

## Factors Related to Menstrual Hygiene Behaviour of Adolescents in Indonesia: Systematic Review

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### Abstract

*Background: Menstrual hygiene is a component of personal hygiene (personal hygiene), which plays an important role in determining the health status, in order to avoid infection of the reproductive organs. Behaviour menstrual hygiene Pooris one of the main causes of morbidity in adolescents and if not handled properly will have an impact on reproductive health problems. The purpose of this study was to analyses the factors associated with adolescent behaviour menstrual hygiene in Indonesia. Methods: This study uses a systematic review by reviewing the literature obtained from four databases, namely PubMed, Science Direct, Scopus, and Google Scholar. Results are reported in the PRISMA diagram. Inclusion criteria included literature examining factors menstrual hygiene in Indonesia, adolescents aged 10-19 years, literature in English and Indonesian, full text and open access literature, published literature from the last 10 years (2011-2021), adolescents aged 10 -19 years, the EPHPP (Effective Public Health Practice Project) literature was used to assess the quality of the literature. Results: There were 18 literatures that met the inclusion and exclusion criteria. There is no relationship between biological factors, namely the age of menarche (n= 3, 100%) with behaviour menstrual hygiene in adolescents in Indonesia. There is a relationship between individual factors, namely knowledge (n = 9, 69.2%) and attitudes (n = 8, 80%), interpersonal factors (family support (n = 6, 75%, friend support (n = 4, 50%, teacher support (n= 3, 100%), support for health workers (n= 2, 100%), and mass media support n=3,100%) with behaviour menstrual hygiene in adolescents in Indonesia Conclusion: The importance of support from parents, friends , teachers, health workers to increase adolescent knowledge about behaviour menstrual hygiene and the availability of facilities and infrastructure that support behaviour menstrual hygiene in adolescents*

**Keywords:** *Menstrual hygiene factors; adolescents; Indonesia;*

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## Introduction

Adolescence is a period of transition from childhood to adulthood. In adolescent girls will go through many events in the stages of development and growth, one of which is the occurrence of menstruation or *menarche* (Irianto 2015; Pythagoras 2017). Menstruation or menstruation is the process of releasing the uterine wall or endometrium and accompanied by heavy bleeding. originates from the uterus. Menstruation is a natural process that occurs every month in healthy women except during pregnancy and the normal menstrual cycle is every 22-35 days (Kusmiran 2011). According to the Indonesian Ministry of Health (2018), the age of menarche incidence in Indonesia is 12.4 years (60%). During menstruation, blood vessels and germs will easily enter. This is because the cervix is in an open state which aims to get menstrual blood out. The acidity level of the vaginal pH during menstruation is also a possibility for other infections such as yeast (House, Mahon, and Cavill 2013).

Reproductive health is a state of complete health including physical, mental and social as a whole, not merely free from disease or disability related to reproductive tools, functions and processes (Depkes RI, 2000). One of the targets of the SDGs, especially goal 5, is to achieve gender equality and empower all women and girls to improve women's reproductive health. One effort that can be done to maintain reproductive health in women is to maintain *menstrual hygiene*.

Menstrual Hygiene Management (MKM) is the management of hygiene and health when women are menstruating (Kemenkes 2017). behaviour *menstrual hygiene* Pooris one of the main determinants of morbidity in adolescents and if not handled properly will have an impact on reproductive health problems (McCaleb and Cull 2000), such as cervical cancer 77%, UTI 68%, itching in the vaginal area. 45%, vaginal discharge 40%, inflammation of the vaginal surface 35%. This happens because the female urinary tract is shorter, so it can be easily exposed to germs and cause germs.

Related to *menstrual hygiene* There are five factors, namely biological factors (age, menstrual cycle and menstrual intensity), personal factors (knowledge, problem solving ability and behaviour), interpersonal factors (interaction with family, teachers, and peers), environmental factors (water, sanitation, and resource availability), and societal factors (policies, traditions, and cultural beliefs) (UNICEF, 2013).

*Menstrual hygiene* in adolescents in Indonesia is still relatively poor (64%). This is because the knowledge of adolescents about menstruation is still low due to the lack of proper information about menstruation and *menstrual hygiene*. In addition, this condition is exacerbated by the existence of myths, beliefs, and culture in society that menstruation is a taboo subject to talk about. Another thing that worsens menstrual hygiene in adolescents in Indonesia is poor facilities and infrastructure such as clean water, sanitation, and hygiene in low- and middle-income countries, especially Indonesia (Davis et al. 2018; Hastuti n.d.; Unicef 2015).

The purpose of this study is to analyze the factors related to behavior *menstrual hygiene* in adolescent girls in Indonesia using a *systematic review*.

