

Perceived susceptibility, barriers, and cues to action as determinant factors of reproductive health behavior

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Article Info

Article history:

Received Nov 30, 2021

Revised Apr 30, 2022

Accepted Jun 20, 2022

Keywords:

Female adolescents

Health belief model

Reproductive health behavior

ABSTRACT

Adolescents are confronted with many reproductive health problems because of unstable conduct. This research aimed to investigate reproductive health behavior in female teens through the usage of a health belief model. This cross-sectional study was conducted in September, 2020 at Madrasah Aliyah Negeri 1 Malang, Indonesia. Data have been collected by questionnaires from 152 female high school students who were selected by simple random sampling. Data were analyzed using logistic regression. The study found that there are relationships among perceived susceptibility, perceived barriers, and cues to action with $p < 0.001$, perceived severity ($p = 0.012$), perceived benefits ($p = 0.001$), and self-efficacy ($p = 0.008$). The goodness of fit test showed that the data fit with the logistic regression model ($p = 0.917$) and 79.7% of reproductive health behavior is associated with these six variables. Perceived susceptibility, barriers, and cues to action as a determinant aspect of reproductive health behavior. Adolescents should have the understanding and motivation to act in a healthy way associated with their reproductive health.

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1. INTRODUCTION

The adolescent populace in Indonesia reached 25% of the entire populace [1]. The large proportion of adolescents affects the development of the country because adolescents are an age phase that determines the quality of the future population. The success of the adult population depends on their teenage years [2]. Indonesian Demographic and Health Survey (IDHS) 2017 related to Adolescent Reproductive Health showed that 80% of females and 84% of males in Indonesia have been dating from the age of 15-17 years [3]. They admitted that while dating they had carried out activities such as holding hands, hugging, kissing lips, touching or being touched, and even having premarital sex. In addition, as many as 2% of adolescent girls and 8% of adolescent boys have had premarital sex [4].

According to data from the Research and Development Agency of Malang in 2016, it is known that around 29% of adolescents have engaged in premarital sexual behavior [5]. Previous research in Gondanglegi Kulon, Malang showed that 34% of adolescents engaged in non-risk sexual behavior, 58% engaged in mild risky sexual behavior, and 8.4% of adolescents engaged in severe risky sexual behavior [6].

Adolescents need to know about reproductive health to have correct information about the reproductive process and the various factors that surround it. With the correct information, it is hoped that adolescents will have responsible attitudes and behavior regarding the reproductive process. Reproduction is the

process of continuing offspring which is the responsibility of both males and females. Therefore, both male and female adolescents must know and understand various aspects of reproductive health and its problems.

Reproductive health problems in adolescents are serious, but adolescents are still a neglected group. Most of the health studies only focus on children or mothers, both during pregnancy and the puerperium. There are very few population-based studies of adolescents, particularly those related to reproductive health. Although this issue is very important, there has been no special handling from the government, it is evident that youth programs are still very limited regarding the handling of reproductive health problems. The youth-related program that has been made by the health office, namely the youth care health program has not been effective in all health centers in Indonesia [7]. In addition, the school health business (*usaha kesehatan sekolah/UKS*), which is a form of health service for school-age children, including adolescents, with the formation of peer counselors for reproductive health, is still not running optimally.

Reproductive health services for adolescents are needed to prevent and protect adolescents from risky sexual behavior and other risky behaviors, as well as to prepare adolescents to undergo healthy and responsible reproductive health [8]. The challenges faced in developing an effective program to increase knowledge about adolescent reproductive health include: the program must be able to provide appropriate clinical information and services, as well as help adolescents develop the ability to make decisions for themselves. Programs need to additionally consider the numerous alternatives of youth (eg. cultural norms, peer and mass media influence, and financial hardship) and increase program strategies that deal with the desires of youth. In addition, this system need to additionally be capable of constructing network and garnering political support for youth-targeted activities [9].

