at which selection took place). A pretested interviewer administered semi-structured questionnaire was used to obtain information on sociodemographic characteristics, menstrual characteristics and pattern, the severity of dysmenorrhea, absenteeism, preventive methods/treatment used as well as dysmenorrhea, and exercise. The instruments were administered during their free period with the help of two research assistants who had been adequately trained on the content of the instrument before the commencement of the survey.

Five group discussion (FGDs) were also carried out in five schools, with one school being selected by simple random sampling from each of the five urban local governments in Ibadan where the study was conducted. A total of 8 students participated in each FGD session. The FGD sessions were conducted to provide greater context with respect to the experience of dysmenorrhea among the respondents.

Moral clearance was obtained from the State Ethical Review Board. Each participant was provided with information on the study and its objectives and informed that participation was voluntary. Consent was obtained from the respondents who were 18 years and above by signing an informed consent form while assent, as well as parental consent, was taken for those <18 years. This was done through the use of assent forms and parent consent forms as appropriate. Approval was obtained from the State Ministry of Education as well as from the principals of each school. Confidentiality of the information given was guaranteed since the instrument did not bear the name of the respondents. All questionnaires were tagged with only serial numbers and they were kept secured at all times.

The data were analyzed using the Statistical Package for Social Science, (Version 2.0, SPSS Inc., Chicago, USA). Frequency tables were generated, and the Chi-square test was used to test for association between categorical variables. A value of $P < 0.05$ was considered as statistically significant. Logistic regression analysis was performed to determine the predictors of dysmenorrhea and absenteeism among the respondents. Participants of the FGD described her experience of dysmenorrhea thus, "…***You have pain in your abdomen and you feel very dizzy that you will not be able to do anything, you are just feeling useless…***". Almost half of those that experienced menstrual pain (48.7%) had it once in a while and (39% (78)) experienced it with every menses. The prevalence of school absenteeism among those that suffered dysmenorrhea was 13.1% and 15.9%of those missed school during every menstrual period. Most of the girls that missed school, (70.5%), stayed out of school for at least a day and the most common reason for being absent was the severity of the pain experienced as reported by 93.2%. Apart from school attendance, some other activities that had been reportedly affected by dysmenorrhea the most were class concentration (17.6%) and class participation (12.2%).

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Dysmenorrhea (Pain in menstruation)

The greater majority of those who experienced dysmenorrhea (81.3%) suffered mild-to-moderate pain, whereas only 18.8% admitted to experiencing severe pain. The severe pain was responsible for absenteeism among 63.6%of respondents who represented the greatest proportion of absentees. During the discussion session, respondents were of the opinion that absenteeism from school can be reduced if some measures were put in place. One said"……***The school should provide drugs for girls so that they can use it when they have pain.***" Another said "…. ***If you know that you are likely to have pain this month, you can take your drug that you normally use inside your bag and when you start feeling the pain in school, you can take the drug and if you need to rest, you can rest a little while.***"
There were different pain relief strategies adopted by respondents. Out of those that experienced dysmenorrhea, only 11.9%used analgesics always while 29.2% used it occasionally for menstrual pain relief. About a fifth (19.9%) always engaged in exercise while 25.3% exercised sometimes to either relieve or prevent the pain. Slightly above half of those that had menstrual pain, (51.8%) always reduced their sugar intake as a way to relieve/prevent the pain, while 11.3% did so occasionally. For those that used drugs to relieve or prevent pain, only 6.8%of those that experience dysmenorrhea obtained their prescription from a medical doctor, 8.9% obtained theirs from a nurse, 13.7% indulged in self-medication, and 15.8% reported that family members recommended the drugs that they used. Only a minority of those that experienced dysmenorrhea, (12.8%) had ever visited a doctor for treatment or medical advice. Majority of those that had visited a doctor before (83.7%,) did so because the pain was unbearable, whereas 18.1% thought menstrual pain is a normal part of a girl's life and did not see the need to visit a doctor. At the discussion session, the participants aired their opinion on visiting the hospital because of menstrual pain, with one discussant saying "…….*I think it is not normal to go to the hospital because of menstrual pain because it is a natural thing that one must cope with. As for me, it is a shameful thing to go to the hospital because of menstrual pain*."
Furthermore, slightly above half of the respondents (53%) took part in physical exercises such as running, jogging, and skipping. While only 29% did so specifically to reduce or prevent menstrual pain.The Chi-square test revealed that the age and duration of menstruation were statistically significant in the experience of dysmenorrhea among the study group. Severity of pain, as well as the age of the respondents, was also significantly associated with school absenteeism