## Method

This research uses a method *systematic review*. research questions using SPIDER "What are the factors associated with behaviour *menstrual hygiene* in adolescents in Indonesia". The data sources for this study were through four databases namely *Scopus*, *PubMed*, *Science Direct*, and *Google Scholar* using the keywords "factors menstrual

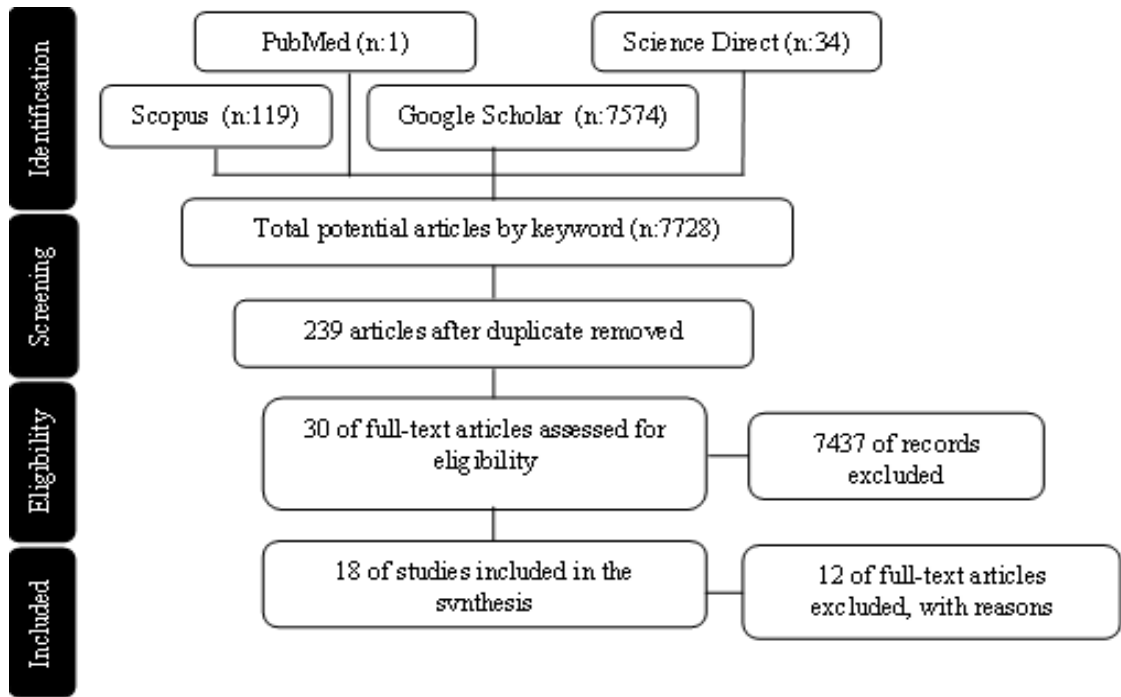
hygiene" AND "adolescents" AND "Indonesia". The literature taken must meet the inclusion and exclusion criteria. Inclusion criteria, including literature that examines factors related to behaviour *menstrual hygiene* in adolescent girls in Indonesia with respondents aged 10-19 years, literature in Indonesian and English, *full text* and *open access* literature, literature published from 2011-2021. Exclusion criteria included literature originating from *non-research studies* (*conference papers, book chapters, and reports*), qualitative research methods literature, *mixed methods, systematic reviews, literature reviews, and secondary studies* other.

The results of the literature search are reported in the PRISMA flowchart. Furthermore, the literature obtained will be assessed for the quality of the literature using the *quality assessment tool for quantitative studies* from the EPHPP (*Effective Public Health Practice Project*), which contains 6 assessment components, namely *selection bias, study design, confounder, blinding, data collection method, withdrawals and dropouts* and 2 additional research components, namely *intervention integrity and analyses*. The final result of the EPHPP assessment is divided into 3 literature quality scales, namely *strong, moderate, and weak* which are assessed based on indicators.

The technique *systematic review* in this article did not synthesize the results statistically (meta-analysis), but the final conclusions obtained can be accounted for as a guide for any factors related to behaviour *menstrual hygiene* in adolescents in Indonesia.

## **Results and Discussion**

The results of the literature search found in the database according to the keywords and inclusion criteria included *PubMed* 1 literature, *Scopus* 119 literature, *Science direct* 34 articles, and *Google scholar* as much as 7574 literatures. that match the keywords and inclusion and exclusion criteria. The total literature found using keywords is 7728 literatures. A total of 239 duplicated literatures were removed, a total of 7437 literatures that met the exclusion criteria. 30 literatures *full text* were screened, 12 were excluded because the literature was not *published* in journals. There were 18 literatures that matched the inclusion and exclusion criteria to be analysed and reviewed in this study *systematic review*. The results of the literature search were reported using a prism diagram (Figure 1). The characteristics of the literature listed *reviewed* are in Table 1.



**Figure 1 PRISMA flowchart**

**Table 1 Characteristics of literature**

No	Article title	Author and year	Research methods and sample numbers	Research Results
1.	Analysis of behaviour of <i>Vulva Hygiene</i> Young Women During Menstruation in 3 Middle Schools in Cengkareng District, West Jakarta 2017	(Kartika 2018)	<i>Cross sectional</i> 275 junior high school students (State schools, religion-based schools, and neutral schools) aged 12-15 years	Improper behaviour <i>vulvar hygiene</i> during menstruation is 62%. The dominant factor in behaviour <i>vulvar hygiene</i> adolescent girls 'during menstruation is the attitude towards <i>vulvar hygiene</i> with a value of OR = 2.820, meaning that girls with positive attitudes are 3 times more likely to perform behaviour <i>vulvar hygiene</i> than girls with negative attitudes. There is no relationship between adolescent age, knowledge (about behaviour <i>vulvar hygiene</i> ), availability of facilities (UKS which provides sanitary napkins), exposure to information media, and parental support for behaviour <i>vulvar hygiene</i> adolescent girls 'during menstruation.
2	Factors Related to Behaviours <i>Personal Hygiene</i> When Menstruation on SMP PGRI Central II Depok, West Java 2020	(Azzahra and Adiwiryo 2020)	<i>Cross sectional</i> 94 junior high school students of class VII and VIII	behaviour <i>Personal hygiene</i> during menstruation is not good as much as 72 (76.6%). There is a relationship between the completeness of facilities and infrastructure in schools with behaviour <i>personal hygiene</i> during menstruation. There is no relationship between age at <i>menarche</i> , knowledge, attitudes, information exposure, peer support (talking/asking about matters related to <i>menstrual hygiene</i> ),
3	<i>Factors Influencing Menstrual Hygiene Practice Among Adolescent Girls</i>	(Afriyani and Salafas 2020)	<i>Survey method</i> 82 students of MTs N 1 Magelang City grade 8	practices <i>Menstrual hygiene</i> show a series of results, namely behaviour <i>menstrual hygiene</i> good by 50% and behaviour <i>menstrual hygiene</i> poor by 50%. Factors that influence the practice of <i>menstrual hygiene</i> are knowledge and information from the family. Factors that do not affect are information from friends, information from media (print media, electronic (TV, radio, or computer), and media <i>outdoor</i> (advertisements <i>billboard</i> , banners, posters)