Most of the research on adolescents paid more attention in descriptions to their reproductive health and factors that influence it, but less explanation on their reproductive health behavior using health belief model (HBM) approach. HBM is one effective model to understand people's behavior on health and the factors rely on behind it [10]. Each component of HBM could give a description of what men think about the health issue or disease according to their own beliefs. The perceived vulnerability relates to individual judgments approximately the probability of having the disease, even as perceived severity is an evaluation of the seriousness of the disease. Perceived benefits describe high-quality matters that might occur because of the health behavior, and perceived barriers have been associated with the issue and barriers of adopting the health behavior [11]. A comprehensive understanding of HBM components will guide us to design strategies needed to solve certain health problems. Therefore, this study adopted HBM theory to explore preventative behavior by adolescent girls in their reproductive health and based on the description above, this study was conducted to analyze reproductive health behavior in adolescent females using the health belief model approach.

2. RESEARCH METHOD

This study was a survey study using a cross-sectional approach. It collected information related to reproductive health behavior, including perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy. The study aimed to analyze reproductive health behavior in adolescent females using a health belief model approach.

The study involved 152 females adolescent aged 14-16 years who selected through simple random sampling at MAN 1 Malang, Indonesia. Data collection was carried out from July to September, 2020. Data was collected through a paper-based questionnaire of reproductive health behavior, which was distributed to and filled by the respondents at the research location.

The dependent variable was reproductive health behavior. Reproductive health behavior is defined as the behavior of adolescents for their physical and psychosocial wellbeing. The questionnaire about reproductive health behavior consists of 58 favorable and unfavorable items. The independent variables were perceived susceptibility, severity, benefits, barriers, cues to action, and self-efficacy. Questionnaire items are shown in Table 1. For the favorable items, the scores are: 5 (absolutely agree), 4 (agree), 3 (doubtful), 2 (disagree), and 1 (strongly disagree). The unfavorable items scores are: 1 (absolutely agree), 2 (agree), 3 (doubtful), 4 (disagree), and 5 (strongly disagree).

Data analysis was carried out by calculating the mean and standard deviation. Data analysis for variables of reproductive health behavior with a health belief model approach, used logistic regression test with 95% confidence level. This study obtained Ethical Clearance from the Ethics Commission of Poltekkes Kemenkes Malang no:983 / KEPK-POLKESMA/ 2020.

Table 1. Questionnaire items

Variable	Items	Category
Perceived susceptibility	8	High: ≥ 26 Low: < 26
Perceived severity	12	High: ≥ 40 Low: < 40
Perceived benefits	10	High: ≥ 36 Low: < 36
Perceived barriers	10	High: ≥ 29 Low: < 29
Cues to action	8	High: ≥ 25 Low: < 25
Self-efficacy	10	High: ≥ 29 Low: < 29

3. RESULTS AND DISCUSSION

3.1. The characteristics of respondents

Table 2 shows that from 152 research respondents, the respondents' age ranged from 15 to 17 years old, with an average of 16 years old. The respondents' upper arm circumference ranged from 16 to 34 centimeters, with an average of 21.93 centimeters. The respondents' belly circumference ranged from 56 to 104 centimeters with an average of 68.44 centimeters. The respondents' height ranged from 127 to 169 centimeters, with an average of 151.49 centimeters. The respondents' weight ranged from 34 to 107 centimeters, with an average of 47.74 centimeters. Adolescence is a period that experiences the most physiological, biological, and psychological changes. This condition occurs through various transitions from various dimensions which in the process of development undergo changes that have an impact on their behavior [12].

Table 2. The description of respondents' characteristics based on age, upper arm circumference, belly circumference, height, and weight

Characteristic	Mean	SD	Min.	Max.
Age	16.30	0.53	15	17
Upper arm circumference	21.93	2.91	16	34
Belly circumference	68.44	11.06	56	104
Height	151.49	24.03	127	169
Weight	47.74	9.14	34	107

3.2. The frequency distribution of reproductive health information' exposure

Table 3 shows that most of the respondents have received information related to changes in adolescents (86.84%). Respondents who have received information related to the ideal age for marriage, sexuality, smoking, minimal alcohol, drugs, HIV/AIDs and contraception was below 50%. Meanwhile, most of the respondents had obtained information associated with reproductive health from teachers (75.66%), mothers (70.39%), health workers (65.79%) and the internet (65.79%). In addition, most of the respondents have received information related to reproductive health from teachers and health workers using video media (61.84%) and Microsoft Power Point (58.55%).

