Health education and exercise intervention for dysmenorrhoea in early adolescents with ineffective health maintenance

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Abstract

Dysmenorrhoea is a common gynaecological problem among adolescent girls and can interfere with daily activities, including sleep patterns and concentration at school. Inappropriate treatment often causes recurring symptoms, thereby reducing the quality of life of adolescents. **Objective:** This study aims to evaluate the effectiveness of education about dysmenorrhoea, menstrual hygiene education, and dysmenorrhoea exercises in improving health maintenance in adolescents with ineffective health maintenance. This study used a case study design on Mr. B's family with client An. N, a 12-year-old girl experiencing dysmenorrhoea. The intervention consisted of seven sessions with the main activities being structured education, interactive discussions, menstrual hygiene learning, and demonstrations and practice of dysmenorrhea exercises. The results showed an increase in the client's knowledge about dysmenorrhea and reproductive health, changes in health behaviour in maintaining hygiene during menstruation, and the ability to perform dysmenorrhea exercises independently. The client reported a decrease in menstrual pain intensity from moderate to mild, with active parental involvement as the primary support. These findings confirm that the combination of education and dysmenorrhea exercises is an effective non-pharmacological intervention in improving family health maintenance and adolescent reproductive health.

Keywords*:* Early adolescence; dysmenorrhoea; ineffective health maintenance; education; dysmenorrhoea exercises

1. Introduction

Adolescence is a transitional period from childhood to adulthood, which usually occurs between the ages of 12 and 21. During this period, individuals experience various changes that encompass physical, psychological, and social aspects. The earliest and most noticeable changes are biological changes, which include physical growth and the development of organs.(Fauziah, Kartini, and Hikmah 2023). In women, one of the biological characteristics that appears is menstruation. However, there are often various menstrual disorders that adolescent girls may experience. These disorders generally cause physical discomfort that can interfere with daily activities. One of the most common disorders that causes discomfort is dysmenorrhoea.(Sadiman 2020).

Menstrual pain or dysmenorrhoea is one of the physical disorders commonly experienced by women during menstruation, characterised by pain or cramps in the abdomen. This condition is the most common complaint among women of reproductive age (Aprilia, Prastia, and Nasution 2022). Dysmenorrhoea is divided into two types, namely primary and secondary. Primary dysmenorrhoea is menstrual pain that occurs without any abnormalities in the reproductive organs. The pain typically manifests as recurring cramps in the lower abdomen, but may radiate to the lower back or thighs, and is often accompanied by other symptoms such as nausea, vomiting, headaches, or diarrhoea. Meanwhile, secondary dysmenorrhoea is menstrual pain caused by abnormalities in the genital organs, and this condition is more commonly experienced by women over the age of 30. (Putra et al. 2024).

The severity of the pain often forces sufferers to rest and abandon their daily activities, both work and study, for several hours to several days. Medically speaking, dysmenorrhoea is not a disease, but rather a symptom caused by irregular contractions of the uterine muscles (myometrium). The intensity of the symptoms varies, ranging from mild pain to severe pain that interferes with the sufferer's quality of life (Dewi et al., 2022).

The prevalence of menstrual pain worldwide is high, with half of women in various countries experiencing dysmenorrhoea. This condition affects around 40% to 70% of women of reproductive age and is one of the main reasons for absence from school. The majority of dysmenorrhoea sufferers are young women (Khamidah and Sofiyanti 2023). Research in the United States shows that dysmenorrhoea

is a major factor causing repeated absences from school. Several studies also reveal that adolescents who experience dysmenorrhoea tend to experience a decline in academic achievement, social activities, and participation in sports activities (Kojo, Kaunang, and Rattu 2021). According to WHO data, the prevalence of dysmenorrhoea among adolescents ranges from 16.8% to 81%. In Indonesia alone, the incidence of dysmenorrhoea is also quite high, reaching 64.25%. Of this number, an estimated 54.89% is primary dysmenorrhoea, while 9.36% is secondary dysmenorrhoea (Hutapea et al. 2021).

Dysmenorrhoea is a common health problem among adolescents, characterised by discomfort or pain, and often disrupts school activities. Among school-aged adolescents, dysmenorrhoea often causes absenteeism or reduced concentration and performance in class (Molla et al. 2022). Dysmenorrhoea in adolescent girls often has a significant impact on daily activities, especially in school environments. Pain usually occurs on the first or second day of menstruation, with some adolescents experiencing severe pain. This condition often causes them to be unable to concentrate properly during lessons, feel weak, and even choose to remain silent in class. It is not uncommon for some adolescents to choose to go home when the pain becomes too distracting (Fahmiah et al., 2022).