4	Factors Associated with <i>Personal Hygiene</i> During Menstruation	(Andri, Candra, and Suarilah 2018)	<i>Cross sectional</i> Miftahul Ulum MI 117 students Pamekasan	<i>Personal hygiene</i> during menstruation is sufficient for 89 students (76.1%). Factors related to behaviour <i>personal hygiene</i> during menstruation are the relationship between knowledge (about women's reproductive health and personal hygiene in women during menstruation and when not menstruating), peer communication relationships, and belief in myths with behaviour <i>personal hygiene</i> during menstruation. There is no relationship between age of <i>menarche</i> and behaviour <i>personal hygiene</i> during menstruation
5	Factors Associated with Adolescent Hygienic behaviour during Menstruation in Students at SMA Kartika XIV-1 Banda Aceh	(Zuraida and Rahmi 2017)	<i>Cross sectional</i> 51 High School Students	behaviour <i>hygiene</i> Negative menstrual as many as 21 students (41.2%). There is a relationship between knowledge, family ( <i>support</i> , materials for buying sanitary napkins, and information), and attitudes with behaviour <i>hygiene</i> menstrual.
6	Factors Associated with Practice <i>Hygiene</i> Menstrual	(Lestariningsih 2016)	<i>Cross sectional</i> 117 junior high school students of class VIII	practices <i>Hygiene</i> menstruation poorly total of 44 respondents (37.6%). There was a significant relationship between attitudes and exposure to the mass media (television, magazines, books, radio, newspaper / tabloid, and internet) with practices. <i>menstrual hygiene</i> There is no relationship between knowledge, beliefs, mother's education, and mother's information.
7	Factors Affecting Self Cleanliness During Menstruation at a Young Women at boarding Yayasan Nurul Islam Bungo	(Fitriwati and Arofah 2021)	<i>Cross sectional</i> MTS 74 students and vocational school in Pondok aged 13-19 years	Factors that influence personal hygiene behaviour during menstruation include parental communication patterns (in providing information about reproductive health), peer support (information), cultural influences (discussion about sexuality is considered taboo), and the biggest factor is knowledge (about menstruation)., reproductive health, and personal hygiene during menstruation or when not menstruating). There is no relationship between personal hygiene behaviour during menstruation.

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8	Factors Affecting the behaviours of Young Women About <i>Personal Hygiene</i> During Menstruation at SMP Negeri 12 Pekanbaru City	(Suryani 2019)	<i>Cross sectional</i> 82 junior high school student of class VII, VIII and IX	behaviour <i>Personal hygiene</i> in students showed a series of results, namely good behaviour (50%) and bad behaviour (50%). Factors that influence behaviour <i>personal hygiene</i> menstrual are knowledge (about <i>personal hygiene</i> menstrual), attitudes, information (health workers, friends, environment, family, books, brochures, advertisements, and mass media), support for health workers (information) and facilities (toilet). /Clean sink, clean water, clean and germ-free underwear, clean and dry towels and tissues, hand soap, and trash can). The dominant factor influencing the behaviour <i>personal hygiene</i> of menstruation is the availability of facilities ( $p$ 0.007).
9	Relationship between Peer Support and Practice <i>Menstrual Hygiene</i> in Adolescents	(Wulandari and Saparwati 2020)	Descriptive correlation- <i>Cross sectional</i> 80 junior high school students	practices <i>menstrual hygiene</i> Most of the were good as many as 68 respondents (85.0%). There is a relationship between peer support (emotional, informational, and an assessment of reward / effort has been made) with practices <i>menstrual hygiene</i>
10	Relationship Knowledge and Attitude Toward behaviour of Young Women <i>Personal Hygiene</i> When Menstruation	(Mukarramah 2020)	<i>Cross sectional</i> 54 junior high school students	behaviour <i>Personal hygiene</i> during menstruation that is not good at 30 students (55.6%). There is a relationship between knowledge practices) ( <i>menstrual hygiene</i> and young attitude toward the behaviour of <i>other personal hygiene</i> during menstruation
11	Resources Relationship with Behaviours <i>Personal Hygiene</i> in Young Women When Menstruation	(Anjan and Susanti 2019)	<i>Cross sectional</i> 62 junior high school students	Most of the young women have behaviour <i>personal hygiene</i> positive during menstruation as many as 39 respondents (62.9%). There is a significant relationship between sources of information from parents (mother's role in informational, emotional, and psychological support), information from school teachers (about attitudes, knowledge, and practices <i>vulvar hygiene</i> ), mass media, sisters, peers (communication) and information on health workers (about personal hygiene during menstruation) on behaviour <i>personal hygiene</i> during menstruation.

