

# **The Effectiveness of Adolescent Reproductive Health Education (KRR) Case Base Learning (CBL) Method on Risky Sexual Behavior of Adolescents Based on the Health Belief Model In Ngebong Village, Pakel District Tulungagung Regency**

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## **ABSTRACT**

The risk of sexual behavior in adolescents is still a problem in Indonesia, causing the high number of pregnancies aged 15-19 years to reach 47 per 100 pregnancies, with one in nine girls marrying early in Indonesia. The purpose of this study is to determine the effectiveness of the adolescent reproductive health education case-based learning (CBL) method on adolescent risk sexual behavior based on the Health Belief Model (HBM) at Ngebong, Pakel, Tulungagung in 2022. This study uses a quasi experimental approach. The sample of 60 respondents was divided into 30 intervention group respondents and 30 control group respondents. The data collection instrument uses questionnaires that have been tested for validity and reliability. Data analysis using the Mann-Whitney test. The results showed that the CBL method of health education has proven effective in increasing perceived susceptibility, perceived severity, perceived benefits, and perceived self-efficacy and reducing perceived barriers and risk sexual behaviors in adolescents at Ngebong, Pakel, Tulungagung in 2022. These findings demonstrate the importance of the CBL method of adolescent reproductive health education to the reduction of risk sexual behavior in adolescents. This research has implications for improving healthy adolescent sexual behavior so that adolescents can become productive and accomplished adolescents.

**Keyword:** Adolescent Reproductive Health, Health Education, Case Base Learning Methods, Health Belief Model, Risk Sexual Behavior.

## **INTRODUCTION**

Health problems in Indonesia are still quite high, one of which is reproductive health problems. Reproductive health is a condition in which individuals experience complete physical, mental and social health, not only free from disease or disability related to reproductive systems, functions and processes (Kemenkes RI, 2015). Reproductive health problems mostly occur in adolescents because in this phase adolescents experience rapid growth and development both in physical, psychological and intellectual aspects. Some of the characteristics of adolescents are having great curiosity, liking adventure and challenges and daring to take risks for their actions without being preceded by careful consideration. This raises several problems in adolescents, one of which is problems regarding reproductive health (BKKBN, 2013).

Based on WHO data (2015) there are 11% of pregnancies each year occur among adolescents. There are 85 million pregnancies that occur globally and 40% are unwanted pregnancies (KTD). According to the WHO (2018), it shows that as many as 12.8 million births occur to mothers aged 15-19 years each year or 44 births per 1000 adolescent girls. The adolescent birth rate is lowest in high-income countries at 12 births per 1000 and highest in

low-income countries at 97 births per 1000.

According to the 2017 IDHS survey in Indonesia on unmarried men and women aged 15-24 in the Adolescent Reproductive Health (KRR) component, adolescents were asked about their sexual experiences. In general, teenage boys (8%) are more likely to have premarital sex than girls (2%). The proportion of women and men who reported having had sexual intercourse varied according to the characteristics of age, place of residence and education. Meanwhile, the number of unwanted pregnancies was 12% and 7% of men reported that their partners had unwanted pregnancies. Unwanted pregnancy in the age group 15-19 years is twice as large (16%) as in the age group 20-24 years (8%). The 2019 Indonesian Central Statistics Agency (BPS) survey showed that the percentage Pregnant women aged 15-19 years reached 47 per 100 pregnancies. One in nine girls marry early in Indonesia. Women aged 20-24 years who married before the age of 18 years. In 2018, it is estimated to reach around 1,220,900 and this figure places Indonesia in the 10 countries with the highest absolute number of child marriages in the world.

East Java Province is the province with the second highest KTD cases in Indonesia. Unwanted pregnancy in East Java Province was 12.2%. Unwanted pregnancy according to the 2012 IDHS was 10.1%. East Java is the province with the highest number of unwanted pregnancies in Indonesia and DKI Jakarta at 9.1% is the province with the second highest number of unwanted pregnancies in Indonesia (Riskesdas, 2013). The province in Indonesia which is considered to be the highest province for cases of pregnancy out of wedlock is East Java (Andriansyah, 2016). In 2016, the number of cases of early marriage in East Java reached 1,272 cases. At the end of June 2018, there were 1,059 cases and more than 64 percent of cases of early marriage were motivated by pregnancy out of wedlock, especially for students from elementary to college level (Wulan, 2018). Cases of early marriage caused by the occurrence of pregnancy out of wedlock occurred in one area of East Java, namely Pasuruan.