3.3. The frequency distribution of reproductive health behavior's factor

Table 4 reveals that most respondents have a high perception of vulnerability (55.92%), a high perception of seriousness (56.58%), a high perception of benefits (61.84%). Hence, they have low perception of barriers (51.32%), high support for action (50.66%) and high self-confidence (51.97%).

3.4. Analysis of reproductive health behavior

Table 5 shows that the significant relationship between perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy with reproductive health behavior. Respondents with an excessive perception of vulnerability have 11.46 times more likely to have healthy behavior associated with their reproductive health. Respondents with an excessive perception of seriousness had been 5.14 times much more likely to have healthy behavior associated with their reproductive health. Respondents with an excessive perception of benefits have 9.41 times more opportunity of getting healthy behavior associated with their reproductive health. Respondents with high perceived barriers have a 27.85 times greater probability of having healthy behavior related to their reproductive health. Respondents with

high support for action are 16.79 times more likely to have healthy behavior related to their reproductive health. Respondents with high self-confidence are 5.88 times more likely to have healthy behavior related to their reproductive health.

Table 3. The frequency distribution of reproductive health information' exposure

Reproductive health information exposure	Yes f (%)	No f (%)
Information		
Changes in adolescents	132 (86.84)	20 (13.16)
Ideal age to marry	56 (36.84)	96 (63.16)
Sexuality	43 (28.29)	109 (71.71)
Smoke	61 (40.13)	91 (59.87)
Alcoholic beverages	55 (36.18)	97 (63.82)
DRUGS	37 (24.34)	115 (75.66)
HIV/AIDS	46 (30.26)	106 (69.74)
Contraception	12 (7.89)	140 (92.11)
Source		
Friend	68 (44.74)	84 (55.26)
Mother	107 (70.39)	45 (29.61)
Father	27 (17.76)	132 (86.84)
Family	84 (55.26)	68 (44.74)
Teacher	115 (75.66)	37 (24.34)
Health workers	100 (65.79)	52 (34.21)
Books/Magazines/Newspapers	56 (36.84)	96 (63.16)
Internet	100 (65.79)	52 (34.21)
Teacher/Health personnel education media		
Leaflet	18 (11.84)	134 (88.16)
Videos	94 (61.84)	58 (38.16)
Ms. power point	89 (58.55)	63 (41.45)
Props	40 (26.32)	112 (73.68)
No Media	48 (31.58)	104 (68.42)

Table 4. The frequency distribution of reproductive health behavior's factor

Variable	f (%)
Perceived susceptibility	
High	85 (55.92)
Low	67 (44.08)
Perceived severity	
High	86 (56.58)
Low	66 (43.42)
Perceived benefits	
High	94 (61.84)
Low	58 (38.16)
Perceived barriers	
High	74 (48.68)
Low	78 (51.32)
Cues to action	
High	77 (50.66)
Low	75 (49.34)
Self efficacy	
High	79 (51.97)
Low	73 (48.03)

Table 5. Analysis of reproductive health behavior

Variable	OR	95%CI		p-value
		Lower	Upper	
Perceived susceptibility	11.46	2.96	44.30	<0.001
Perceived severity	5.14	1.44	18.36	0.012
Perceived benefits	9.41	2.37	37.29	0.001
Perceived barriers	27.85	6.47	119.89	<0.001
Cues to action	16.79	4.21	66.89	<0.001
Self efficacy	5.88	1.59	21.67	0.008

After the analysis, it is necessary to do a goodness of fit test to find out whether the data fit for this model. Based on the results of the goodness of fit test output, p value =0.917, which indicates that the data fit

with the logistic regression model, meaning that the prediction results from the model are not much different from the observed data. In addition, the results of the analysis show that the R- square value is 0.797.