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12	behaviour of <i>Hygiene</i> Adolescent Girls During Menstruation in Rural Areas, Serang Regency, Banten	(Ritanti, Wahyudi, and Permatasari 2021)	Descriptive correlation - <i>Cross sectional</i> 367 adolescent girls aged 10-14 years	Most of the behaviour <i>hygiene</i> was good as many as 213 respondents (58%). There is a significant relationship between adolescent characteristics and behaviour <i>hygiene</i> menstrual( <i>age of menarche</i> , the majority are from private schools, and follow organizations), a significant relationship between information media and viewing frequency with behaviour <i>hygiene</i> menstrual(mobile phone, internet, television, newspapers/magazines/novels, VCD / film, rental, friends, media school learning), a significant relationship between the role of mother (educate and nurture the behaviour of <i>menstrual hygiene</i> behaviours <i>hygiene</i> menstruation (educate, nurture and guide the behaviour of <i>menstrual hygiene</i> ).
13	<i>Myths about menstrual Personal hygiene among Female Adolescents</i>	(Palupi, Pristya, and Novirsa 2020)	<i>Cross sectional</i> 119 high school students of class X	behaviour <i>personal hygiene</i> Menstrual in respondents is still bad. There is a relationship between belief in myths (not washing your hair during menstruation), attitudes and economic status. There is no relationship between the age of menarche, mother's education, and resources
14	Differences in Knowledge, Attitudes, Resources, and Other Factors on <i>Personal Hygiene</i> When Menstruation	(Nurulicha 2019)	<i>Cross sectional</i> 63 senior high school students of class X	Most of the respondents have good personal <i>hygiene</i> as many as 50 people (79.4%). There is a relationship between knowledge (definition, benefits, goals <i>personal hygiene</i> during menstruation), attitudes, sources of information (media and non-media), the role of parents (reproductive health information), and the role of teachers (counselling guidance in facilitating, overcoming and providing services to children). female students) on behaviour <i>menstrual hygiene</i> in adolescents. There is no relationship between the role of peers on behaviour <i>menstrual hygiene</i> in adolescents Adolescent



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15	behaviour <i>Menstrual Hygiene</i> : A Study on Students at Modern Islamic Boarding Schools in Depok City	(Amanda and Ariyanti 2020)	<i>Cross sectional</i> 77 student's cottage	Most respondents have behavioural <i>menstrual hygiene</i> a poor (54.5%). There is a relationship between attitudes, belief in myths (not cutting hair, cutting nails, combing hair, and washing hair during menstruation), <i>ustadzah</i> support (interaction/communication), and exposure to information (mother, teacher / <i>ustadz</i> / <i>ustadzah</i> , and friends) with behaviour <i>menstrual hygiene</i> for female students. There is no relationship between peer support (providing information to remind each other to behave properly, punishing for bad behaviour and motivating in terms of <i>menstrual hygiene</i> ) and infrastructure (only female toilets, closed drains, special toilet bins, and adequate lighting).
16	Are Environment and Biology Factors Causing Teenage Girls' Absence from School During Menstruation	(Andini, Handian, and Kristiana 2021)	<i>Case control</i> 47 female students in Islamic boarding schools	35 respondents (74.5%) had poor menstrual hygiene environmental factors. 21 respondents (44.7%) had biological factors in the management of poor menstrual hygiene. There is a significant difference between environmental and biological factors that cause environmental and biological factors to be unrelated to the presence of adolescent girls at school during menstruation.
17	Factors Related to Practices <i>Hygiene Menstrual</i> in Students of SMA Negeri 1 Sesean, North Toraja Regency	(Dolang, Rahma, and Ikhsan 2013)	<i>Cross sectional</i> 174 high school students	A total of 86 respondents had practices <i>hygiene</i> adequate menstrual (50.6%). There is a relationship between knowledge ( <i>p value</i> = 0.000), the role of mass media ( <i>p value</i> = 0.010), family socioeconomic status ( <i>p value</i> = 0.000) and practices <i>hygiene</i> menstrual.
18	<i>Menstrual hygiene management and school absenteeism among adolescent students in Indonesia: evidence from a cross-sectional school-based survey</i>	(Davis <i>et al.</i> , 2018)	<i>Cross sectional</i> 886 middle and high school students aged 12-19 years	More than half (64, 1%) adolescents practice <i>hygiene</i> poor menstrual. There is a relationship between knowledge and behaviour <i>menstrual hygiene</i> .

## **Discussion**

### **Description of behaviour *Menstrual Hygiene* in Adolescents in Indonesia A**

Total of 16 literatures describe behaviour *menstrual hygiene* in adolescents in Indonesia. There were 6 literatures (37.5%) that showed behaviour *menstrual hygiene* poor in adolescents (Amanda and Ariyanti 2020; Azzahra and Adiwiryo 2020; Davis et al. 2018; Kartika 2018; Mukarramah 2020; Palupi, Pristya, and Novirsa 2020). 2 literature (12.5%) states that behaviour *menstrual hygiene* in adolescents is sufficient (Andri, Candra, and Suarilah 2018; Dolang, Rahma, and Ikhsan 2013). 6 literatures (37.5%) state that behaviour *menstrual hygiene* in adolescents is good (Anjan and Susanti 2019; Lestariningsih 2016; Nurulicha 2019; Ritanti, Wahyudi, and Permatasari 2021; Wulandari and Saparwati 2020; Zuraida and Rahmi 2017), and 2 literatures (37.5%) show behaviour *menstrual hygiene* in serial adolescents (Afriyani and Salafas 2020; Suryani 2019).

