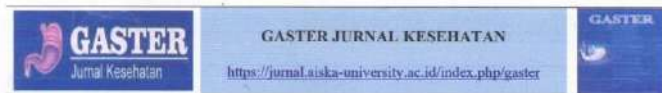


1. Submit Jurnal Gaster (5-2-2024)
 - A statement of authenticity article
 - Ethical Clearance
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2. Pre Review Discussions (6-2-2024)
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Peneliti : Lilik Ariyanti, M.P.H

NIM/ NIDN : 0625028802

Unit / Lembaga : D4 Fisioterapi Sekolah Tinggi Ilmu Kesehatan Nasional

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Jakarta, 27 November 2023

Ketua,



dr. Endang Widhiyastuti, M.Gizi



Dysmenorrhea and Practice of Menstrual Hygiene in Adolescent Females

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ARTICLE INFO

Keywords : Adolescent; Menstruation; Dysmenorrhea; Hygiene

ABSTRACT

Background: Adolescence is a relatively fast period of physical change experienced by adolescents when puberty is marked by the first menstruation (menarche). Menstruation and menstrual practices still face many social, cultural, and religious boundaries that are major obstacles to maintaining hygiene during menstruation. **Objective:** This study aims to determine the practice of hygiene of menstruation and dysmenorrhea in young women. **Method:** This research uses a cross-sectional design with a quantitative approach. Samples are 120 teenage girls. WaLLIDD score is an instrument used to measure dysmenorrhea. **Results:** The results of this study show as many as 71.7% of Menarche adolescent girls at the age of 12-14 years. As many as 44.4% of respondents said dysmenorrhea almost always interfered with work activities. Data also shows that nearly 100 % of respondents wash their hands before and after replacing menstrual materials. The majority of them wash their genitals using soap (79.1%) and replace pads (≥ 3 times) 72.5%. **Conclusion and suggestions:** Primary dysmenorrhea prevalence in adolescent was quite high and can limit working ability. Good knowledge about menstruation will help adolescents practice safe and hygienic menstruation. For this reason, the right policy must be formulated and implemented, which can be part of the overall health and community development policy.

INTRODUCTION

Adolescence is a transition period from childhood to adulthood and is characterized by a surge of physical, endocrine, emotional, and mental growth, with changes from full dependence to relative independence (Best and Ban, 2021). Adolescence for a girl is a period of physical and psychological preparation to be a safe mother (Sawyer et al., 2018).

Menstrual disorders are a common symptom in late adolescence. Dysmenorrhea is a common problem in women of childbearing age (McKenna and Fogleman, 2021). Primary dysmenorrhea

is defined as menstrual pain in women with normal pelvic anatomy, usually starting in adolescence. Symptoms rarely appear in the first six months after menarche (Burnett and Lemyre, 2017). The affected woman will experience pain and intermittent spasms which are usually concentrated in the Suprapubic area. Pain can spread to the back of the feet or lower back. Systemic symptoms in the form of nausea, vomiting, diarrhea, fatigue, mild fever, and headaches or mild headaches are quite common. Pain usually occurs within a few hours after the start of menstruation and reaches its peak when the bloodstream of the first or second

day of the cycle (McKenna and Fogleman, 2021).

Menstruation and menstrual practices still face many social, cultural, and religious boundaries that are major obstacles to maintaining hygiene during menstruation. In many areas, especially in rural areas, girls are not ready and aware of menstruation so they face many difficulties and challenges at home, school, and workplaces. Low knowledge, and inaccurate, or incomplete about menstruation is a big obstacle in managing personal hygiene and menstruation (Kaur et al., 2018).

Education plays an important role in hygiene management during menstruation. By educating adolescent girls about menstruation, it is hoped that they can maintain hygiene during menstruation. Because of expectations and cultural restrictions, many girls do not get enough information about menstrual reality. As a result, they feel abnormal, sick, or traumatized. Girls who are not ready to experience fear, confusion, and shame by menarche tend to develop a negative attitude towards menstruation (Kaur et al., 2018)

This study aims to analyze the practice of menstruation and young women's dysmenorrhea in Surakarta.

METHODS AND MATERIALS

This cross-sectional study was conducted in the cities of Surakarta and Sukoharjo. The study was conducted from December 2023 to January 2024. Samples were adolescent female who had menarche.

Sampling was chosen by accidental sampling with a total sample of 120 people

who met the inclusion criteria. Tools and procedures for data collection using a structured WaLIDD score questionnaire (work ability, location, intensity, pain day, dysmenorrhea). This questionnaire to identify dysmenorrhea has been adopted from the previous literature (Teherán et al., 2018). The instruments used in this study were WaLIDD's questionnaire namely (workability, location, intensity, sick day). The WaLIDD's Questionnaire serves to collect dysmenorrhoea research data in adolescent girls by filling it out according to what respondents experienced.

The WaLIDD's Questionnaire contains 4 questions with indicators: the ability to work, 1 question = 0: never, 1: almost never, 2: almost always, 3: always; Location = 0: None, 1: 1 location. 2: 2-3 locations, 3: 4 locations; Intensity = 0: does not hurt, 1: hurts a little bit, 2: hurts a little more – hurts even more, 3: hurts a whole lot – hurts worst; days of pain = 0: None, 1: 1-2 days, 2: 3-4 days, 3: ≥ 5 days. The interpretation of the WaLIDD's Questionnaire : 0 = without dysmenorrhea; 1-4 = mild dysmenorrhea; 5-7 = moderate dysmenorrhea; 8-12 = severe dysmenorrhea.

Characteristics of respondents such as age and menarche are depicted by the percentage, frequency, table, mean, and range between the quartiles. Dysmenorrhea prevalence is calculated and presented in the form of proportions.

RESULTS AND DISCUSSION

Table 1 shows the sociodemographic characteristics of respondents. A total of 120 adolescent female returned the questionnaire. The average age of the respondents was $16.39 \pm 1,007$ and the average age of menarche was $12.32 \pm 1,202$.

Table 1. Socio-Demographic Characteristics of Respondents

Characteristics	Frequency	
	(n=120)	%

Respondent age		
15 years	13	10.83
16 years	61	50.83
17 years	42	35.00
20 years	3	2.50
22 years	1	0.83
Menarche age		
10 years	5	4.17
11 years	26	21.67
12 years	40	33.33
13 years	29	24.17
14 years	17	14.17
15 years	1	0.83
16 years	2	1.67

Table 2 shows that respondents experience early menarche (<12 years) of 25.8% and late menarche (> 14) of 2.5%. As many as 80.83 % (97/120) experienced moderate to severe dysmenorrhea. Respondents reported that 50% of dysmenorrhea almost

always interfered with their work activities, and 25.83% stated that the intensity was hurts a whole lot – hurts worst. The majority experienced 2-3 locations of dysmenorrhea pain (53.33%) and days of pain 1-2 days.

Table 2. Menstrual Characteristics of Respondents

Characteristics	Frequency	%
Menarche age		
< 12 years	31	25.8
12-14 years	86	71.7
15-17 years	3	2.5
WaLLIDD Score		
Work Ability		
Never	9	7.50
Almost Never	31	25.83
Almost Always	60	50.00

Always	20	16.67
Pain Intensity		
Does not hurt	4	3.33
Hurts a little bit	47	39.17
Hurts a little more – hurts even more	38	31.67
Hurts a whole lot – hurts worst	31	25.83
Pain Location		
1 Location	56	46.67
2-3 Locations	64	53.33
4 Locations	0	0.00
Days		
0	6	5
1-2 Days	88	73.33
3-4 Days	14	11.67
>=5 Days	12	10
Dysmenorrhea status		
Mild dysmenorrhea	23	19.17
Moderate dysmenorrhea	61	50.83
Severe dysmenorrhea	36	30
Total	120	100

Table 3 shows the hygiene practices carried out by adolescents during menstruation. Nearly 100 % of respondents wash their hands before and after replacing menstrual

materials. The majority of them wash their genitals using soap (79.1%) and replace pads (≥ 3 times) 72.5%.