Reproductive health in adolescents is one of the health priorities in the world that affects various aspects of health development in a country. Achieving reproductive health goals is not possible without the awareness and participation of adolescents. On the other hand, adolescents' knowledge and perceptions of these problems can be factors that influence adolescent behavior [13]. This individual perception will encourage a person to behave in a healthy manner [14], which includes the perception of perceived vulnerability, perception of the seriousness of reproductive health problems, perceptions of the benefits obtained, perceptions of perceived barriers, support for action, and self-confidence from teenagers. This study shows that there is a relationship between perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy on adolescent reproductive health behavior.

Perception of vulnerability refers back to the subjective evaluation of the threat to health problems [15]. Individual beliefs approximately vulnerability have power on an individual's actions [15]. Individuals who believe they have got a low threat of sickness are more likely to interact in bad behavior, and individuals who understand their threat to be excessive might be more likely to interact in behaviors to lessen their threat of sickness or interact in healthy behaviors [16]. The vulnerability felt by young women related to reproductive health is in line with the number of cases of adolescents related to free sex and drugs. This is supported by data from the Indonesia population demographic survey (IDHS) in 2017. Teenagers in Indonesia have engaged in risky premarital sexual behavior, including adolescents claiming to have been in unhealthy relationships since the age of 15-17 years with an incidence rate of 80% women and 84% men. Men (8%) are more likely than women (2%) to have had premarital sexual. The percentage of drugs use is less than one percent of women and three percent of men [17]. Based on this perception of vulnerability, young women tend to engage in healthy reproductive health behaviors, such as not dating to avoid free sex, and not using drugs.

Perceived seriousness refers to a subjective evaluation of the severity/seriousness of a health problem and its capacity consequences. The health belief model proposes that people who understand sure health issues as critical are much more likely to interact in behaviors to prevent health issues from occurring (or lessen their severity). Perceived seriousness consists of beliefs approximately the sickness itself (for example, whether or not it's far life-threatening or can purpose incapacity or pain) in addition to the wider effect of the sickness on functioning in acting each day activities [18]. Based on descriptive analysis, it is known that the perception of seriousness that is mostly felt by young women is related to pregnancy outside of marriage. Female adolescents feel that if they have never engaged in risky behavior that can increase the likelihood of contracting diseases or other reproductive health problems, then there is no need for healthy behavior related to their reproductive health. In another study in Indonesia, it was shown that the perception of seriousness would increase if the perceived benefits and threats increased [19]. A person's response to a stimulus will be different because it is influenced by several factors such as personal experience, culture, people who are considered important and the mass media. These factors make it possible to provide the same stimulus but do not necessarily lead to the same attitudes and actions [15].

Health-related behavior is likewise encouraged through the perceived benefits of the movements taken. The perceived benefits confer with a person's evaluation of the value or gain to interact in health-selling behaviors to lessen the threat of disease. In different studies, respondents who have a more view of benefits could have the possibility to accomplish proper preventive behaviors as well [11]. If someone believes that sure movements will lessen vulnerability to health problems or lessen their seriousness, then it's possible to interact in that behavior no matter goal statistics approximately the effectiveness of the action [16]. The consequences confirmed that there has been a dating between perceived benefits and reproductive health behavior ($p < 0.001$). Based on descriptive analysis, it is recognized that most young women experience the benefits in terms of adolescent reproductive health behavior; however, the perceived advantages are not an aspect that sincerely impacts adolescent reproductive health behavior. One opportunity that reasons the low behavior of adolescents despite excessive perceived benefits, can be due to the fact adolescents accept as true that they may be healthy so long as they do now no longer display uncommon symptoms [20].