Pain caused by dysmenorrhoea needs to be treated appropriately so that it does not interfere with daily activities, both before and during menstruation. Dysmenorrhoea can be managed through pharmacological and non-pharmacological approaches. Pharmacological therapy includes the administration of analgesics, hormonal therapy, non-steroidal prostaglandins, cervical canal dilation, and non-steroidal anti-inflammatory drugs such as ibuprofen, naproxen, and mefenamic acid (Spiritia 2023). Meanwhile, non-pharmacological treatment can be carried out through light physical activities such as exercise. Exercise has a relaxing effect on the body, thereby reducing pain intensity, while stimulating the release of endorphins in the brain and spinal cord nervous system, which act as natural analgesics to increase comfort and calmness (Ayu Astuti et al., 2021). In addition, exercise also helps improve blood circulation, making it more effective in relieving menstrual pain.

Dysmenorrhea exercises are one of the recommended ways to help relieve pain during menstruation. These exercises involve relaxation techniques that stimulate the release of endorphins. These hormones act as natural analgesics produced by the brain to provide a sense of comfort. The movements in dysmenorrhea exercises are relatively simple, making them easy to practise (Solihah et al. 2023). In family nursing practice, dysmenorrhea exercises are beneficial not only for reducing pain complaints, but also for improving families' understanding of how to support adolescents in managing their reproductive health more effectively (Kinesti & Suyamto 2021).

2. Method

This study utilised a case study design focused on one family with ineffective health maintenance nursing problems. The case was taken from Mr B's family, which was a nuclear family consisting of a father, mother and two biological children. An N was the first daughter, aged 12, who had just experienced menarche and often complained of pain during menstruation (dysmenorrhoea).

Data collection was conducted at Mr. B's house in Bendungan Hamlet in August 2025. The family nursing care process was carried out through the stages of assessment, diagnosis, planning, implementation, and evaluation. The nursing diagnosis was ineffective health maintenance related to a lack of knowledge about dysmenorrhoea and menstrual hygiene.

The interventions provided included education on dysmenorrhoea (definition, causes, signs and symptoms, and treatment), education on menstrual hygiene (the importance of maintaining reproductive organ hygiene during menstruation), and training in dysmenorrhoea exercises as a non-pharmacological measure to reduce menstrual pain. The implementation was carried out directly through counselling and demonstration of the exercises, followed by guidance for the children in practising the movements independently. Parents were also involved to support and monitor the continuity of the intervention at home. The evaluation was conducted by assessing the responses of An. N and her family, including an increase in knowledge, skills in performing exercises for dysmenorrhoea, as well as behavioural changes in maintaining menstrual hygiene.

3. Results and Discussion

3.1. Review Results

The client is a 12-year-old girl who is classified as an early adolescent. The client has experienced menarche and complains of menstrual pain (dysmenorrhea) during each menstrual cycle, especially on the first day. The pain causes discomfort, interfering with her studies and rest. Based on interviews with her parents, the family has not provided appropriate treatment for these complaints. The parents only suggest getting plenty of rest or increasing water intake when menstrual pain occurs. The client and her family do not have sufficient knowledge about dysmenorrhea or effective non-pharmacological treatments. In addition, the client's menstrual hygiene practices are not optimal, such as how to change sanitary pads and maintain genital hygiene.

3.1.1. Nursing Diagnosis Analysis

Based on the assessment data collected from Ms N, the most pressing nursing diagnosis is Ineffective Health Maintenance. This is characterised by complaints of menstrual pain (dysmenorrhoea) on the first day of menstruation, which interferes with daily activities, including sleep patterns, and is related to the family's inability to address reproductive health issues, as evidenced by limited treatment, such as only recommending rest or drinking more water. An. N and her family showed readiness to increase their knowledge regarding the implementation of dysmenorrhea exercises as part of non-pharmacological therapy to reduce menstrual pain. Therefore, the diagnosis of ineffective health maintenance was selected as the main focus in nursing care with the aim of providing appropriate interventions to increase understanding and assist in optimising efforts to manage menstrual pain.

3.1.2. Analysis of Nursing Care Plans

The diagnosis of ineffective health maintenance focuses on improving the ability of children and families to manage reproductive health, particularly in dealing with menstrual pain complaints. The main objective of this plan is for clients to understand dysmenorrhoea and non-pharmacological therapies to reduce pain, while families are expected to play an active role in providing support and assistance.

After seven sessions, it is expected that clients will have increased knowledge about dysmenorrhoea, including its definition, causes, signs and symptoms, and treatment methods. Clients are also expected to be able to practise dysmenorrhoea exercises independently as a non-pharmacological therapy, while demonstrating behavioural changes in maintaining personal hygiene during menstruation, such as changing sanitary pads regularly and maintaining genital hygiene. In addition, parents can understand their important role in accompanying their children and helping to ensure that interventions can be implemented sustainably at home.