Kartika's research (2018) showed that 62.2% of respondents had behaviour vulvar hygiene incorrect during menstruation, including not washing hands before and after performing vulvar hygiene during menstruation, not cleaning the genital organs from front to back, not changing underwear immediately. who is exposed to blood during menstruation, and does not wear underwear that absorbs sweat (Azzahra and Adiwiryo 2020) reported that 76.6% of respondents had behaviour personal hygiene poor during menstruation, including . Mukarramah's research (2020) stated that the majority of respondents (55.6%) had behaviour personal hygiene poor menstrual, indicated by not washing hands before and after touching the genital organs, not changing underwear, and not shaving part of the pubic hair to prevent excessive moisture. excessive in the genital area.

Palupi, et al (2020) explained behaviour hygiene that poor menstrual was shown in most respondents changing sanitary napkins 4 times a day (68.1%), not washing their hair during menstruation (61.3%), not cleaning the female area properly (from the front). back) (50.4%), washing the female area with soap or betel soap (73.9%). In Amanda and Ariyanti's research (2020) also explained behavior menstrual hygiene that poor (54.5%) includes changing sanitary napkins less than 3-4 times a day, not washing hands with soap before changing pads, most respondents do not understand how to clean their organs. true feminine intimacy, most of the respondents do not cut or shave their pubic hair regularly, and do not cut their nails during menstruation. Davis, et al (2018) includes.

Research in Lestariningsih's research (2015) the practices hygiene majority of respondents have good menstrual (62.4%), including how to clean the vagina from front to back (86%), drying the genital organs after washing the genital organs. (53%), changing sanitary napkins after defecating (31%) and after urinating (22%). In the study of Wulandari and Saparwati (2020) the majority of behaviour was menstrual hygiene good (85%), because respondents used sanitary napkins of the right/standard quality when menstruating.

### **Relationship of Biological Factors with behaviour Biological *Menstrual Hygiene***

Factors are age at menarche (UNICEF, 2013). Menarche is the age when a woman first gets her period and is an early sign of a woman's biological maturity (Andri, Candra, and Suarilah 2018). Adolescents who experience menarche at early teens and have knowledge that is still less about menstruation can cause a lack of awareness about the importance of behaviour hygiene menstruation, while teenagers who experience menarche at age older and may already have knowledge and information on hygiene menstruation can cause behavioural hygiene better menstruation (Dolang, Rahma, and Ikhsan 2013).

There were 3 literatures that examined there was no relationship between age of menarche and behaviour menstrual hygiene in adolescents in Indonesia. Research conducted by Azzahra and Adiwiryo (2018) found that the majority of menarche were 12 years old (38.3%). This study also stated that respondents who were at the age of menarche ideal had behaviour menstrual hygiene poor as many as 52 respondents (76.5%). Wahyudi, et al (2018) found that respondents had age of menarche an ideal has behaviour menstrual hygiene pretty much as 57 respondents (74%). In the research of Dolang, Rahma, and Ikhsan (2013) found respondents with late age menarche have behaviour menstrual hygiene poor (59%).

According to the researcher's assumption, there is no relationship between the age of menarche and behaviour menstrual hygiene in adolescents in Indonesia because the ideal age of menarche does not guarantee that the teenager performs menstrual hygiene properly, because not all adolescents get sufficient information about behaviour menstrual hygiene before the teenager gets his first menstruation. Time. So that when adolescents get menarche, they do not have the knowledge and readiness to face menarche which causes behaviour menstrual hygiene in adolescents to be less good/bad.

### **Relationship of Individual Factors Individual**

Factors are knowledge and attitudes towards *menstrual hygiene* (UNICEF, 2013). A total of 13 literatures that examine knowledge with behaviour *menstrual hygiene* in adolescents in Indonesia. There are 9 literatures (69.2%) which state that there is a relationship between knowledge and behaviour *menstrual hygiene* in adolescents in Indonesia (Afriyani and Salafas 2020; Andri, Candra, and Suarilah 2018; Davis et al. 2018; Dolang, Rahma, and Ikhsan 2013; Fitriwati and Arofah 2021; Mukarramah 2020; Nurulicha 2019; Suryani 2019; Zuraida and Rahmi 2017) and 4 articles (30.6%) which stated that there was no relationship between knowledge and behaviour *menstrual hygiene* in adolescents in Indonesia. The knowledge in question includes knowledge about menstruation, knowledge of reproductive health in women, knowledge about women's personal hygiene during menstruation and when not menstruating and the impact of not performing behaviour *menstrual hygiene* properly. According to (Notoatmodjo 2012) Knowledge is the result of knowing, and this happens after people sense a certain object. Sensing occurs through the five human senses, namely the senses of sight, hearing, smell, taste, and touch. Most of human knowledge is obtained through

the eyes and ears. Knowledge or cognitive domain is a very important domain in shaping one's actions (*overt behaviour*).

According to the researcher's assumption, there is a relationship between knowledge and behaviour *menstrual hygiene* in adolescents in Indonesia, because the higher the level of knowledge, the better a person's behaviour, especially behaviour *menstrual hygiene* that can improve health status.

