

**MENSTRUAL HYGIENE EDUCATION FOR ADOLESCENT GIRLS IN INDONESIA: A SYSTEMATIC LITERATURE REVIEW**

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**Abstract**

**Introduction**: Implementing Menstrual Hygiene Management (MHM) among Indonesian adolescents is still low due to a lack of knowledge. The impact of this quiet MHM practice is the risk of reproductive tract infections, so various educational efforts are needed to improve the knowledge and skills of adolescents in MHM practices.

**Objectives**: to identify educational interventions to improve adolescent girls' menstrual hygiene.

**Method:** This study used a systematic literature review method with the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) approach in selecting articles from various previous studies. Research articles were obtained by accessing six electronic databases published in 2013-2023 with a population of adolescent girls. Fifteen papers that met the criteria were received.

**Results**: Menstrual health education interventions carried out individually were the use of bibliotherapy, and in groups were peer education and snakes and ladders edutainment, while in mass were counselling, lectures and demonstrations. Educational interventions in terms of the media used were printed media, including bibliography, index card matches, modules, pocketbooks, leaflets, booklets, and electronic media, namely slides and videos.

**Conclusion:** The educational interventions improved MHM's knowledge, attitudes, and practices, and each intervention carried out had different results in each improvement aspect. The most widely used method was peer education, and the most commonly used media were videos and leaflets.

**Keywords:** education, intervention, menstrual hygiene, adolescent girls

**INTRODUCTION**

Adolescence is a transitional period from children to adulthood where, at this time, they experience an essential phase of change, namely puberty. One of the characteristics of puberty in adolescent girls is menstruation. Menstruation is a new experience that often causes many problems, one of which is menstrual hygiene. Menstrual Hygiene Management (MHM) is the management of hygiene and health when women experience menstruation. An adolescent girl can use clean, sanitary napkins, change them as often as possible, have access to disposal and sufficient toilets, soap and water available, and maintain her privacy.1 According to UNICEF, the pillars of MHM consist of social support, knowledge and skills, facilities and services, and materials and equipment.2

Menstrual hygiene is a global problem. The study results showed that over half of adolescent girls in Myanmar, Nigeria, India and Sub-Saharan Africa have not implemented MHM properly.3–6 In Indonesia, 54.6-70.1% of teenage girls have not implemented MHM properly.7–11

The low implementation of MHM results in school absenteeism, where 11.1%-19.9% of adolescent girls do not attend school during menstruation due to embarrassment if their menstrual blood stains their clothes and the inconvenience of changing sanitary napkins at school.7,10 Another consequence is itching in the reproductive organs during menstruation, which occurs in 87.5% of adolescent girls in Indonesia.12 This itchy complaint is one of the early symptoms of infection, in line with research that poor MHM can increase the incidence of reproductive tract infections.4,13,14 Several studies in Indonesia state that 54-70.5% of teenage girls experience pathological vaginal discharge 15–17

Serious attention to MHM is needed because it is related to achieving several Sustainable Development Goals (SDGs) targets, including a healthy and prosperous life, quality education, gender equality, clean water, and proper sanitation.18

The United Nations International Children's Emergency Fund (UNICEF) has implemented several programmes globally in various countries since 2013. The results of the evaluation of the development of MHM over ten years by five priorities include priorities 1) the evidence for MHM in schools has become more robust, 2) global guidelines for MHM in schools have not yet been established, 3) many evidence-based advocacy platforms have emerged to support MHM efforts 4) increased involvement, responsibility and ownership of MHM in government schools globally, and MHM is starting to be integrated into the country-level education system 5), resources are still lacking.19

One of the factors influencing the low implementation of MHM is the lack of knowledge about menstruation, which is a problem for adolescent girls in developing countries.20 In Myanmar, most adolescent girls have not implemented MHM properly due to low knowledge.5 Hadi's research on junior high school students in West Sulawesi stated that 60.8% had low knowledge of MHM.8 This is in line with the results of the 2017 Indonesian Adolescent Health Demographic Survey (SDKI), which states that adolescent girls who know changes in puberty 42.03% and the 2019 Adolescent KKBPK Programme Performance and Accountability Survey (SKAP) shows that the lowest Indonesian adolescent reproductive health knowledge index is about knowledge of the fertile period, which is 19.7%.21,22