Table 3. Menstrual Hygiene Practices

Hygiene Practice	Frequency	%
Hand washing habits before changing menstrual materials		
Never	0	0
Sometimes	22	18.3
Every Times	98	81.7

Hand washing habits after changing menstrual materials		
Never	0	0
Sometimes	3	2.5
Every Times	117	97.5
Wash the genitals using soap		
Never	24	20.00
Sometimes	50	41.67
Every Times	46	38.33
Changing menstrual materials		
1 times	1	0.83
2 times	32	26.67
3 times	64	53.33
4 times	23	19.17
Total	120	100

Adolescence is known as a special critical period for women where significant hormonal and emotional changes occur including the beginning of their first menstruation. Although menstruation is a normal physiological process in reproductive age, this is surrounded by taboo perception. As a result, many adolescent females do not have access to adequate information about menstruation and hygiene practices.

Menstruation is a normal physiological process but is often exacerbated by premenstrual disorders (Saddeqa et al., 2018). Menstrual disorders can be a manifestation of serious health problems which if not detected can develop and cause significant morbidity. Absence in schools and disorders of life activities/quality of life are some of the reported consequences of menstrual disorders (Fernández-Martínez et al., 2019).

This study shows that most of the menarche's adolescent female at the age of 12-14 years (71.7%). However, there are

some teenagers whose menarche is slower (2.5%). Menarche is considered early if it occurs at or before the age of ten and is late if it occurs at or more than the age of 15 years. (De Sanctis et al., 2019) Menarche is also considered delayed if there are more than three years between the emergence of Thelarche and the first menstruation. In the third year after Menarche, 60-80% of the menstrual cycle lasts for 21 to 34 days. In women who experience early menarche, 50% of the cycle experiences ovulation in the first year, and almost all of them experience ovulation in the fifth year after the menarche. Conversely, it takes about 8 to 12 years so that all cycles become ovulation in women who experience menarche more slowly. (Hickey, 2003)

Based on research conducted, 44.4% of respondents stated that dysmenorrhea almost always interfered with work ability. When dysmenorrhea is susceptible to diarrhea, pelvic pain, nausea, vomiting, and dizziness. This complaint arises during dysmenorrhea which results in disruption of

learning activities. Conversely, women who experience dysmenorrhea must continue to move as usual, like women who do not experience dysmenorrhea. Some women experience severe and continuous dysmenorrhea causing them to feel weak, weak, and even faint to have to see a doctor because the dysmenorrhea experienced is very disturbing and painful.(Azagew et al., 2020)

Dysmenorrhea may have a significant impact on the daily lives of adolescent girls. The impact is reflected in the level of absence at school or work. Dysmenorrhea can also limit adolescents to do physical or sports activity. (Habibi et al., 2015)

This study reported that 25.83% of respondents stated that the intensity was very painful and had a dysmenorrhea of 2-3 pain locations (53.33%) with a length of pain of 1-2 days. Dysmenorrhea is defined as pain during the menstrual cycle. The pain is usually located in the lower abdomen and can spread to the inner thighs and back. This is a very common problem in gynecology and can hurt life. (Nagy H; Carlson K; Khan MAB, n.d.) The majority of women with dysmenorrhea do not seek assistance from medical professionals. Alternatively, they do their treatment to relieve the symptoms of pain with the use of analgesics, such as nonsteroidal anti-inflammatory drugs and paracetamol. (Kapadi and Elander, 2020; Zahradnik et al., 2010)

In general, women have a strategy to overcome menstrual problems that vary greatly in each country depending on individual personal preferences, available resources, economic status, local traditions, and cultural beliefs and knowledge or education. However, due to different cultural and social misunderstandings related to menstruation, most young women do not have enough information about how to maintain menstrual hygiene.

In this study, adolescent girls always wash before and after replacing menstrual materials (> 90%). The average respondent replaced the pads 2.91 ± 0.7 . Poor menstrual hygiene management can cause various negative impacts including health, psychosocial, and education impacts. Health consequences include urinary tract infections, menstrual pain, and anemia.(Torondel et al., 2018) (Kashyap and Choudhari, 2023) Psychosocial consequences include fear, shame, ridicule, intimidation, exclusion, and lack of interaction. The consequences of education include absence from school.(House et al., 2013) (Dasgupta and Sarkar, 2008) Adolescent girls are reportedly suffering from various reproductive health problems associated with menstruation including abdominal pain, menstrual blood odor, burning sensation during urination, and a lot of menstrual blood. (Thakur et al., 2014).

CONCLUSIONS AND SUGGESTIONS

The prevalence of primary dysmenorrhea in adolescent girls is quite high which can limit the ability of work/daily activities. Good knowledge about menstruation will help adolescents practice safe and hygienic menstruation. For this reason, the right policy must be formulated and implemented, which can be part of the overall health and community development policy.

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Dysmenorrhea and Practice of Menstrual Hygiene in Adolescent Females

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ARTICLE INFO

Keywords : Adolescent; Menstruation; Dysmenorrhea; Hygiene

ABSTRACT

Background: Adolescence is a relatively fast period of physical change experienced by adolescents when puberty is marked by the first menstruation (menarche). Menstruation and menstrual habits continue to encounter numerous social, cultural, and religious barriers, which make it extremely difficult to maintain good hygiene during the menstrual cycle. **Objective:** Analyzing menstruation practices and the prevalence of dysmenorrhea in adolescent female is the goal of this study. **Method:** The cross-sectional investigation was carried out in Sukoharjo and Surakarta. The research was carried out between December 2023 and January 2024. Adolescent female samples had reached menarche. WaLLIDD score is an instrument used to measure dysmenorrhea. **Results:** The results of this study show as many as 71.7% of Menarche adolescent girls at the age of 12-14 years. As many as 44.4% of respondents said dysmenorrhea almost always interfered with work activities. Data also shows that nearly 100 % of respondents wash their hands before and after replacing menstrual materials. The majority of them wash their genitals using soap (79.1%) and replace pads (≥ 3 times) 72.5%. **Conclusion and suggestions:** Primary dysmenorrhea is a common condition among adolescent females, which can make it challenging for them to work or go about their daily life. Adolescent females who are knowledgeable about their periods can make hygienic and safe menstrual habits.

INTRODUCTION

Adolescence is a period of fast hormonal, mental, emotional, and physical growth that heralds the transition from total dependence to a certain level of relative independence. It is the transitional stage between childhood and maturity. (Best and Ban, 2021) A girl's adolescence is a time of physical and mental preparation for becoming a responsible mother. (Sawyer *et al.*, 2018)

Late adolescence is a common time for menstrual problems to manifest. Dysmenorrhea is a prevalent issue among

women who are fertile. Menstrual pain in women with normal pelvic anatomy that typically begins in adolescence is known as primary dysmenorrhea. Seldom do symptoms start to show up six months after menarche. (Burnett and Lemyre, 2017)

Pain and sporadic spasms, which are typically localized in the suprapubic region, will be experienced by the affected women. Lower back or rear foot pain are possible to develop. Common systemic symptoms include headaches or mild headaches, tiredness, vomiting, diarrhea, and mild fever. The first or second day of the cycle is when the pain peaks, usually occurring a

few hours following the onset of menstruation. (McKenna and Fogleman, 2021)

Maintaining hygiene during menstruation is significantly hampered by the numerous social, cultural, and religious barriers that still surround menstruation and menstrual customs. Girls often encounter many obstacles at home, at school, and at work since they are not prepared for or aware of menstruation, especially in rural communities. One of the biggest challenges in managing menstruation and personal hygiene is having little or wrong understanding about the menstrual cycle. (Kaur, Kaur and Kaur, 2018)

Management of hygiene during menstruation is greatly aided by education. It is believed that by teaching teenage females about their periods, they will be able to practice good hygiene. Many girls do not receive enough knowledge on the realities of menstruation because of cultural norms and expectations. They feel strange, ill, or traumatized as a result. Girls who are not prepared for the feelings of perplexity, dread, and guilt that come with menarche often grow to detest their periods. (Kaur, Kaur and Kaur, 2018)

Analyzing menstruation practices and the prevalence of dysmenorrhea in adolescent female is the goal of this study.

METHODS AND MATERIALS

The cross-sectional investigation was carried out in Sukoharjo and Surakarta. The research was carried out between December 2023 and January 2024. Adolescent female samples had reached menarche..

The sample for sampling was chosen by random sampling, and a total of 120 individuals who satisfied the inclusion criteria were included. Instruments and

protocols for collecting data with a systematic WaLIDD score questionnaire (dysmenorrhea, work ability, location, intensity, and pain day). This dysmenorrhea identification questionnaire was taken from earlier research publications. (Teherán *et al.*, 2018) The WaLIDD questionnaire, which asks about workability, location, intensity, and sick day, was one of the study's instruments. Adolescent female who experience dysmenorrhea can provide study data by answering the WaLIDD's Questionnaire, which they fill out based on their experiences..