There are 10 articles that examine attitudes with behaviour *menstrual hygiene* in adolescents in Indonesia. 8 literature (80%) shows that there is a relationship between attitudes and behaviour *menstrual hygiene* in adolescents in Indonesia (Amanda and Ariyanti 2020; Kartika 2018; Lestariningsih 2016; Mukarramah 2020; Nurulicha 2019; Palupi, Pristya, and Novirsa 2020; Suryani 2019; Zuraida and Rahmi 2017). 2 literature (20%) states that there is no relationship between attitudes and behaviour *menstrual hygiene* in adolescents in Indonesia (Azzahra and Adiwiryo 2020; Fitriwati and Arofah 2021). According to (Notoatmodjo 2010) attitude is readiness/willingness to act, the function of attitude is not yet an action (open reaction) or activity, but is a behavioural predisposition (action) or closed reaction.

According to the researcher's assumptions, the more positive the attitude, the more positive one's point of view in performing behaviour will be *menstrual hygiene*.

### **Relationship Interpersonal Factors Interpersonal**

Factors include support with family, support with peers, support with teachers, support with health workers, access to mass media and information media (UNICEF, 2013). In performing *menstrual hygiene* at home and at school, adolescent girls not only need support for the availability of facilities and infrastructure, but also need non-physical support in the form of information and psychological (Hastuti n.d.).

A total of 8 literatures that examine family support with behaviour *menstrual hygiene* in adolescents in Indonesia. There are 6 literatures (75%) which state that there is a relationship between family support and behaviour *menstrual hygiene* in adolescents in Indonesia (Afriyani and Salafas 2020; Anjan and Susanti 2019; Fitriwati and Arofah 2021; Nurulicha 2019; Ritanti, Wahyudi, and Permatasari 2021; Zuraida and Rahmi 2017). Research by Afriyani and Salafas (2020) states that there is a relationship between family support in the form of information about *menstrual hygiene* behaviour with correct behaviour *menstrual hygiene* ( $p$  value = 0.015). Zuraida and Rahmi (2017) mention that 28 respondents who received family support had good behaviour *menstrual hygiene* as much as 83.1%), family support in the form of emotional support, material support for buying sanitary napkins, and information support regarding behaviour *menstrual hygiene*. The results of the research by Fitriwati and Arofah (2021) showed that there was a relationship between personal hygiene during menstruation and parental communication patterns ( $p$  value = 0.004), because communication in providing information about reproductive health education between mothers and children was easier to understand. In line with the research by Wardani and Nurulicha (2019), 47 adolescents who received

parental roles (communication regarding reproductive health) had behaviour *personal hygiene* good menstrual (94%).

In Anjan and Susanti's research (2019) 34 adolescents who received family support (information from mothers on *menstrual hygiene* behaviour) had behaviour *personal hygiene* good menstrual as much as 54.8%. This research is also in line with research by Ritanti (2021) which states that there is a significant relationship between the role of mothers (in educating, nurturing, and guiding in behaviour *hygiene* menstrual) with behaviour *menstrual hygiene* in adolescent girls ( $p$  value= 0.000).

There are two literatures (25%) which state that there is no relationship between family support and behaviour *menstrual hygiene* (Kartika 2018; Lestariningsih 2016). The results of Kartika's research (2018) stated that adolescent girls who received support from their parents and performed *vulvar hygiene* there were as many as 37.9% of proper (37.9%), while adolescents who did not receive support from their parents and performed *vulvar hygiene* correct were (33.3%). %) in line with the research by Lestariningsih (2015) which stated that 92 female students who were exposed to information from their mothers, only 59.8% practiced good *hygiene* menstrual. Meanwhile, of the 25 female students who were not exposed to information from their mothers, 72% practiced good *hygiene* menstrual. This is because the information given by the mother is only conveyed once, is not given continuously, teenagers are embarrassed to ask first, and often talk about *menstrual hygiene* not being open and being too careful, so that the teenager does not understand.

The results of the analysis of some of the literature above, researchers assume that there is a relationship between family support in the form of information about reproductive health, about behaviour *menstrual hygiene*, material support for buying sanitary napkins, emotional support with behaviour *menstrual hygiene* in adolescents. So that the more often family support is given, the more positive behaviour is *menstrual hygiene* in adolescents.

There are 4 literatures which state that there is a relationship between peer relationships (communication and information about *menstrual hygiene*) and behaviour *menstrual hygiene* in adolescents in Indonesia (Andri, Candra, and Suarilah 2018; Anjan and Susanti 2019; Fitriwati and Arofah 2021; Wulandari and Sapparwati 2020). Meanwhile, there are 4 literatures which state that there is no relationship between peer support and behaviour *menstrual hygiene* in adolescents in Indonesia (Afriyani and Salafas 2020; Amanda and Ariyanti 2020; Azzahra and Adiwiryo 2020; Nurulicha 2019). The literature shows that students who receive sufficient peer support have more behaviour *personal hygiene* during menstruation. This is because not many teenagers have had experience and have not been exposed to information about the cleanliness of the female genital organs during menstruation, so there is no information between peers to share with each other. Another reason is the possibility that the information provided by peers is mostly wrong or incomplete, even though they are of the same age but experience and solutions to problems in each individual are different.