A wide range of disparities in the occurrence of dysmenorrhea has been reported by several researchers with some indicating prevalence's as low as 15% to as high as 94%. More than a third of the respondents that experienced dysmenorrhea did so with every menstrual cycle. Majority of them experienced the pain before the commencement of their menstruation as has been observed in previous studies.

Among those who were absent as a result of menstrual pain, the majority of them missed a greater portion of the school day with 19.9% missing school every month. Almost, two-thirds of those who had missed school suffered from severe dysmenorrhea.A significant association between school absenteeism and severity of dysmenorrhea was identified by this study with the severity of dysmenorrhea being predictive of school absenteeism even after controlling for age. This is similar to results of previous studies that have found an association between absenteeism from school and severe dysmenorrhea.Other school activities that were affected

by dysmenorrhea were class concentration and participation Class concentration affected about a fifth of the respondents though this is lower than what has been observed by other researchers.

Effects of exercises in dysmenorrhea

The findings of this study revealed that about half of the respondents engaged in one form of exercise or the other but only about a third of those that experienced dysmenorrhea engaged in physical exercise as a means of reducing menstrual pain. Almost all respondents that engaged in exercise said that it was effective in reducing the intensity of the pain felt; although, this was not statistically significant. There have been divergent views in the literature regarding the efficacy of exercise in the relief of dysmenorrhea.

Age and the duration of menses were factors that were found to be significantly associated with the experience of dysmenorrhea in this study. It was observed that respondents that were in late adolescence (≥19 years), as well as those whose menstrual cycles are >4 days, were more likely to experience dysmenorrhea. This may be due to the fact that all the respondents are adolescents and studies have shown that dysmenorrhea peaks in late adolescence and the early 20s.We acknowledge the limitations inherent in this study. The study design being cross-sectional in nature precludes any establishment of causality From August 2017 to November 2017, qualitative semi-structured interviews were conducted as part of a larger study among adolescent girls in the Kollam region of Kerala, which includes the municipality of Kollam. The larger study sought to characterize the types of stressors girls experience related to menstruation and puberty, how girls cope with stressors, and how stress and coping impact mental health and reproductive health. As interviews progressed, it became apparent that dysmenorrhea was a major stressor for girls, and additional questions were added to gain a deeper understanding of dysmenorrhea and menstrual pain management. The current analysis presents findings specific to dysmenorrheal variables.

Distress in menstrual period

Menstrual distress is one of the common gynecological problems of curiosity to health workers and psychologists. Frank in 1931 first used the term 'Premenstrual tension' and later on Dalton (1960), working with women distress from menstrual difficulties, began to use the term Premenstrual Syndrome (PMS) to cover a large number of related problems. Premenstrual syndrome is a group of physical and emotional symptoms which occur 7 to 14 days before the onset of 4 menstruation and disappear during menstruation. At the same time, the term 'Perimenstrual distress' is used to refer to symptoms of distress associated with menstruation, which may be experienced during the period immediately before, during, or immediately after the menstrual process. The common symptoms associated with menstruation are irritability, migraine attack, anxiety, fatigue, depression, difficulty in concentrating, weight gain, breast tenderness, back ache, lethargy, and skin disorders.