In the descriptive analysis, it is known that most of the adolescents did not feel it was important to contact health workers when experiencing reproductive health problems. This can be caused by the low knowledge of adolescents related to reproductive health. Univariate data shows that adolescent females who have received information regarding the ideal age for marriage, sexuality, smoking, minimum alcohol, drugs, HIV/AIDs and contraception are below 50%. Information exposure will have an important effect on adolescent knowledge [21]. Knowledge is one of the riding elements in behavior change [21]. Some research has proven that adolescents with a proper understanding of reproductive health will enjoy the offerings to be had [22]. Adolescents have to be assured that barrier to the health-in search of behavior may be overcome and that those barriers do now no longer outweigh the benefits derived from gaining access to reproductive

health information and offerings [23]. Knowledge of reproductive health and to be had offerings are elements associated with the usage of adolescent offerings [24]. Adolescents with an excessive degree of information approximately reproductive health and to be had offerings are nearly two times as probably to make use of adolescent reproductive health offerings as people with a low degree of information [14].

Health-related behavior is likewise a characteristic of perceived barriers to taking movement. The outcomes of preceding research additionally display that there's a courting among perceived barriers and adolescent reproductive health behavior [25]. Perceived barriers confer with a person's evaluation of the barriers to behavior alternate. Even if someone perspectives a health situation as a risk and believes that positive movements will efficiently lessen the danger, barriers can prevent the person from carrying out health promotion. In different words, the perceived benefits should outweigh the perceived barriers for behavior alternate to occur. Perceived barriers to taking movement consist of the perceived discomfort, cost, harm (e.g., side outcomes of a clinical procedure), and discomfort (e.g., pain, emotional disturbance) worried withinside the behavior [18]. Perceived barriers also are taken into consideration in healthy behavior associated with reproductive health. Previous studies in Nepal determined that most of the barriers confronted have been the reason of people now no longer use of services [26]. The outcomes of this study aren't consistent with those conclusions due to the fact the barriers perceived right here aren't associated with adolescent reproductive health behavior. One feasible rationalization is the belief that the exercise of retaining reproductive health isn't always important or taken into consideration unimportant for adolescent females. This is a concern for the continuity of reproductive health services and the expansion of care to more youth.

The Health Belief Model (HBM) states that cues or triggers are needed to encourage engagement in health-promoting behaviors [11]. Health threats will be felt by individuals who encourage them to act, and if the perceived benefits they feel are greater than the perceived barriers, then they will take the recommended preventive health actions [27]. Cues to Action may be inner or outside. Physiological cues are examples of inner cues for movement, which include the onset of ache or signs in an individual. External cues consist of activities or facts from near others which include the media, or health care companies that sell engagement in health-associated behaviors, which includes alarms for taking multivitamins, infection of buddies or own circle of relatives' members, and caution labels for healthy behavior [28]. The depth of the cues required for set off movement varies among people with perceived vulnerability, seriousness, benefit, and inhibition. Individuals trust that they're at excessive threat because of critical infection and feature contact with doctors, that will effortlessly be persuaded to have health screening. In assessment to people who trust that they are at low threat of the identical sickness and additionally do now no longer have dependable get admission to health facilities, they want greater extreme outside cues to health behavior screening [16]. In descriptive analysis, it is known that most of the adolescents who experience reproductive health complaints or problems prefer to tell their mothers their complaints before accessing information or getting reproductive health services at health facilities. This is because adolescents feel comfortable telling their mothers as the closest people compared to health workers as other people, so it can help to identify problems that occur before finally taking action [29].

Self-efficacy refers to a person's belief in his or her competence to effectively carry out a behavior. Self-efficacy turned into introduced to the health belief model in a try to higher explain person differences in health behavior with the expectancy of extra significant long-time period behavior alternate. Individual self-efficacy is a key factor of health behavior alternately [18]. The better one's self-efficacy, the higher the health behavior shown, conversely the decrease one's self-efficacy, the alternate in health behavior isn't right or now no longer right [30]. In descriptive analysis, it is known that with high self-efficacy, not all of them have good reproductive health behavior, and conversely, respondents with low self-efficacy do not all have bad reproductive health behavior. This may be due to the lack of confidence in the ability of adolescents to behave in a healthy manner related to reproductive health. The low level of knowledge and the influence of peers can be an enabling factor that affects adolescents in healthy behavior. In addition, most of the adolescents feel confident that they do not have reproductive health problems and believe that they cannot protect themselves from deviant behavior, so that they have not behaved in a clean and healthy manner.