Teenagers spend more time interacting socially with peers, peers have a great effect on attitudes, interests, appearance and behaviour of adolescents. Communication between peers is easier to digest and accept than communication with parents or adults (Desmita 2009). Therefore, the method *peer education* can be an effective intervention method to improve good practices *menstrual* (Garg, Goyal, and Gupta 2012).

**Researchers assume that there is a relationship between peer support in the form of information about behaviour *menstrual hygiene*, if the information is correct.**

There are 3 literatures which state that there is a relationship between teacher support and behaviour *menstrual hygiene* in adolescents in Indonesia (Amanda and Ariyanti 2020; Anjan and Susanti 2019; Nurulicha 2019). In Anjan and Susanti's research (2019), 23 respondents who received support from the teacher (information regarding knowledge, attitudes, and practices of *vulvar hygiene* during menstruation) had behaviour *personal hygiene* positive during menstruation (37.1%). Wardani and Nurulicha, (2019) explained that 92% of students who received teacher support had behaviour *personal hygiene* good menstrual. Research conducted by Amanda, Handian, and Kristiana (2020) showed that the majority of female students received *ustadzah* support (interaction, information, and providing examples of good behaviour *menstrual hygiene*).

The researcher's assumption is that there is a relationship between teacher support and behaviour *menstrual hygiene* in adolescents in Indonesia, because teachers in schools have a role, one of which is facilitating, overcoming, and providing services to students in solving problems faced by students. Teachers are also parents in schools, so they can provide information to young women about knowledge, attitudes, and good behaviour *menstrual hygiene*.

Two literatures show that there is a relationship between the support of health workers and behaviour *menstrual hygiene* in adolescents in Indonesia (Anjan and Susanti 2019; Suryani 2019). Suryani (2019) explained that adolescents who received the support of health workers had good behaviour *personal hygiene* during menstruation as many as 30 respondents (73%), the support of health workers was to provide counselling to adolescents about *menstrual hygiene* and provide counselling, guidance and training to UKS teachers in maximizing implementation of PHBS (clean and healthy living behaviour) in schools, especially those related to *personal hygiene* during menstruation and when not menstruating. This research is also in line with research by Anjan and Susanti (2019) which states that 39 respondents (62.9%) who received information (regarding behaviour *personal hygiene* during menstruation and when not menstruating) from health workers had behaviour *personal hygiene* positive during menstruation.

According to the researcher's assumptions, there is a relationship between the support of health workers and behaviour *personal hygiene* during menstruation in adolescents in Indonesia, because the source of information provided by health workers is an effort to increase individual health knowledge, improve health status, prevent, and overcome disease. So that adolescents will continue to behave in maintaining the

cleanliness of the genital organs during menstruation or not during menstruation until menopause.

There are 3 articles that state that there is a relationship between mass media and behaviour *menstrual hygiene* in adolescents in Indonesia (Anjan and Susanti 2019; Dolang, Rahma, and Ikhsan 2013; Lestariningsih 2016). Lestariningsih's research (2015) found 58 respondents (57.4%) who were exposed to information from the media had good behaviour *menstrual hygiene*, the main source of information came from television (64.9%) and the most information obtained from television included information about sanitary napkin advertisements (41.0%), second place was magazines (57.7%) regarding information on how to clean the vagina (35.9%), types of sanitary napkins (17.1%), and frequency of sanitary napkins (1.7%)., the next in order are books (34.2%), radio (11.7%), newspapers/tabloids (3.6%), and the internet (1.8%). Research (Anjan and Susanti 2019; Dolang, Rahma, and Ikhsan 2013) states that mass media support obtained comes from electronic (internet, television, radio) and print media (newspapers, magazines, books). There is 1 article which states that there is no relationship between mass media support and behaviour *menstrual hygiene* in adolescents in Indonesia, because adolescents have not received complete and appropriate information about *menstrual hygiene*. So that it allows adolescents not to perform good behaviour *menstrual hygiene*.

The researcher's assumption is that there is a relationship between mass media and behaviour *menstrual hygiene* in adolescents in Indonesia. This is because, information will affect one's knowledge, the more information obtained the higher the level of one's knowledge. In the current era of information globalization, mass media is very effective in conveying information, especially information on reproductive health.

### **Relationship of Environmental Factors**

Environmental factors are the availability of facilities and infrastructure that support *menstrual hygiene* behavior in adolescents. Adequate facilities and infrastructure play an important role in facilitating adolescents to carry out correct menstrual hygiene management practices, facilities and infrastructure including the availability of safe, comfortable and clean toilets, clean water and room for students in schools to rest (UKS) (Hastuti n.d.).

There are 3 literature that mentions there is a relationship between the availability of facilities and infrastructure with *menstrual hygiene* behavior in adolescents in Indonesia (Andini, Handian, and Kristiana 2021; Azzahra and Adiwiryo 2020; Suryani 2019). Research conducted by Azzahra and Adiwiryo (2020) stated that the majority of menstrual hygiene behavior in *adolescents* is not good in schools whose complete hygiene facilities and infrastructure are incomplete (82.3%). This is in line with andini, Handian, and Kristina's research (2021) which said the majority of 35 (74.5%) respondents had environmental factors in poor menstrual hygiene management, this was shown in questionnaire data that said there were still respondents who wore pads from cloth and facilities from inadequate huts where only 2 large bathrooms were available. In

suryani research (2019) mentioned 37 (90%) respondents who have the means to support personal hygiene behavior during positive menstruation.