Research is needed to examine if dysmenorrhea in Kollam is caused or worsened by endemic risk factors, such as a higher rate of sexually transmitted infections distress(e.g., pelvic inflammatory disease), malnutrition, or chronic stress, as different treatments would be

needed to address these conditions. Findings may be biased by the participation of girls who are comfortable discussing menstruation; girls who are uncomfortable discussing menstruation may have greater difficulties obtaining support for dysmenorrhea management. Given the small sample, we were not able to compare participant responses by sociodemographic characteristics. It is unknown whether findings of this qualitative study would be replicated at the population level. Further quantitative research is needed with a larger sample.

Table 1

Example questions asked by interviewers about dysmenorrhea.

- Tell me about the most recent time you got your period.
- How has getting your period affected your life?
- How has your life changed after starting your menstrual period?
- What challenges does a girl face during her period?
- Is there anything you wish you could change about getting your period?
- You said that you have abdominal cramps when you are in your period: could you describe it?
- Where in your body do you feel pain?
- When does the pain start? When does pain get the worst?
- When does pain end?
- What do you do when you get cramps?
- What makes the pain better?
- What makes the pain worse?
- Does the pain keep you from doing anything?
- Does the pain impact your feelings?
- Who taught you how to use medicine for the pain?

Effects of hot application in dysmenorrhea

Most teenagers and young females experience cramping lower abdominal pain usually concentrated in the pubic area and may radiate to the back of the legs or the lower back due to primary dysmenorrhea. However, some women have one or more of the wide range of symptoms as nausea, vomiting, diarrhea, fatigue, mild fever, nervousness, mood swings and headache. Adolescent girl is considered to have primary dysmenorrhea if there is no diagnosable pelvic pathology and tends to occur within 12 months of menarche .The pain of menstruation normally evolves within hours of the start of menstruation and peaks as the flow becomes heavier for the first 24 hours but may persist for 2days. This process is supported by the ability of prostaglandin synthesis inhibitors in pain relief, as these inhibitors only provide

pain relief in 70% to 75% of women. Different treatments including pharmacological and nonpharmacological treatment such as taking non-steroidal anti-Inflammatory drugs, herbal, dietary therapies, yoga, meditation, transcutaneous electrical nerve stimulation, acupressure, acupuncture, bed rest, massage therapy, exercise and application of heat packs have been used to alleviate the effects of dysmenorrhea . Stretching or core strengthening exercises and heat application are widely accepted as a means of moderating stress and stress-related symptoms. Exercise is known to cause the release of endorphins hormones in brain that raise the pain threshold and is shown to improve mood of exercising subjects . However, because of high prevalence of primary dysmenorrhea in different societies and the potential benefits of exercise found in treating dysmenorrhea and also existen.

Prevention and solution fordysmenorrhea---

There are some solution for dysmenorrhea given below:----

Vitamin C:--Vitamin C is a strong antioxidant. It is a necessary vitamin for the human body, and it has been related to the reduction of menstrual pain. While it is recommended that vitamin C be obtained from foods, many people resort to supplements to fulfill their needs. An intravenous vitamin C injection, on the other hand, can be obtained for even faster results. Menstruation results in a loss of blood, including iron. If the amount of iron we absorb in our diet does not equal the amount of iron we lose during our lifetime, we will develop an iron deficiency. Vitamin C improves iron absorption, which helps to avoid iron deficiency. It's a potent antioxidant that improves immunity by improving the function of white blood cells.

Vitamin D: Vitamin D has traditionally been used to treat dysmenorrhea. Calcium's function in reducing contractions can be attributed to the connection between calcium intake and dysmenorrhea. Low calcium levels exacerbate uterine spasticity and contractions. Vitamin D levels influence calcium homeostasis, so it can help with dysmenorrhea.

Vitamin E: -It's also used to help with dysmenorrhea symptoms. Progesterone deficiency during the luteal phase of the menstrual cycle may lead to enzyme lysis, phospholipid peroxidation, and the development of arachidonic acid. Both of these changes result in an increase in prostaglandin levels, which stimulates uterine cramps and contractions. Vitamin E decreases phospholipid peroxidation and prevents the release of arachidonic acid and its conversion to prostaglandins due to its antioxidant properties. As a result, it has the potential to significantly reduce the incidence of dysmenorrhea.