Four questions with indicators are included in the WaLIDD Questionnaire: one about the ability to work, = 0: never, 1: almost never, 2: almost always, 3: always; Location = 0: None, 1: 1 location. 2: 2-3 locations, 3: 4 locations; Intensity = 0: does not hurt, 1: hurts a little bit, 2: hurts a little more – hurts even more, 3: hurts a whole lot – hurts worst; days of pain = 0: None, 1: 1-2 days, 2: 3-4 days, 3: ≥ 5 days. The interpretation of the WaLIDD's Questionnaire : 0 = without dysmenorrhea; 1-4 = mild dysmenorrhea; 5-7 = moderate dysmenorrhea; 8-12 = severe dysmenorrhea.

Characteristics of respondents such as age and menarche are depicted by the percentage, frequency, table, mean, and range between the quartiles. Dysmenorrhea prevalence is calculated and presented in the form of proportions.

RESULTS AND DISCUSSION

The respondents' sociodemographic details are displayed in Table 1. The questionnaire was completed and returned by 120 adolescent female. The mean age of the participants was $16.39 \pm 1,007$ years and the menarche age was $12.32 \pm 1,202$ on average.

Table 1. Respondents' sociodemographic characteristics

Characteristics	Frequency	
	(n=120)	%
Respondent age (years)		
15	13	10.83
16	61	50.83
17	42	35.00
20	3	2.50
22	1	0.83
Menarche age (years)		
10	5	4.17
11	26	21.67
12	40	33.33
13	29	24.17
14	17	14.17
15	1	0.83
16	2	1.67

Table 2 shows that respondents experience early menarche (<12 years) of 25.8% and late menarche (> 14) of 2.5%. As many as 80.83 % (97/120) experienced moderate to severe dysmenorrhea. Respondents reported that 50% of dysmenorrhea almost

always interfered with their work activities, and 25.83% stated that the intensity was hurts a whole lot – hurts worst. The majority experienced 2-3 locations of dysmenorrhea pain (53.33%) and days of pain 1-2 days.

Table 2. Menstrual Characteristics of Respondents

Characteristics	Frequency	%
Menarche age		
< 12 years	31	25.8
12-14 years	86	71.7
15-17 years	3	2.5
WaLLIDD Score		
Work Ability		
Never	9	7.50
Almost Never	31	25.83

Almost Always	60	50.00
Always	20	16.67
Intensity		
Does not hurt	4	3.33
Hurts a little bit	47	39.17
Hurts a little more – hurts even more	38	31.67
Hurts a whole lot – hurts worst	31	25.83
Location		
1 Location	56	46.67
2-3 Locations	64	53.33
4 Locations	0	0.00
Days		
0	6	5
1-2 Days	88	73.33
3-4 Days	14	11.67
>=5 Days	12	10
Dysmenorrhea status		
Mild dysmenorrhea	23	19.17
Moderate dysmenorrhea	61	50.83
Severe dysmenorrhea	36	30
Total	120	100

Table 3 shows the hygiene practices carried out by adolescents during menstruation. Nearly 100 % of respondents wash their hands before and after replacing menstrual

materials. The majority of them wash their genitals using soap (79.1%) and replace pads (≥ 3 times) 72.5%.

Table 3. Menstrual Hygiene Practices

Hygiene Practice	Frequency	%
Hand washing habits before changing menstrual materials		
Never	0	0
Sometimes	22	18.3
Every Times	98	81.7

Hand washing habits after changing menstrual materials

Never	0	0
Sometimes	3	2.5
Every Times	117	97.5

Wash the genitals using soap

Never	24	20.00
Sometimes	50	41.67
Every Times	46	38.33

Changing menstrual materials (times)

1	1	0.83
2	32	26.67
3	64	53.33
4	23	19.17
Total	120	100

Adolescence is seen as a unique and crucial time in women's lives when major hormonal and emotional changes take place, along with the onset of their first menstrual cycle. Despite being a normal physiological procedure for people of reproductive age, menstruation still carries stigma. As a result, many young girls may not have access to adequate information about menstruation and proper hygiene practices. The menstrual cycle is a typical biological phenomenon but is often exacerbated by pre-menstrual disorders. (Sadeeqa *et al.*, 2018) Period irregularities may indicate more serious health issues that, if left untreated, could worsen and result in substantial morbidity. (Odongo *et al.*, 2023) (Fernández-Martínez, Onieva-Zafra and Parra-Fernández, 2019) Menstrual abnormalities have been linked to deficiencies in education and disruptions in daily activities and quality of life. (Maity *et al.*, 2022)

This study shows that most of the menarche's adolescent female at the age of 12-14 years (71.7%). Some teenage girls, however, menarche later than others (2.5%). Menarche is regarded as late if it happens at or after the age of fifteen and early if it happens at or before the age of 10 (De Sanctis *et al.*, 2019). Menarche is also considered delayed if there are more than three years between the emergence of Thelarche and the first menstruation. Sixty to eighty percent of the menstrual cycle lasts for 21 to 34 days in the third year following menarche. 50% of the cycle experiences ovulation in the first year after the menarche, and nearly all of the women who receive early menarche experience ovulation in the fifth year. On the other hand, women who menarche more slowly take 8 to 12 years to reach ovulation in every cycle. (Lacroix AE, Gondal H, Shumway KR, 2024)

44.4% of respondents to a study claimed that dysmenorrhea nearly usually interfered with their ability to perform duties at work. When diarrhea, pelvic discomfort, nausea, vomiting, and dizziness are possible side effects of dysmenorrhea. This issue is brought on by dysmenorrhea, which interferes with school-related activities. In contrast, women with dysmenorrhea have to carry on with their regular activities, just as women without the condition. Dysmenorrhea is a severe and chronic discomfort and unpleasant condition that affects some women to the point where they feel weak, faint, and need medical attention. (Azagew, Kassie and Walle, 2020)

Dysmenorrhea may have a significant impact on the daily lives of adolescent girls. The impact is reflected in the level of absence at school or work. Dysmenorrhea can also limit adolescents to do physical or sports activity. (Macgregor *et al.*, 2023)

According to this study, 25.83% of participants said the pain was really excruciating, and 53.33% reported having dysmenorrhea in two to three areas with pain lasting one to two days. Pain that is felt during the menstrual cycle is referred to as dysmenorrhea. Though it can occasionally radiate to the inner thighs and back, the pain normally starts in the lower abdomen. This is a severe problem that frequently arises in gynecology. (Nagy H; Carlson K; Khan MAB, 2023) Most women who experience dysmenorrhea choose not to consult a doctor for help. As an alternative, they treat patients by using analgesics, such as paracetamol and nonsteroidal anti-inflammatory medications, to reduce pain feelings. (Cherenack *et al.*, 2023) (Kapadi and Elander, 2020)

In general, menstruation-related issues are handled by women in a variety of ways that differ significantly among nations based on factors such as personal preferences, financial means, economic standing, regional customs, cultural knowledge, and education. Unfortunately, the majority of young women lack sufficient knowledge on menstrual hygiene because of several cultural and societal misconceptions around menstruation..

More than 90% of the adolescent females in this study consistently wash both before and after changing their menstruation products. The mean participant swapped out the pads at 2.91 ± 0.7 . Negative effects on health, mental health, and education might result from poor management of menstrual hygiene. Menstrual discomfort, urinary tract infections, and anemia are among the health effects (Torondel *et al.*, 2018) (Kashyap and Choudhari, 2023) Adolescent females are allegedly experiencing a range of period-related reproductive health issues, such as burning when urinating, abdominal pain, and excessive menstrual blood. (De Sanctis *et al.*, 2022)

CONCLUSIONS AND SUGGESTIONS

Primary dysmenorrhea is a common condition among adolescent females, which can make it challenging for them to work or go about their daily life. Adolescent females who are knowledgeable about their periods can make hygienic and safe menstrual habits. This means that the appropriate policy, which can be a component of the overall policy for community development and health, needs to be developed and put into effect.