While there are 2 literature that states there is no relationship between the availability of facilities and infrastructure and *menstrual hygiene* behavior in adolescents in Indonesia (Amanda and Ariyanti 2020; Zuraida and Rahmi 2017). Kartika research results (2018) explain the availability of vulva *hygiene* facilities by performing vulva *hygiene* during menstruation correctly as much as 38.9%, while young women who do not have the availability of vulva *hygiene* facilities by doing vulva *hygiene* properly (34.4%) with statistical test results obtained p value = 0.594 which means there is no relationship between the availability of facilities for vulva hygiene with menstrual hygiene behavior in *adolescents*. This is because although teenagers have got facilities for vulva *hygiene*, but there are still many teenagers who do vulva *hygiene* behavior during menstruation incorrectly. Amanda and Ariyanti 's research (2020) say there is no relationship between the availability of facilities and infrastructure and menstrual *hygiene* behavior in adolescents. This is because, the research place (*pondok pesantren*) has provided facilities and infrastructure that are complete enough to support menstrual *hygiene* behavior in adolescents. The facilities and infrastructure provided include women-only toilet facilities, closed waterways, special trash cans in the toilet, and adequate lighting.

From the results of the study, researchers assume that the availability of complete and clean facilities and infrastructure will support good *menstrual hygiene* behavior in adolescents, because if the facilities and infrastructure are incomplete and clean will greatly make it difficult for adolescents in good menstrual *hygiene*.

### **Relationship of Social Factors**

Social factors include belief in myth/culture and family socioeconomic status (UNICEF, 2013). Obtained 3 literature that examines the relationship between belief in myths and *menstrual hygiene* behavior in adolescents in Indonesia (Amanda and Ariyanti 2020; Andri, Candra, and Suarilah 2018; Palupi, Pristya, and Novirsa 2020) and obtained 1 literature that states there is no relationship between belief in myths and *menstrual hygiene* behavior in adolescents in Indonesia (Lestariningsih 2016).

Research conducted by Wahyudi, et al (2018) respondents who do not believe in myths, have enough *personal hygiene* behavior of 90.25. There is a relationship between belief in myth and menstrual *hygiene* behavior (p-value = 0.001). In the study Palupi et al (2020) explained respondents who believe the myth (not shampooing during menstruation) have personal *hygiene* behavior during menstruation is bad as many as 63 respondents (80.0%). Amanda and Ariyanti's research (2020) have a significant relationship between belief in myths and menstrual hygiene behavior. The majority of respondents still believe in myths associated with menstrual *hygiene* behavior, including not cutting hair and nails, should not comb hair, and not shampoo while menstruating. In lestariningsih (2015) there was no relationship between belief in myths and menstrual



hygiene behavior in *adolescents*. Because the majority of respondents do not believe in myths, *menstrual hygiene* behavior in adolescents is good (63.6%).

According to the assumption of researchers, if a person does not believe in myths that have been proven to be useless and not scientifically correct then the knowledge possessed will also be better, so it will affect *menstrual hygiene* behavior in adolescents. And vice versa.

There is an article that shows there is a strong relationship between the influence of culture on *menstrual hygiene* behavior in adolescents in Indonesia (Fitriwati and Arofah 2021). The cultural influence is that some people consider menstruation is dirty blood, so women who are menstruating should be exiled and carry out daily activities in a special traditional house. According to the assumption of researchers, cultural influences can cause a person to have limitations in behaving positively towards health, especially personal hygiene during menstruation.

Two literatures are obtained that mention there is a relationship between the socioeconomic status of the family and *menstrual hygiene* behavior in adolescents in Indonesia (Dolang, Rahma, and Ikhsan 2013; Palupi, Pristya, and Novirsa 2020). Palupi et al research (2020) states that adolescents who have low socioeconomic status have the potential to 3.9 times to have poor *menstrual hygiene* behavior compared to high socioeconomic status. In line with research conducted by Dolang, Rahma, and Ikhsan (2013) showed that adolescents who have low family economic status have less *menstrual hygiene* behavior as much as 64.1%.

According to the assumptions of researchers, there is a relationship between socioeconomic status in families and *menstrual hygiene* behavior in adolescents in Indonesia. Because the socio-economic status of the family is seen from the income of parents in meeting their child's needs, if the socio-economic status of the family is low will have an impact on the type and number of pads used during menstruation. So that the socio-economic status of the family will affect *menstrual hygiene* behavior in adolescents in Indonesia.

## **Conclusion**

There is no relationship between biological factors, namely *menarche* age and *menstrual hygiene* behavior in adolescents in Indonesia. There is a relationship between individual factors, namely knowledge and attitudes and *menstrual hygiene* behavior in adolescents in Indonesia. There is a relationship between interpersonal factors, including support from family, peers, teachers, health workers and access or exposure to information with *menstrual hygiene* behavior in *adolescents* in Indonesia. There is a relationship between environmental factors, including the availability of facilities and infrastructure with *menstrual hygiene* behavior in adolescents in Indonesia. There is a relationship between social factors, including belief in myths, cultural influences, and family socioeconomic factors and *menstrual hygiene* behavior in *adolescents* in Indonesia.

The importance of support from parents, friends, teachers, health workers to increase adolescent knowledge about *menstrual hygiene* behavior and the availability of facilities and infrastructure that support menstrual *hygiene* behavior in adolescents. The limitation of this study is that almost all literature uses cross sectional research methods. Advice for future research, using assessment quality methods other than EPHPP (effective *public health practice project*).

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