Magnesium:--Every two months, prostaglandin F2 alpha (PGF2 alpha) was assessed to monitor treatment progress. On Mg therapy, the researchers were able to reduce PGF2 alpha levels in menstrual blood to 45 percent of what they were before starting care. Mg's unique therapeutic activity is most likely due to its inhibition of PGF2 alpha biosynthesis, as well as its direct muscle relaxant and vasodilatory effects. Magnesium supplementation, in addition to PG-synthesis and ovulation inhibitors, is a natural option for treating primary dysmenorrhoea. In a double-blind trial, 50 patients with primary dysmenorrhea were treated with Magnesium (Mg 5-longoral, Artesan GmbH). Just four women recorded no therapeutic effect after six months, while 21 out of 25 women reported a decrease in symptoms.

Omega-3 Fatty Acids:--The anti-inflammatory properties of omega-3 fatty acids contained in fish oil may be used to treat primary dysmenorrhea by affecting the synthesis of prostaglandins and other factors involved in pain and inflammation.Omega-3 two months will

obtain a blood concentration of this substance to cause anti-inflammatory and analgesic effects, according to research[29]. Most studies have shown that omega-3 fatty acids are well tolerated by most people, with adverse side effects occurring only in large doses (more than 6 gm per day It has anti-inflammatory properties because it produces vasodilator ecosanoids like PGE3 and PGF3 and inhibits the development of vasoconstrictor prostaglandins like PGE2 and PGF2 from omeg-6.

Fish and fish oil:--In dysmenorrhea, the form of fat consumed can also make a difference. Fish oil, which is rich in omega-3 fatty acids, can help with menstrual cramps by modulating prostaglandin output.

Chaste Tree or Chasteberry --For decades, chasteberry has been used to address a variety of menstrual issues. It primarily functions by influencing the levels of certain hormones in our bodies.

Ginger:--Ginger is one of the herbs for which there has been a lot of study. Jenabi discovered that ginger reduced pain and nausea in women suffering from primary dysmenorrhea. In women with primary dysmenorrheal pain, Ozgoli et al. found that ginger was just as good as mefenamic acid and ibuprofen at relieving pain.

CONCLUSION

Dysmenorrhea unenthusiastically impacts the physical and psychological well-being of girls in Kollam. Menstrual pain also hinders girls' ability to participate in schoolworks. Although first-line treatments have been developed, these medications and other behavioral pain coping strategies may not be culturally relevant due to local beliefs that medications are harmful, limited knowledge of the benefits of hormonal contraceptives for dysmenorrhea, and a lack of access to resources, such as accurate information about medications, money for medications and medical visits, and menstrual management supplies. To improve SRH disparities among girls in SSA, it is necessary to understand the causes of dysmenorrhea and increase access to effective dysmenorrhea treatments that are acceptable to girls and their caregivers across cultural contexts.Our findings shed light on the prevalence of dysmenorrhea among this study group and the extent to which this leads to school absenteeism. It is evident that dysmenorrhea is a prevalent condition among these girls with resultant negative effects on school activities as well as school attendance. Self-medication as initiated by the respondents or family members was a common practice as most of them did not obtain prescriptions from certified medical personnel. It is, therefore, important to promote easy access to health-care workers to ensure correct prescriptions and avoid the negative consequences that could arise with indiscriminate use of drugs. Thematic content analysis identified themes related to dysmenorrhea, including descriptions of dysmenorrhea and the impact of dysmenorrhea on well-being, as well as factors influencing the use of pharmacological and behavioral pain management strategies. Potential barriers to dysmenorrhea management were identified. Dysmenorrhea negatively impacted the physical and psychological well-being of girls and hindered girls' ability to participate in school, work, and social events. The most common pain management strategies were resting, drinking hot water, engaging in physical activity, and taking paracetamol. Barriers to dysmenorrhea management included beliefs that medications are harmful to the body or can hinder fertility, limited knowledge about the benefits of hormonal contraceptives to manage menstruation, little continuing education for healthcare providers, and a lack of consistent access to effective medications, medical care, or other supplies necessary for pain management.

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