The first step that can be taken to improve menstrual hygiene is to conduct health promotion, which is the most ethical, effective, efficient and sustainable approach to achieving good health. According to Downie et al., the health promotion model includes prevention, health protection and health education.23 Health education is an effort to deliver health messages to communities, groups or individuals. The news will help the community, group, or individual gain better health knowledge. This knowledge will eventually form a positive attitude and influence behaviour.24

Health education as a process consists of inputs and outputs. Information consists of the message's source, the media, the recipient and the goal. The results can be in the form of increased knowledge, changes in attitude and behaviour and others.23,24

This means that specific methods must be used to conduct health interventions in improving menstrual hygiene, where the materials, tools and techniques are adjusted to the target so that they are easily understood.

Based on the number of participants, health education methods are divided into 3: individual, group, and mass. The advantage of a unique approach such as counselling is that there is more intensive contact and more solutions so that, eventually, adolescent girls voluntarily apply menstrual hygiene management. A small group approach consisting of a maximum of 15 people is also reasonably practical; they can share their experiences with others. The extensive group approach has the advantage that in one opportunity, it can reach many targets where success is primarily determined by the reliability of the material provider, such as mastery of the material, voice volume, intonation, tone, body language and requires optimal tools.24

The classification of health education media can be viewed from the mode of production, which consists of print media, electronic media and outdoor media.24,25

The alignment of appropriate methods and media selection can increase the effectiveness of menstrual hygiene education for adolescent girls. The study's results stated that the educational intervention effectively improved MHM skills in teenage girls.3 As there are more and more studies on the low implementation of MHM, it is necessary to conduct a review to further research on effective educational methods to improve MHM practices.

This systematic review aims to identify educational interventions implemented to improve menstrual hygiene in adolescent girls. The research question from this systematic literature review is: what interventions have been carried out to improve menstrual hygiene in teenage girls, and what are the effects?

Questions and objectives in This systematic review using the PICOS formula.

P (population): teenage girls

I (Intervention): educational intervention carried out to improve menstrual health management

C(Comparative): intervention and control groups

O(Outcome): Improved menstrual hygiene

S(Studies) : experimental, quasi-experimental

**METHODS**

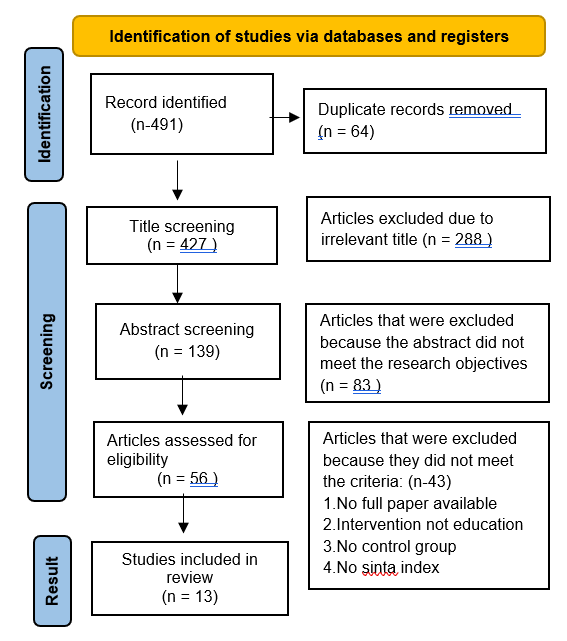
This systematic literature review uses the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) approach to select articles from previous studies. Research articles were obtained by accessing electronic databases, including Pubmed, Embase, Scopus, ProQuest, Google Scholar and Garuda. The keywords used for national database searches include "Teenage Girls OR Girls AND Education OR Menstrual Education, Menstrual Personal Hygiene OR Menstrual Hygiene, " OR Menstrual Hygiene Management, while for international database searches are "Teenagers", "Girls", "Adolescent sexuality" OR youth AND "Health promotion" OR "Health education" OR "Girls education" OR "Education" OR "health promotion AND "Menstruation" AND "Hygiene" OR menstrua\* hygiene OR behaviour menstrua\* OR attitude menstrua\* OR knowledge menstrua\* AND Indonesia. To ensure the quality of LSR, the articles taken are from journals indexed by Sinta. The abstract and the entire content of this article were carefully read to fulfil the criteria of this review, including:

1. The study focused on an educational intervention to improve adolescent girls' menstrual hygiene.
2. Quantitative research with experimental or quasi-experimental design or mixed method research where the quantitative design is quasi-experimental.
3. Having a comparison group (control group)
4. Articles published within ten years, namely from 2013 to 2023.
5. Articles in English and Indonesian.

After obtaining articles that meet the criteria, the review includes:

1. Type of intervention used based on the number of targets
2. Types of media and tools used in educational interventions
3. The results obtained after the intervention

Picture 1 Article Selection with PRISMA Diagram



**RESULTS AND DISCUSSION**

The initial search found 491 articles from 6 databases: Pubmed, Embase, Scopus, ProQuest, Google Scholar, and Garuda. The same article was removed from the list of articles and then selected based on the title, abstract, completeness of the article content, and relevance to the research objectives. This resulted in 13 complete papers, which were then reviewed further. The following are the characteristics of the articles that became the source of the research :

Table 1 Characteristics of research articles

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Writer** | **Year** |  | **Place** | **sample** | **Amount samples per group** | **Intervention** | **Control** | **measured** |
| 1 | Hidayah IY, Hardiani RS and Hakam M | 2016 |  | Jember | Junior high school students aged 12-13 years | 30 | Bibliotherapy | Not given bibliography | Knowledge |
| 2 | Ngestiningrum AH, Nuryani and Setiyani A sinta 6 | 2017 |  | Ponorogo | Grade VII Junior high school student | 24 | *Index card matches* | Lecture | Knowledge, attitudes and behaviour |
| 3 | Rochmawati L, Rahayu GR, sinta 2 | 2017 |  | Ponorogo | 1st-grade MTS students  Age 11-14 years | 42 | *Peer education* | Not given *Peer education* | Knowledge, attitudes and actions |
| 4 | Sumarah S, Widyasih H | 2017 |  | Yogyakarta | teenage girls | 40 | Module | No Module provided | Attitude and behaviour |
| 5 | Mutiara N, Santoso B, Irfannuddin sinta 4 | 2018 |  | Palembang | Junior high school students | 40 | Counselling | Not given counselling | Knowledge and practice |
| 6 | Nurhaeni , Intansar and Sumarni sinta 5 | 2018 |  | Cirebon | Grade X-XI MAN students in | 42 | Slide Media | Media Slides are not provided | Knowledge |
| 7 | Zuhriya C, Armini NKA, Wahyuni ED sinat 4 | 2018 |  | Surabaya | Junior high school students aged 12-14 years | 33 | *Edutainment* snake ladder | Not given *edutainment* | Knowledge, attitudes and actions |
| 8 | Meinarisa sinta 3 | 2019 |  | Jambi | Junior high school students aged 12-16 | 49 | Counselling, demonstrations, *booklets* and *checklists*. | Counselling | Attitude |
| 9 | Jubaedah E, Yuhandini DS sinta 5 | 2019 |  | Cirebon | grade VII junior high school students aged 11-13 years | 30 | Videos | *Leaflets* | Knowledge |
| 10 | Ratnasari , et al sinta 5 | 2019 |  | Macassar | grade VII junior high school student | 63 | *Peer education* | Videos | knowledge |
| 11 | Hartini , et al sinta 1 | 2022 |  | Bengkulu | Grade X senior high school student | 30 | *Peer groups* with Video | *Peer group* with books pocket | Knowledge, attitudes and behaviour |
| 12 | Herlinadyaningsih H, Arisani G sinta 4 | 2022 |  | Palangkaraya | MA student  Ages 14-19 | 32 | Videos | leaflets | Knowledge and attitude |
| 13 | Nastiti AA, et al | 2023 |  | Sampit | Teenage girls aged 12-14 years | 35 | Video *conferencing* | leaflets | Knowledge and attitude |