To support the achievement of these objectives, interventions were carried out through scheduled education sessions with tailored materials and media that were easy for children to understand. This education was supplemented with discussion sessions to improve understanding and motivate clients. Additionally, demonstrations of dysmenorrhoea exercises are conducted, which clients then practise directly until they become accustomed to performing them independently. As supplementary material, educational leaflets are provided for children and families to review. Through this approach, it is hoped that clients will not only understand the concept of dysmenorrhoea but also be able to manage their menstrual pain independently with family support.

3.1.3. Implementation Analysis and Evaluation

Nursing care was implemented according to the plan that had been drawn up. Education about dysmenorrhoea was provided on a scheduled basis through several meetings using simple, easy-to-understand media, accompanied by discussion sessions to reinforce the understanding of clients and their families. In addition, dysmenorrhoea exercises were introduced and practised directly until An. N was able to do them independently with the support of her parents.

The post-intervention evaluation showed an increase in An. N's knowledge about dysmenorrhoea, both in terms of understanding, causes, and treatment methods. An. N began to get used to doing dysmenorrhoea exercises when experiencing menstrual pain and reported a decrease in pain intensity from moderate to mild. Menstrual hygiene behaviour also improved, as indicated by regular pad

changing and maintaining genital hygiene. Parents played an active role in providing support, ensuring the continuity of the intervention at home.

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3.2. Discussion

The dysmenorrhoea experienced by Ms N indicates a reproductive health problem that has not been properly addressed. The menstrual pain felt on the first day of menstruation interferes with daily activities, including sleep patterns, while the family only provides simple treatment in the form of recommending rest and drinking plenty of water. This condition reflects ineffective health care because the family has not been able to manage the complaint appropriately. This is in line with research (Fitriahadi and Nerawati 2024), that adolescents with low knowledge about dysmenorrhoea tend to only use simple and ineffective treatments, such as resting or drinking warm water.

The selection of the demonstration method for dysmenorrhea exercises in this case was based on the characteristics of the intervention, which required psychomotor skills. According to Notoatmodjo (2018), The demonstration method is an effective health education strategy because clients not only acquire knowledge cognitively, but are also able to master skills through direct practice. With practice, adolescents can imitate movements correctly, receive direct feedback from educators, and become more confident in doing them independently. This makes demonstrations superior to lectures or leaflets alone, especially in interventions based on physical exercise such as dysmenorrhea exercises.

After receiving education and training on dysmenorrhea exercises, Ms N was able to practise the movements independently and reported a decrease in pain intensity from moderate to mild. This proves that non-pharmacological interventions such as simple physical exercises are effective in helping adolescents reduce menstrual complaints. Research (Covey 2021) supports this finding by stating that regular physical activity stimulates the release of endorphins, thereby reducing the sensation of pain in primary dysmenorrhoea.

In addition to reducing pain complaints, the education provided also increased An. N's understanding of dysmenorrhoea and the importance of maintaining personal hygiene during menstruation. This change was evident in An. N's behaviour, as she began to diligently change her sanitary pads and maintain genital hygiene. These results are in line with research findings.
(Mulyati, Putri, and Jannah 2025), which states that reproductive health education interventions effectively improve knowledge and practices of menstrual hygiene among adolescents, thereby having a positive impact on the prevention of reproductive tract infections.

Family involvement in the intervention was also an important factor in the success of the treatment. Parents played an active role in accompanying the exercise programme and monitoring hygiene habits, thereby creating a more supportive home environment. This is consistent with research findings (Syahrianti *et al.* 2022) which confirms that family support has a significant relationship with adolescent compliance in applying menstrual pain management. Thus, the integration of the family's role in nursing care has been proven to strengthen the effectiveness of the intervention provided.

Overall, the results of this study confirm that a combination of health education and dysmenorrhea exercises is a comprehensive strategy that can be applied in family nursing practice. This intervention not only focuses on reducing pain physiologically, but also strengthens the behavioural and social support aspects needed by adolescents to manage their reproductive health. Although this study was limited to one family case, the findings are in line with other studies (Hariyanti, 2023) which emphasises the importance of holistic family-based interventions in supporting adolescent health.

4. Conclusion

The results of this case study indicate that dysmenorrhoea experienced by early adolescents, such as client An. N, can interfere with daily activities and reflect ineffective health maintenance within the family. The client experienced menstrual pain on the first day, which affected her daily activities and sleep patterns, while her family only provided simple treatment in the form of recommending rest and drinking more water.

Providing education about dysmenorrhea and menstrual hygiene, as well as training in dysmenorrhea exercises as a non-pharmacological intervention, has been proven to increase knowledge, change health behaviour, and reduce the intensity of menstrual pain from moderate to mild. Family involvement in accompanying clients also plays an important role in the success of the intervention. Thus, the

combination of education and dysmenorrhea exercises can be a comprehensive strategy in family nursing care to improve adolescent reproductive health.

For future researchers, it is hoped that they can conduct research with a broader sample coverage, a stronger research design, and long-term evaluation, so that the effectiveness of educational interventions and dysmenorrhea exercises can be proven more deeply and continuously.

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