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Dysmenorrhea and Practice of Menstrual Hygiene in Adolescent Females

ARTICLE INFO

Keywords : Adolescent; Menstruation; Dysmenorrhea; Hygiene

ABSTRACT

Background: Adolescence is a relatively fast period of physical change experienced by adolescents when puberty is marked by the first menstruation (menarche). Menstruation and menstrual habits continue to encounter numerous social, cultural, and religious barriers, which make it extremely difficult to maintain good hygiene during the menstrual cycle. **Objective:** Analyzing menstruation practices and the prevalence of dysmenorrhea in adolescent female is the goal of this study. **Method:** The cross-sectional investigation was carried out in Sukoharjo and Surakarta. The research was carried out between December 2023 and January 2024. Adolescent female samples had reached menarche. **WaLLIDD** score is an instrument used to measure dysmenorrhea. **Results:** The results of this study show as many as 71.7% of Menarche adolescent girls at the age of 12-14 years. As many as 44.4% of respondents said dysmenorrhea almost always interfered with work activities. Data also shows that nearly 100 % of respondents wash their hands before and after replacing menstrual materials. The majority of them wash their genitals using soap (79.1%) and replace pads (≥ 3 times) 72.5%. **Conclusion and suggestions:** Primary dysmenorrhea is a common condition among adolescent females, which can make it challenging for them to work or go about their daily life. Adolescent females who are knowledgeable about their periods can make hygienic and safe menstrual habits.

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INTRODUCTION

Adolescence is a period of fast hormonal, mental, emotional, and physical growth that heralds the transition from total dependence to a certain level of relative independence. It is the transitional stage between childhood and maturity. (Best and Ban, 2021) A girl's adolescence is a time of physical and mental preparation for becoming a responsible mother. (Sawyer *et al.*, 2018)

Late adolescence is a common time for menstrual problems to manifest. Dysmenorrhea is a prevalent issue among women who are fertile. Menstrual pain in

women with normal pelvic anatomy that typically begins in adolescence is known as primary dysmenorrhea. Seldom do symptoms start to show up six months after menarche. (Burnett and Lemyre, 2017)

Pain and sporadic spasms, which are typically localized in the suprapubic region, will be experienced by the affected women. Lower back or rear foot pain are possible to develop. Common systemic symptoms include headaches or mild headaches, tiredness, vomiting, diarrhea, and mild fever. The first or second day of the cycle is when the pain peaks, usually occurring a few hours following the onset of

menstruation. (McKenna and Fogleman, 2021)

Maintaining hygiene during menstruation is significantly hampered by the numerous social, cultural, and religious barriers that still surround menstruation and menstrual customs. Girls often encounter many obstacles at home, at school, and at work since they are not prepared for or aware of menstruation, especially in rural communities. One of the biggest challenges in managing menstruation and personal hygiene is having little or wrong understanding about the menstrual cycle. (Kaur, Kaur and Kaur, 2018)

Management of hygiene during menstruation is greatly aided by education. It is believed that by teaching teenage females about their periods, they will be able to practice good hygiene. Many girls do not receive enough knowledge on the realities of menstruation because of cultural norms and expectations. They feel strange, ill, or traumatized as a result. Girls who are not prepared for the feelings of perplexity, dread, and guilt that come with menarche often grow to detest their periods. (Kaur, Kaur and Kaur, 2018)

Analyzing menstruation practices and the prevalence of dysmenorrhea in adolescent female is the goal of this study.

METHODS AND MATERIALS

The cross-sectional investigation was carried out in Sukoharjo and Surakarta. The research was carried out between December 2023 and January 2024. Adolescent female samples had reached menarche.

The sample for sampling was chosen by random sampling, and a total of 120 individuals who satisfied the inclusion criteria were included. Instruments and protocols for collecting data with a

systematic WaLIDD score questionnaire (dysmenorrhea, work ability, location, intensity, and pain day). This dysmenorrhea identification questionnaire was taken from earlier research publications. (Teherán *et al.*, 2018) The WaLIDD questionnaire, which asks about workability, location, intensity, and sick day, was one of the study's instruments. Adolescent female who experience dysmenorrhea can provide study data by answering the WaLIDD's Questionnaire, which they fill out based on their experiences..

Four questions with indicators are included in the WaLIDD Questionnaire: one about the ability to work, = 0: never, 1: almost never, 2: almost always, 3: always; Location = 0: None, 1: 1 location, 2: 2-3 locations, 3: 4 locations; Intensity = 0: does not hurt, 1: hurts a little bit, 2: hurts a little more – hurts even more, 3: hurts a whole lot – hurts worst; days of pain = 0: None, 1: 1-2 days, 2: 3-4 days, 3: ≥ 5 days. The interpretation of the WaLIDD's Questionnaire : 0 = without dysmenorrhea; 1-4 = mild dysmenorrhea; 5-7 = moderate dysmenorrhea; 8-12 = severe dysmenorrhea.

Characteristics of respondents such as age and menarche are depicted by the percentage, frequency, table, mean, and range between the quartiles. Dysmenorrhea prevalence is calculated and presented in the form of proportions.

RESULTS AND DISCUSSION

The respondents' sociodemographic details are displayed in Table 1. The questionnaire was completed and returned by 120 adolescent female. The mean age of the participants was $16.39 \pm 1,007$ years and the menarche age was $12.32 \pm 1,202$ on average.

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Table 1. Respondents' sociodemographic characteristics

Characteristics	Frequency	
	(n=120)	%

Respondent age (years)		
15	13	10.83
16	61	50.83
17	42	35.00
20	3	2.50
22	1	0.83
Menarche age (years)		
10	5	4.17
11	26	21.67
12	40	33.33
13	29	24.17
14	17	14.17
15	1	0.83
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Table 2 shows that respondents experience early menarche (<12 years) of 25.8% and late menarche (> 14) of 2.5%. As many as 80.83 % (97/120) experienced moderate to severe dysmenorrhea. Respondents reported that 50% of dysmenorrhea almost

always interfered with their work activities, and 25.83% stated that the intensity was hurts a whole lot – hurts worst. The majority experienced 2-3 locations of dysmenorrhea pain (53.33%) and days of pain 1-2 days.

Table 2. Menstrual Characteristics of Respondents

Characteristics	Frequency	%
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< 12 years	31	25.8
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Almost Never	31	25.83
Almost Always	60	50.00
Always	20	16.67

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1 Location	56	46.67
2-3 Locations	64	53.33
4 Locations	0	0.00
Days		
0	6	5
1-2 Days	88	73.33
3-4 Days	14	11.67
>=5 Days	12	10
Dysmenorrhea status		
Mild dysmenorrhea	23	19.17
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Severe dysmenorrhea	36	30
Total	120	100

Table 3 shows the hygiene practices carried out by adolescents during menstruation. Nearly 100 % of respondents wash their hands before and after replacing menstrual

materials. The majority of them wash their genitals using soap (79.1%) and replace pads (≥ 3 times) 72.5%.

Table 3. Menstrual Hygiene Practices

Hygiene Practice	Frequency	%
Hand washing habits before changing menstrual materials		
Never	0	0
Sometimes	22	18.3
Every Times	98	81.7
Hand washing habits after changing menstrual materials		

Never	0	0
Sometimes	3	2.5
Every Times	117	97.5
Wash the genitals using soap		
Never	24	20.00
Sometimes	50	41.67
Every Times	46	38.33
Changing menstrual materials (times)		
1	1	0.83
2	32	26.67
3	64	53.33
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CONCLUSIONS AND SUGGESTIONS

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Commented [CS11]: In conclusion, I have not seen a correlation between research and existing theories

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5. Revisi

- Desk Review (12-2-2024)
- Editor Decision

Desk Review



Participants

Endang Sri Wahyuni (endangsriwahyuni)

lilik ariyanti (lilikariyanti01)

Messages	
Note	From
Dear Author, Attention! Use the template in our journal! (two columns) and read the minimum citations! The results of the review from the reviewer have been sent to us, and the reviewer gives recommendations to make improvements. Instructions in correcting: Please fix each revision file, and do not make one, reviewer comments on the manuscript should not be deleted, and put the correction sentence on after the reviewer's comment. The repair sentence, please be blocked in green so that we know which sentence the repair is. File each repair, and please upload it in the revision menu. Thanks Regards	endangsriwahyuni 2024-02-12 07:11 AM

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Notifications

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[Gaster] Editor Decision

2024-02-12 07:12 AM

lilik ariyanti, Warih Anjari Dyah Kusumaningayu, Fatchurrohmah Ines Prabandari, Alinda Nur Ramadhani:

We have decided on your submission to Gaster, "Dysmenorrhea and Practice of Menstrual Hygiene in Adolescent Females".