Based on the idea of the health belief model, adolescents have to have the understanding and motivation to act in a healthy way associated with their reproductive health. They must consider themselves vulnerable to experiencing reproductive health problems and they must believe that reproductive health problems experienced during adolescence are serious problems that have social, economic, and health impacts. The utility of HBM can lessen dangerous sexual behavior as a manual for adolescents in growing information, supplying information to growing knowledge of healthy sexual behavior [31]. In addition, adolescents must be convinced that the obstacles in health seeking behavior can be overcome and these obstacles do not outweigh the benefits of accessing reproductive health information and services. The existence of an internal or external stimulus is a signal to act that can trigger adolescent health behavior to

become healthy adolescents and be responsible for their reproductive health. Adolescents must be sure that they are able to behave in a healthy manner and overcome their reproductive health problems (self-efficacy).

To avoid negative influences, especially those related to adolescent reproductive health problems, such as free sex, drugs, consumption of alcoholic beverages, adolescents must have a strong fortress in countering negative influences, providing education related to reproductive health with the right media needs to be done so that adolescents can better understand and as a deterrent to negative influences. It is also intended that adolescents have a responsible attitude and behavior regarding their reproductive health. Patton *et al.* highlight those digital technologies show the greatest potential for improving health outcomes for adolescent. Digital media and broadband technologies provide great new opportunities for engagement and provider delivery [32]. Social communication and media engagement are important strategies to use to provide reproductive health education because they can disseminate information quickly, reach a wider range of youth, and provide opportunities to share information confidentially [33].

Adolescents can also get access to educational interventions not only from accessing digital media, but adolescents can also get educational interventions about reproductive health in schools. Educational interventions have to attention to growing adolescents' knowledge, perceived susceptibility, and severity in addition to improving adolescents' intentions for enhancing their health. Schools are a great site for offering educational interventions approximately reproductive health due to the fact students spend the maximum of their time in school and health promoters can attain a huge range of participants [34]. It is thought that the findings may be used as a floor for policymaking in optimizing data dissemination thru the media to enhance reproductive health awareness amongst adolescents.

4. CONCLUSION

Perceived susceptibility, barriers, and cues to action are determinant factors of reproductive health behavior. Reproductive health problems in adolescents are serious problems because adolescents are at risk of experiencing reproductive health problems and engaging in deviant behavior. Adolescents ought to have the understanding and motivation to act in a healthy way associated with their reproductive health. They must consider themselves vulnerable to reproductive health problems and they must believe that the reproductive health problems experienced during adolescence are serious problems that have long-term impacts. In addition, adolescents must be convinced that the obstacles in health-seeking behavior can be overcome and these obstacles do not exceed the benefits obtained from accessing reproductive health information and services. In addition, adolescents must be sure that they can behave healthily and overcome their reproductive health problems (self-efficacy) to become healthy adolescents and be responsible for their reproductive health.

Strenght of this study that the use of health reproduction integrated health belief model questionnaire as its main tool, which has been tested of its validity with alpha Cronbach's score of 0.907. In addition, logistic regression analysis was also carried out to find relationships and evaluate reproductive health behavioral problems in adolescents, especially adolescent females. The limitation in this study is that its result can not be extrapolated to all adolescents in Indonesia, since it was only conducted in one city and also used a cross-sectional design instead of a longitudinal study.

ACKNOWLEDGEMENTS

The study was funded by List of Budget Implementers for Poltekkes Kemenkes Malang provided by Indonesian Health Ministry.

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