Table 2 Intervention Analysis Results of Menstrual Hygiene Education

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Overview Intervention** | **Intervention Name** | **Results** |
| 1. | Intervention methods based on the target | | |
| 1. Individual | Bibliotherapy26 | Increase knowledge |
| 1. Group | Education peers 27–29 | Increase knowledge, attitudes and behaviour |
| Snake Ladders Edutainment 30 | Increase knowledge, attitudes and actions. |
| 1. Bulk | Lecture 31 | Increase knowledge, attitudes and behaviour. |
| Counselling 32,33 | Increase knowledge, attitudes and practices. |
| Demonstration 33 | Increase attitude |
| 2 | Tools \_ intervention | | |
| 1. Print media | The index card matches 31 | Increase knowledge, attitudes and behaviour. |
|  | Bibliography 26 | Increase knowledge |
|  | Pocketbook28 | Increase knowledge, attitudes and behaviour. |
|  | Leaflets 34–37 | Increase knowledge and behaviour. |
| Booklets 33 | Influence attitude |
| Snake Ladders Edutainment 30 | Increase knowledge, attitudes and behaviour. |
| Module38 | Influence attitudes and behaviour. |
| 1. Electronic Media | Slides 39 | Increase knowledge |
|  | Videos 28,29,34–36 | Increase knowledge, attitudes and behaviour. |
|  |  | Video conferencing37 | Increase knowledge and attitudes. |

From these 13 reviewed articles, interventions related to menstrual health management have been conducted in 2016-2023 in Jember city. 26, Ponorogo27,31, Yogyakarta38, Palembang32, Cirebon34,39, Surabaya30, Jambi33, Makassar29, Wajo40, Bengkulu 28, Palangkaraya36, Tangerang35, dan Sampit.37

The age of respondents in the article review ranged from 11-16 years old or junior and senior high school age, where at that age, they were already menstruating. This is due to the results of the 2019 adolescent SKAP, which states that 66.3% of adolescent girls in Indonesia experienced their first menstruation at the age of 10-14 years.22

The number of respondents in each intervention ranged from 24-63 people per group. As for time, only three articles explained how long the intervention was carried out, which was 90 minutes.26,31,37 The measurement time during the intervention varies twice, namely before and after the intervention.26–31,33–35,37–40 and 3 times before, immediately after, and one month later. 32.

In this article review, the grouping of menstrual health education interventions based on the number of participants was carried out individually, namely bibliotherapy.26 and for those carried out in groups, namely peer education 27–29, and snakes and ladders edutainment 30 while those carried out en masse are counselling32,33, lecture31 and demonstrations.33

Peer education is the preferred method in 3 articles in this review.27–29 The theory of behaviour change that is very close to peer education is the Theory of reasoned action, which states that a person's intention to perform a behaviour is determined by subjective beliefs and normative beliefs, where these normative beliefs are views formed by local community norms and standards. This concept is relevant in peer education because adolescents' attitudes are strongly influenced by their perceptions of what their peers do and think.41 This education can improve knowledge, attitudes and skills because peers inform other friends to maintain health. During adolescence, peers play an essential role in a person's maturation process and the characteristics of adolescents looking for identity. This is in line with Anggraini's research that peer support has a significant relationship with menstrual hygiene behaviour and a systematic review which states that peer education has been applied in India and around the world in various ways to bring about changes in the knowledge, attitudes and behaviours of adolescent reproductive health and young people.9,42

The extension and lecture method effectively delivers MHM education to many people with limited time. Still, it requires the availability of adequate space, and the material provider factor is also very dominant to achieve this success.22 The extension method increased knowledge by 60% and practice by 70% of the respondents and was more effective than the control group who were not educated.30 Lectures effectively increase knowledge, attitudes and behaviour of menstrual hygiene.31

The menstrual hygiene education interventions that have been carried out in terms of media in the aspect of production methods are in the form of printed media, namely index card match, bibliotherapy, snakes and ladders edutainment, leaflets, booklets, pocketbooks, and electronic media in the format of videos, slides, video conferences.