Our decision is to Revisions Required

Regards,

Gaster

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6. Submit Revisi (15-2-2024)



GASTER JURNAL KESEHATAN

<https://journal.aiska-university.ac.id/index.php/gaster>



Dysmenorrhea and Practice of Menstrual Hygiene in Adolescent Females

ARTICLE INFO

Keywords : Adolescent; Menstruation; Dysmenorrhea; Hygiene

ABSTRACT

Background: Adolescence is a relatively fast period of physical change experienced by adolescents when puberty is marked by the first menstruation (menarche). Menstruation and menstrual habits continue to encounter numerous social, cultural, and religious barriers, which make it extremely difficult to maintain good hygiene during the menstrual cycle. **Objective:** Analyzing menstruation practices and the prevalence of dysmenorrhea in adolescent female is the goal of this study. **Method:** The cross-sectional investigation was carried out in Sukoharjo and Surakarta. The research was carried out between December 2023 and January 2024. Adolescent female samples had reached menarche. **Results:** The results of this study show as many as 71.7% of Menarche adolescent girls at the age of 12-14 years. As many as 44.4% of respondents said dysmenorrhea almost always interfered with work activities. Data also shows that nearly 100 % of respondents wash their hands before and after replacing menstrual materials. The majority of them wash their genitals using soap (79.1%) and replace pads (≥ 3 times) 72.5%. **Conclusion and suggestions:** In the present study, the prevalence of dysmenorrhea was high among the recruited. About 80% of adolescent female experience moderate-severe dysmenorrhea. Most respondents practice good menstrual hygiene, characterized by frequent washing of hands and genitals. Adolescent females who are knowledgeable about their periods can make hygienic and safe menstrual habits. This means that the appropriate policy, which can be a component of the overall policy for community development and health, needs to be developed and put into effect.

Commented [CS12]: Please correct this. WaLIDD or WaLLIDD ?

Commented [LA13R12]: WaLIDD

Commented [CS14]: Please explain the conclusions about the findings of this study that are linked to the theory. not just from theoretical explanations

Commented [LA15R14]: Ok Mrs Endang

INTRODUCTION

Adolescence is a period of fast hormonal, mental, emotional, and physical growth that heralds the transition from total dependence to a certain level of relative independence. It is the transitional stage between childhood and maturity. (Best and Ban, 2021) A girl's adolescence is a time of physical and mental preparation for becoming a responsible mother. (Sawyer *et al.*, 2018)

Approximately 80% of women experience menstrual pain and premenstrual syndrome (PMS). (Naraoka *et al.*, 2023) According to the World Health Organization (WHO) the number of dysmenorrhea in the world is very high large, on average more than 50% women in every country experiences dysmenorrhea. In Ethiopia around 71.69%. (Molla *et al.*, 2022), Saudi Arabia around 92.3% women had non-pathological dysmenorrhea (primary) while 7.7% women had pathological dysmenorrhea (secondary) respectively. (Bakhsh *et al.*, 2022) The prevalence of dysmenorrhea in Zimbabwe was 75.9%, with 28.6% of sufferers describing their pain as severe. (Nyirenda *et al.*, 2023)

Late adolescence is a common time for menstrual problems to manifest. Dysmenorrhea is a prevalent issue among women who are fertile. Menstrual pain in women with normal pelvic anatomy that typically begins in adolescence is known as primary dysmenorrhea. Seldom do symptoms start to show up six months after menarche. (Burnett and Lemyre, 2017)

Pain and sporadic spasms, which are typically localized in the suprapubic region, will be experienced by the affected women. Lower back or rear foot pain are possible to develop. Common systemic symptoms include headaches or mild headaches, tiredness, vomiting, diarrhea, and mild fever. The first or second day of the cycle is when the pain peaks, usually occurring a few hours following the onset of menstruation. (McKenna and Fogleman, 2021)

Dysmenorrhea negatively impacted the physical and psychological well-being of girls and hindered girls' ability to participate in school, work, and social events. (Cherenack *et al.*, 2023a) The onset of menstruation coincides with new opportunities – and vulnerabilities – that arise during adolescence. Gender inequality, discriminatory social norms, cultural taboos, poverty and lack of basic services often cause girls' and women's menstrual health and hygiene needs to go unmet. Adolescent girls may face stigma, harassment and social exclusion during menstruation. All of this has far-reaching negative impacts on the lives of those who menstruate: restricting their mobility, freedom and choices; affecting attendance and participation in school and community life; compromising their safety; and causing stress and anxiety. Menstrual health and hygiene interventions can be an entry point for other gender- transformative programmes during this period, like sexual and reproductive health education and life skills development. (Gibson, 2022)

Maintaining hygiene during menstruation is significantly hampered by the numerous social, cultural, and religious barriers that still surround menstruation and menstrual customs. Girls often encounter many obstacles at home, at school, and at work since they are not prepared for or aware of menstruation, especially in rural communities. One of the biggest challenges in managing menstruation and personal hygiene is having little or wrong understanding about the menstrual cycle. (Kaur, Kaur and Kaur, 2018) Menstrual Hygiene Management (MHM) is management hygiene and health when women experience menstruation. Women must be able to use sanitary napkins that are clean, can be changed frequently during the menstrual period, and have access to disposal, as well as access to toilets, soap and water to clean themselves in comfortable conditions with privacy maintained. (Gibson, 2022)

Management of hygiene during menstruation is greatly aided by education. (Sivakami *et al.*, 2019) It is believed that by teaching adolescent females about their periods, they will be able to practice good hygiene. Many girls do not receive enough knowledge on the realities of

Commented [CS16]: Mention in this section the importance of research, gap research and novelty and the state of the art

Commented [LA17R16]: OK, I tried

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Commented [LA19R18]: Ok mrs Endang

menstruation because of cultural norms and expectations. (Nuroniayah, 2019) They feel strange, ill, or traumatized as a result. Girls who are not prepared for the feelings of perplexity, dread, and guilt that come with menarche often grow to detest their periods. (Kaur, Kaur and Kaur, 2018)

Analyzing menstruation practices and the prevalence of dysmenorrhea in adolescent female is the goal of this study.

METHODS AND MATERIALS

The cross-sectional investigation was carried out in Sukoharjo and Surakarta. The research was carried out between December 2023 and January 2024. Adolescent female samples had reached menarche.

The sample for sampling was chosen by purposive sampling, and a total of 120 individuals who satisfied the inclusion criteria were included. Instruments and protocols for collecting data with a systematic WaLIDD score questionnaire (dysmenorrhea, work ability, location, intensity, and pain day). This dysmenorrhea identification questionnaire was taken from earlier research publications. (Teherán *et al.*, 2018) The WaLIDD questionnaire, which asks about workability, location, intensity, and sick day, was one of the study's instruments. Adolescent female who experience dysmenorrhea can provide study data by answering the WaLIDD's Questionnaire, which they fill out based on their experiences..

Four questions with indicators are included in the WaLIDD Questionnaire: one about the ability to work, = 0: never, 1: almost never, 2: almost always, 3: always; Location = 0: None, 1: 1 location, 2: 2-3 locations, 3: 4 locations; Intensity = 0: does not hurt, 1: hurts a little bit, 2: hurts a little more – hurts even more, 3: hurts a whole lot – hurts worst; days of pain = 0: None, 1: 1-2 days, 2: 3-4 days, 3: ≥ 5 days. The interpretation of the WaLIDD's Questionnaire : 0 = without dysmenorrhea; 1-4 = mild dysmenorrhea; 5-7 = moderate dysmenorrhea; 8-12 = severe dysmenorrhea.

Characteristics of respondents such as age and menarche are depicted by the percentage, frequency, table, mean, and range between the quartiles. Dysmenorrhea prevalence is calculated and presented in the form of proportions.

RESULTS AND DISCUSSION

The respondents' sociodemographic details are displayed in Table 1. The questionnaire was completed and returned by 120 adolescent female. The mean age of the participants was 16.39 ± 1,007 years and the menarche age was 12.32 ± 1,202 on average

Table 1. Respondents' sociodemographic characteristics

Characteristics	Frequency	
	(n=120)	%
Respondent age (years)		
15	13	10.83
16	61	50.83
17	42	35.00
20	3	2.50

Commented [CS20]: How do you know about it ? please explain

Commented [LA21R20]: read menstruation books by Nuroniayah. I'am so sorry because iam forget mention reference

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Commented [LA23R22]: my research localtion in SMK Farmasi (Surakarta city) and adolescescent female in Kwarasan District (Sukoharjo City)

Commented [CS24]: how did you do that ?please explain about it

Commented [LA25R24]: I questioned a adolescent female I met if she had ever undergone gynecological surgery and if she had ever menstruated. Teens who satisfied the inclusion requirements and agreed to participate as respondents were given study questionnaires.

Commented [CS26]: beforethat, please explain about this

Commented [LA27R26]: WaLIDD score, a new tool to diagnose dysmenorrhea developed by Teheran *et al.*, 2019. A scale-type survey (working ability, location, intensity, days of pain, dysmenorrhea [WaLIDD] score) was designed, which integrated features of dysmenorrhea such as: 1) number of anatomical pain locations (no part of the body, lower abdomen, lumbar region, lower limbs, inguinal region). 2) Wong-Baker pain range (does not hurt, hurts a little, hurts a little more, hurts even more, hurts a lot, hurts a lot more). 3) number of days of pain during menstruation (0, 1-2, 3-4, ≥5), and 4) frequency of disabling pain to perform their activities (never, almost never, almost always, always). Each tool's variable provided a specific score between 0 and 3, and the final score ranged from 0 to 12 points

Commented [CS28]: how validity an reability about it ?

Commented [LA29R28]: I have previously carried out validity and reliability tests on 100 adolescent female. The calculated r value > r table based on a significance test of 0.05, meaning that the items mentioned above are valid (work ability 0.632, intensity 0.773, location 0.516, days of pain 0.548). reliability in 0.646.

Commented [CS30]: When writing an article, at least the discussion contains 70-80% of the research content of the minimum number of pages. Please provide more rationalization and explanation related to Dysmenorhea and Practice of Menstrual Hygiene in several countries. I suggest you take a systematic review as reference

Commented [LA31R30]: Ok Mrs endang

22	1	0.83
Menarche age (years)		
10	5	4.17
11	26	21.67
12	40	33.33
13	29	24.17
14	17	14.17
15	1	0.83
16	2	1.67

Table 2 shows that respondents experience early menarche (<12 years) of 25.8% and late menarche (> 14) of 2.5%. As many as 80.83 % (97/120) experienced moderate to severe dysmenorrhea. Respondents reported that 50% of dysmenorrhea almost always interfered with their work activities, and 25.83% stated that the intensity was hurts a whole lot – hurts worst. The majority experienced 2-3 locations of dysmenorrhea pain (53.33%) and days of pain 1-2 days.

Table 2. Menstrual Characteristics of Respondents

Characteristics	Frequency	%
Menarche age		
< 12 years	31	25.8
12-14 years	86	71.7
15-17 years	3	2.5
WaLLIDD Score		
Work Ability		
Never	9	7.50
Almost Never	31	25.83
Almost Always	60	50.00
Always	20	16.67
Intensity		
Does not hurt	4	3.33
Hurts a little bit	47	39.17
Hurts a little more – hurts even more	38	31.67

Hurts a whole lot – hurts worst	31	25.83
Location		
1 Location	56	46.67
2-3 Locations	64	53.33
4 Locations	0	0.00
Days		
0	6	5
1-2 Days	88	73.33
3-4 Days	14	11.67
>=5 Days	12	10
Dysmenorrhea status		
Mild dysmenorrhea	23	19.17
Moderate dysmenorrhea	61	50.83
Severe dysmenorrhea	36	30
Total	120	100

Table 3 shows the hygiene practices carried out by adolescents during menstruation. Nearly 100 % of respondents wash their hands before and after replacing menstrual materials. The majority of them wash their genitals using soap (79.1%) and replace pads (≥ 3 times) 72.5%.

Table 3. Menstrual Hygiene Practices

Hygiene Practice	Frequency	%
Hand washing habits before changing menstrual materials		
Never	0	0
Sometimes	22	18.3
Every Times	98	81.7
Hand washing habits after changing menstrual materials		
Never	0	0
Sometimes	3	2.5

Every Times	117	97.5
Wash the genitals using soap		
Never	24	20.00
Sometimes	50	41.67
Every Times	46	38.33
Changing menstrual materials (times)		
1	1	0.83
2	32	26.67
3	64	53.33
4	23	19.17
Total	120	100

Adolescence is seen as a unique and crucial time in women's lives when major hormonal and emotional changes take place, along with the onset of their first menstrual cycle. Despite being a normal physiological procedure for people of reproductive age, menstruation still carries stigma. As a result, many young girls may not have access to adequate information about menstruation and proper hygiene practices. The menstrual cycle is a typical biological phenomenon but is often exacerbated by pre-menstrual disorders. (Saddeeqa *et al.*, 2018) Period irregularities may indicate more serious health issues that, if left untreated, could worsen and result in substantial morbidity. (Odongo *et al.*, 2023) (Fernández-Martínez, Onieva-Zafra and Parra-Fernández, 2019) Menstrual abnormalities have been linked to deficiencies in education and disruptions in daily activities and quality of life. (Maity *et al.*, 2022)

This study shows that most of the menarche's adolescent female at the age of 12-14 years (71.7%). Some teenage girls, however, menarche later than others (2.5%). Menarche is regarded as late if it happens at or after the age of fifteen and early if it happens at or before the age of 10 (De Sanctis *et al.*, 2019). Menarche is also considered delayed if there are more than three years between the emergence of thelarche and the first menstruation. Sixty to eighty percent of the menstrual cycle lasts for 21 to 34 days in the third year following menarche. 50% of the cycle experiences ovulation in the first year after the menarche, and nearly all of the women who receive early menarche experience ovulation in the fifth year. On the other hand, women who menarche more slowly take 8 to 12 years to reach ovulation in every cycle. (Lacroix AE, Gondal H, Shumway KR, 2024)

44.4% of respondents to a study claimed that dysmenorrhea nearly usually interfered with their ability to perform duties at work. When diarrhea, pelvic discomfort, nausea, vomiting, and dizziness are possible side effects of dysmenorrhea. This issue is brought on by dysmenorrhea, which interferes with school-related activities. In contrast, women with dysmenorrhea have to carry on with their regular activities, just as women without the condition. Dysmenorrhea is a severe and chronic discomfort and unpleasant condition that affects some women to the point where they feel weak, faint, and need medical attention. (Azagew, Kassie and Walle, 2020)

Dysmenorrhea may have a significant impact on the daily lives of adolescent girls. The impact is reflected in the level of absence at school or work. Dysmenorrhea can also limit adolescents to do physical or sports activity. (Macgregor *et al.*, 2023)

According to this study, 25.83% of participants said the pain was really excruciating, and 53.33% reported having dysmenorrhea in two to three areas with pain lasting one to two days. Pain that is felt during the menstrual cycle is referred to as dysmenorrhea. Though it can occasionally radiate to the inner thighs and back, the pain normally starts in the lower abdomen. This is a severe problem that frequently arises in gynecology. (Nagy H; Carlson K; Khan MAB, 2023) Most women who experience dysmenorrhea choose not to consult a doctor for help. As an alternative, they treat patients by using analgesics, such as paracetamol and nonsteroidal anti-inflammatory medications, to reduce pain feelings. (Cherenack *et al.*, 2023b) (Kapadi and Elander, 2020)

In general, menstruation-related issues are handled by women in a variety of ways that differ significantly among nations based on factors such as personal preferences, financial means, economic standing, regional customs, cultural knowledge, and education. Unfortunately, the majority of young women lack sufficient knowledge on menstrual hygiene because of several cultural and societal misconceptions around menstruation..

More than 90% of the adolescent females in this study consistently wash both before and after changing their menstruation products. The mean participant swapped out the pads at 2.91 ± 0.7 . Women who practice good hygiene during their menstrual cycle can avoid skin irritation, reproductive tract infections, and urinary tract infections by changing their sanitary napkins as frequently as possible and cleansing the vagina and surrounding area of blood. (Gibson, 2022) Negative effects on health, mental health, and education might result from poor management of menstrual hygiene. Menstrual discomfort, urinary tract infections, and anemia are among the health effects (Torondel *et al.*, 2018) (Kashyap and Choudhari, 2023)

CONCLUSIONS AND SUGGESTIONS

In the present study, the prevalence of dysmenorrhea was high among the recruited. About 80% of adolescent female experience moderate-severe dysmenorrhea. Most respondents practice good menstrual hygiene, characterized by frequent washing of hands and genitals. Adolescent females who are knowledgeable about their periods can make hygienic and safe menstrual habits. This means that the appropriate policy, which can be a component of the overall policy for community development and health, needs to be developed and put into effect.