Health education is delivered with fun media and by the interests of adolescent girls, such as index card match media, bibliographic media and Snakes and Ladders edutainment.

In the index card match media, education is carried out by inviting adolescents to learn actively while playing to find card pairs so that participants are interested and happy with the menstrual material delivered, and ultimately, the educational objectives are achieved. The study's results stated that using the index card match method improved knowledge, attitudes and behaviour of menstrual hygiene. This method is more effective than the lecture method in improving menstrual hygiene behaviour.31

Bibliotherapy media uses books as educational media to form a positive self-concept, stimulate adolescents to think quickly and foster independence to improve and influence menstrual hygiene knowledge. This media is effective for adolescents who like literacy because the story element in the book is one of the attractions. It is also effective for adolescents who struggle to express their problems verbally to others because of fear or embarrassment.26

Snakes and ladders game is one type of game that can be done indoors and outdoors in groups. The snakes and ladders edutainment method is an attractive health education tool for adolescents which contains short messages with interactive delivery so that it can improve adolescents' menstrual hygiene behaviour.30

Leaflet media can improve menstrual hygiene knowledge, which is contained in 4 articles.32–35 Changes in knowledge are because respondents can read repeatedly with material that is easy to understand. However, compared to video media in two studies, it turns out that leaflets are less effective where the limited ability to present images and no visualisation of motion makes respondents who use brochures score lower than those with video media and video conferences.34–37

The use of the module allows adolescent girls to explore their curiosity and facilitates them to have a better understanding of menstrual hygiene. This module's provision effectively improved knowledge and attitude towards menstrual hygiene compared to the control group who did not receive the module.38

Video media makes respondents focused and interested in the material presented, so this media is also widely used in 5 studies.28,29,34–36 This reflects the absorption of information more effectively by using the senses of sight and hearing to optimise their abilities, reasoning and skills in improving adolescents' knowledge of menstrual hygiene. In addition, video media integrating text, graphics, animation, and audio has dynamically developed the teaching and learning process.34,35 Some articles state that the use of video media is more effective than leaflets.34–36 When compared to peer education, the video method is less effective.29 However, combining peer education methods with video media can improve MHM more optimally.28

Slides are audiovisual media in health education. They are often used where writings can be read and moving images are displayed, making it easier for someone to understand the material presented. Slides are effective in improving menstrual hygiene knowledge.39

Video conferencing helps the education process, especially for Generation Z adolescents born in the era of advanced technology, where this method can improve listening skills and careful observation. This media can improve knowledge and attitude towards menstrual hygiene and is more effective than leaflet distribution.37

Demonstration is a method that is given directly to provide information by using hands-on practice using applicable phantoms, such as giving examples of disposable sanitary napkins and reusable sanitary napkins and using light language by the age of adolescents. The method of lecture demonstration, along with the provision of booklets and checklist sheets afterwards, affected the attitude of menstrual hygiene in adolescent girls.33

In general, all educational interventions conducted in these studies improved menstrual hygiene management in terms of knowledge, attitude and behaviour. The right combination of methods and media will get better and more comprehensive results.

What has not been covered in this review is the involvement of families in MHM education and especially the role of mothers in accompanying adolescent girls during the early menstrual period. Therefore, future research is expected to maximise the role of mothers in improving menstrual hygiene in teenage girls.

**CONCLUSION**

The conclusion from this systematic literature review is that the educational interventions carried out in the articles reviewed can improve the knowledge, attitudes, and practices of MHM, and each intervention carried out has different results in each aspect of improvement. The most widely used method is peer education, and the most commonly used media are videos and leaflets.

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