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Commented [CS32]: In conclusion, I have not seen a correlation between research and existing theories

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7. Accepted (18-2-2024)

- Editor Decision
- Berkas (18-2-2024)

Notifications

X

[Gaster] Editor Decision

2024-02-18 12:51 PM

Illik ariyanti, Warli Anjari Dyah Kusumaningayu, Fatchurrohmah Ines Prabandari, Alinda Nur Ramadhani:

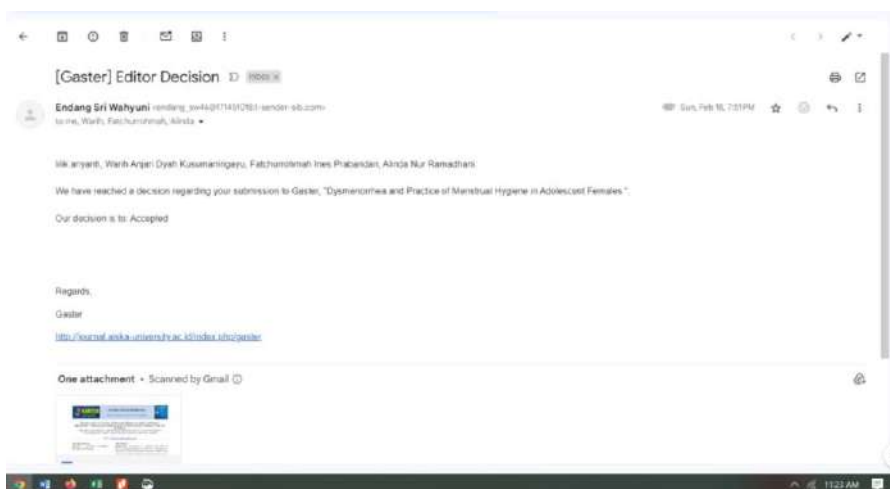
We have reached a decision regarding your submission to Gaster, "Dysmenorrhea and Practice of Menstrual Hygiene in Adolescent Females".

Our decision is to: Accepted

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Dysmenorrhea and Practice of Menstrual Hygiene in Adolescent FemalesLilik Ariyanti^{1*}, Warih Anjari Dyah Kusumaningayu¹, Fatchurrohmah Ines Prabandari¹, Alinda Nur Ramadhani²¹Physiotherapy Study Program, Sekolah Tinggi Ilmu Kesehatan Nasional, Central Java, Indonesia²Physiotherapy Study Program, 'Aisyiyah Surakarta University, Central Java, Indonesia*E-mail: lilik.ariyanti@stikesnas.ac.id**ARTICLE INFO****Keywords** : Adolescent; Menstruation; Dysmenorrhea; Hygiene**ABSTRACT**

Background: Adolescence is a relatively fast period of physical change experienced by adolescents when puberty is marked by the first menstruation (menarche). Menstruation and menstrual habits continue to encounter numerous social, cultural, and religious barriers, which make it extremely difficult to maintain good hygiene during the menstrual cycle. **Objective:** Analyzing menstruation practices and the prevalence of dysmenorrhea in adolescent female is the goal of this study. **Method:** The cross-sectional investigation was carried out in Sukoharjo and Surakarta. The research was carried out between December 2023 and January 2024. Adolescent female samples had reached menarche. WaLIDD score is an instrument used to measure dysmenorrhea. **Results:** The results of this study show as many as 71.7% of Menarche adolescent girls at the age of 12-14 years. As many as 44.4% of respondents said dysmenorrhea almost always interfered with work activities. Data also shows that nearly 100 % of respondents wash their hands before and after replacing menstrual materials. The majority of them wash their genitals using soap (79.1%) and replace pads (≥ 3 times) 72.5%. **Conclusion:** Most respondents practice good menstrual hygiene, characterized by frequent washing of hands and genitals. Adolescent females who are knowledgeable about their periods can make hygienic and safe menstrual habits.

INTRODUCTION

Adolescence is a period of fast hormonal, mental, emotional, and physical growth that heralds the transition from total dependence to a certain level of relative independence. It is the transitional stage between childhood and maturity. (Best and Ban, 2021) A girl's adolescence is a time of physical and mental preparation for becoming a responsible mother. (Sawyer *et al.*, 2018)

Approximately 80% of women experience menstrual pain and premenstrual syndrome (PMS). (Naraoka *et al.*, 2023) According to the World Health Organization (WHO) the number of dysmenorrhea in the world is very high large, on average more than 50% women in every country experiences dysmenorrhea. In Ethiopia around 71.69%. (Molla *et al.*, 2022), Saudi Arabia around 92.3% women had non-pathological dysmenorrhea (primary) while 7.7% women had pathological dysmenorrhea (secondary) respectively. (Bakhsh *et al.*, 2022) The prevalence of dysmenorrhea in Zimbabwe was 75.9%, with 28.6% of sufferers describing their pain as severe. (Nyirenda *et al.*, 2023)

Late adolescence is a common time for menstrual problems to manifest. Dysmenorrhea is a prevalent issue among women who are fertile. Menstrual pain in women with normal pelvic anatomy that typically begins in adolescence is known as primary dysmenorrhea. Seldom do symptoms start to show up six months after menarche. (Burnett and Lemyre, 2017)

Pain and sporadic spasms, which are typically localized in the suprapubic region, will be experienced by the affected women. Lower back or rear foot pain are possible to develop. Common systemic symptoms include headaches or mild headaches, tiredness, vomiting, diarrhea, and mild fever. The first or second day of the cycle is when the pain peaks, usually occurring a few hours following the onset of menstruation. (McKenna and Fogleman, 2021)

Dysmenorrhea negatively impacted the physical and psychological well-being of girls and hindered girls' ability to participate in school, work, and social events. (Cherenack *et al.*, 2023a) The onset of menstruation coincides with new opportunities – and vulnerabilities – that arise during adolescence. Gender inequality, discriminatory social norms, cultural taboos, poverty and lack of basic services often cause girls' and women's menstrual health and hygiene needs to go unmet. Adolescent girls may face stigma, harassment and social exclusion during menstruation. All of this has far-reaching negative impacts on the lives of those who menstruate: restricting their mobility, freedom and choices; affecting attendance and participation in school and community life; compromising their safety; and causing stress and anxiety. Menstrual health and hygiene interventions can be an entry point for other gender- transformative

programmes during this period, like sexual and reproductive health education and life skills development. (Gibson, 2022)

Maintaining hygiene during menstruation is significantly hampered by the numerous social, cultural, and religious barriers that still surround menstruation and menstrual customs. Girls often encounter many obstacles at home, at school, and at work since they are not prepared for or aware of menstruation, especially in rural communities. One of the biggest challenges in managing menstruation and personal hygiene is having little or wrong understanding about the menstrual cycle. (Kaur, Kaur and Kaur, 2018) Menstrual Hygiene Management (MHM) is management hygiene and health when women experience menstruation. Women must be able to use sanitary napkins that are clean, can be changed frequently during the menstrual period, and have access to disposal, as well as access to toilets, soap and water to clean themselves in comfortable conditions with privacy maintained. (Gibson, 2022)

Management of hygiene during menstruation is greatly aided by education. (Sivakami *et al.*, 2019) It is believed that by teaching adolescent females about their periods, they will be able to practice good hygiene. Many girls do not receive enough knowledge on the realities of menstruation because of cultural norms and expectations. (Nuroniyah, 2019) They feel strange, ill, or traumatized as a result. Girls who are not prepared for the feelings of perplexity, dread, and guilt that come with menarche often grow to detest their periods. (Kaur, Kaur and Kaur, 2018)

Analyzing menstruation practices and the prevalence of dysmenorrhea in adolescent female is the goal of this study.

METHODS AND MATERIALS

The cross-sectional investigation was carried out in Sukoharjo and Surakarta. The research was carried out between December 2023 and January 2024. Adolescent female samples had reached menarche.

The sample for sampling was chosen by purposive sampling, and a total of 120 individuals who satisfied the inclusion criteria were included. Instruments and protocols for collecting data with a systematic WaLIDD score questionnaire (dysmenorrhea, work ability, location, intensity, and pain day). This dysmenorrhea identification questionnaire was taken from earlier research publications. (Teherán *et al.*, 2018) The WaLIDD questionnaire, which asks about workability, location, intensity, and sick day, was one of the study's instruments. Adolescent female who

experience dysmenorrhea can provide study data by answering the WaLIDD's Questionnaire, which they fill out based on their experiences..

Four questions with indicators are included in the WaLIDD Questionnaire: one about the ability to work, = 0: never, 1: almost never, 2: almost always, 3: always; Location = 0: None, 1: 1 location, 2: 2-3 locations, 3: 4 locations; Intensity = 0: does not hurt, 1: hurts a little bit, 2: hurts a little more – hurts even more, 3: hurts a whole lot – hurts worst; days of pain = 0: None, 1: 1-2 days, 2: 3-4 days, 3: ≥ 5 days. The interpretation of the WaLIDD's Questionnaire : 0 = without dysmenorrhea; 1-4 = mild dysmenorrhea; 5-7 = moderate dysmenorrhea; 8-12 = severe dysmenorrhea.

Characteristics of respondents such as age and menarche are depicted by the percentage, frequency, table, mean, and range between the quartiles. Dysmenorrhea prevalence is calculated and presented in the form of proportions.

RESULTS AND DISCUSSION

The respondents' sociodemographic details are displayed in Table 1. The questionnaire was completed and returned by 120 adolescent female. The mean age of the participants was $16.39 \pm 1,007$ years and the menarche age was $12.32 \pm 1,202$ on average

Table 1. Respondents' sociodemographic characteristics

Characteristics	Frequency (n=120)	%
Respondent age (years)		
15	13	10.83
16	61	50.83
17	42	35.00
20	3	2.50
22	1	0.83
Menarche age (years)		
10	5	4.17
11	26	21.67
12	40	33.33

13	29	24.17
14	17	14.17
15	1	0.83
16	2	1.67

Table 2 shows that respondents experience early menarche (<12 years) of 25.8% and late menarche (> 14) of 2.5%. As many as 80.83 % (97/120) experienced moderate to severe dysmenorrhea. Respondents reported that 50% of dysmenorrhea almost always interfered with their work activities, and 25.83% stated that the intensity was hurts a whole lot – hurts worst. The majority experienced 2-3 locations of dysmenorrhea pain (53.33%) and days of pain 1-2 days.

Table 2. Menstrual Characteristics of Respondents

Characteristics	Frequency	%
Menarche age		
< 12 years	31	25.8
12-14 years	86	71.7
15-17 years	3	2.5
WaLLIDD Score		
Work Ability		
Never	9	7.50
Almost Never	31	25.83
Almost Always	60	50.00
Always	20	16.67
Intensity		
Does not hurt	4	3.33
Hurts a little bit	47	39.17
Hurts a little more – hurts even more	38	31.67
Hurts a whole lot – hurts worst	31	25.83
Location		
1 Location	56	46.67
2-3 Locations	64	53.33
4 Locations	0	0.00

Days		
0	6	5
1-2 Days	88	73.33
3-4 Days	14	11.67
>=5 Days	12	10
Dysmenorrhea status		
Mild dysmenorrhea	23	19.17
Moderate dysmenorrhea	61	50.83
Severe dysmenorrhea	36	30
Total	120	100

Table 3 shows the hygiene practices carried out by adolescents during menstruation. Nearly 100 % of respondents wash their hands before and after replacing menstrual materials. The majority of them wash their genitals using soap (79.1%) and replace pads (≥ 3 times) 72.5%.

Table 3. Menstrual Hygiene Practices

Hygiene Practice	Frequency	%
Hand washing habits before changing menstrual materials		
Never	0	0
Sometimes	22	18.3
Every Times	98	81.7
Hand washing habits after changing menstrual materials		
Never	0	0
Sometimes	3	2.5
Every Times	117	97.5
Wash the genitals using soap		
Never	24	20.00
Sometimes	50	41.67
Every Times	46	38.33

Changing menstrual materials (times)		
1	1	0.83
2	32	26.67
3	64	53.33
4	23	19.17
Total	120	100

Adolescence is seen as a unique and crucial time in women's lives when major hormonal and emotional changes take place, along with the onset of their first menstrual cycle. Despite being a normal physiological procedure for people of reproductive age, menstruation still carries stigma. As a result, many young girls may not have access to adequate information about menstruation and proper hygiene practices. The menstrual cycle is a typical biological phenomenon but is often exacerbated by pre-menstrual disorders. (Sadeeqa *et al.*, 2018) Period irregularities may indicate more serious health issues that, if left untreated, could worsen and result in substantial morbidity. (Odongo *et al.*, 2023) (Fernández-Martínez, Onieva-Zafra and Parra-Fernández, 2019) Menstrual abnormalities have been linked to deficiencies in education and disruptions in daily activities and quality of life. (Maity *et al.*, 2022)

This study shows that most of the menarche's adolescent female at the age of 12-14 years (71.7%). Some teenage girls, however, menarche later than others (2.5%). Menarche is regarded as late if it happens at or after the age of fifteen and early if it happens at or before the age of 10 (De Sanctis *et al.*, 2019). Menarche is also considered delayed if there are more than three years between the emergence of Thelarche and the first menstruation. Sixty to eighty percent of the menstrual cycle lasts for 21 to 34 days in the third year following menarche. 50% of the cycle experiences ovulation in the first year after the menarche, and nearly all of the women who receive early menarche experience ovulation in the fifth year. On the other hand, women who menarche more slowly take 8 to 12 years to reach ovulation in every cycle. (Lacroix AE, Gondal H, Shumway KR, 2024)

44.4% of respondents to a study claimed that dysmenorrhea nearly usually interfered with their ability to perform duties at work. When diarrhea, pelvic discomfort, nausea, vomiting, and dizziness are possible side effects of dysmenorrhea. This issue is brought on by dysmenorrhea, which interferes with school-related activities. In contrast, women with dysmenorrhea have to carry on with their regular activities, just as women without the condition. Dysmenorrhea is a severe and chronic discomfort and unpleasant condition that

affects some women to the point where they feel weak, faint, and need medical attention. (Azagew, Kassie and Walle, 2020)

Dysmenorrhea may have a significant impact on the daily lives of adolescent girls. The impact is reflected in the level of absence at school or work. Dysmenorrhea can also limit adolescents to do physical or sports activity. (Macgregor *et al.*, 2023)

According to this study, 25.83% of participants said the pain was really excruciating, and 53.33% reported having dysmenorrhea in two to three areas with pain lasting one to two days. Pain that is felt during the menstrual cycle is referred to as dysmenorrhea. Though it can occasionally radiate to the inner thighs and back, the pain normally starts in the lower abdomen. This is a severe problem that frequently arises in gynecology. (Nagy H; Carlson K; Khan MAB, 2023) Most women who experience dysmenorrhea choose not to consult a doctor for help. As an alternative, they treat patients by using analgesics, such as paracetamol and nonsteroidal anti-inflammatory medications, to reduce pain feelings. (Cherenack *et al.*, 2023b) (Kapadi and Elander, 2020)

In general, menstruation-related issues are handled by women in a variety of ways that differ significantly among nations based on factors such as personal preferences, financial means, economic standing, regional customs, cultural knowledge, and education. Unfortunately, the majority of young women lack sufficient knowledge on menstrual hygiene because of several cultural and societal misconceptions around menstruation..

More than 90% of the adolescent females in this study consistently wash both before and after changing their menstruation products. The mean participant swapped out the pads at 2.91 ± 0.7 . Women who practice good hygiene during their menstrual cycle can avoid skin irritation, reproductive tract infections, and urinary tract infections by changing their sanitary napkins as frequently as possible and cleansing the vagina and surrounding area of blood. (Gibson, 2022) Negative effects on health, mental health, and education might result from poor management of menstrual hygiene. Menstrual discomfort, urinary tract infections, and anemia are among the health effects (Torondel *et al.*, 2018) (Kashyap and Choudhari, 2023)

CONCLUSIONS AND SUGGESTIONS

In the present study, the prevalence of dysmenorrhea was high among the recruited. About 80% of adolescent female experience moderate-severe dysmenorrhea. Most respondents practice good menstrual hygiene, characterized by frequent washing of hands and genitals.

Adolescent females who are knowledgeable about their periods can make hygienic and safe menstrual habits. This means that the appropriate policy, which can be a component of the overall policy for community development and health, needs to be developed and put into effect.

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