Tulungagung Regency, located in East Java, is a district with high HIV/AIDS cases, namely 232 cases and 2.2% occurred in adolescents. Based on research by Junnatun Nikmah (2021) at the KUA, Tulungagung Regency, with the Covid-19 pandemic, there was a 100% increase in early marriages caused by unwanted pregnancies. Based on a preliminary survey by conducting interviews with one of the heads of the puskesmas in Tulungagung, it was stated that Ngebong Village, Pakel District, Tulungagung Regency is one of the villages with high adolescent reproductive health cases.

The main factor causing unwanted pregnancy in adolescents is risky sexual behavior (Wijayati, 2017). Bad sexual behavior in adolescents is also influenced by family structure and mental health (Winarti et al., 2021). Factors that affect reproductive health include stigma, discrimination, violence, health services and health information (Idele et al., 2014). Low health information about reproductive health in adolescents makes adolescents' knowledge also decreases which can result in the risk of occurrence, unwanted pregnancy, unsafe abortion and its complications, and sexually transmitted infections (Kyilleh et al., 2018). Based on research conducted by Winarti et al, 2020, it was found that almost all respondents (85.7%) had low knowledge and the level of need assessment about KRR education was almost entirely high (82.9%) (Eko Winarti et al., 2021).

One solution to overcome reproductive health problems in adolescents is to provide reproductive health education which is expected to change adolescent reproductive health behavior with health education based on the Health Belief Model (HBM). HBM is a person's beliefs and behavior and the effect of individual motivation on health behavior at the decision-making level (Gozum & Capik, 2014). One method of health education that can be used is Case Based Learning (CBL). Case based learning is a learning model that focuses on tracking the root of the problem and solving the problem (Abbudin, 2011). Based on the results of research conducted by Yeni et al (2020) that students benefit from the application of Cased Based

Learning (CBL), namely increasing student knowledge and critical thinking skills so as to provide better value changes in the learning process and students' level of understanding of the material (Vera et al. al., 2020).

Based on the above phenomenon, the researchers are interested in conducting research to improve the prevention of risky sexual behavior in adolescents with the title "The Effectiveness of Adolescent Reproductive Health Education (KRR) Case Base Learning Method Against Risky Sexual Behavior of Adolescents Based on Health Belief Model in Ngebong Village, Pakel District, Tulungagung Regency in 2022".

## METHODS

The subjects of this study were those who met the specified criteria. The population is all teenagers in Ngebong Village, Pakel District, Tulungagung Regency. The sample in this study were 60 respondents which were divided into 30 respondents in the intervention group and 30 respondents in the control group. This research uses a quasi-experimental approach. The data collection instrument used a questionnaire that had been tested for validity and reliability. Data analysis using Mann Whitney test.

## RESULT

### A. Analysis of Characteristic Variables

#### 1. Characteristics of Respondents

Table 1. Characteristics of Respondents between Intervention and Control Groups in Ngebong Village in July 2022

No	Characteristic	Category	Group			
			Control		Intervention	
			n	(%)	n	(%)
1	Respondent's age	Early teens (12-16 thn)	6	20	11	36,7
		Late teens (17 – 25 thn)	24	80	19	63,3
		Total	30	100	30	100
2	Gender	Female	23	76,7	20	66,7
		Male	7	23,3	10	33,3
		Total	30	100	30	100
3	Education	Elementary/Junior High School	3	10	5	16,7
		Senior High School	27	90	25	83,3
		Total	30	100	30	100

Source: Research primary data, 2022

Based on table 1, it can be seen about the characteristics of respondents in both the intervention group and the control group. In the control and intervention groups, it is known that the age of the respondents at the time of the study was mostly in the late teens category, namely aged 17-25 years, namely 80% and 63.3%, respectively. The gender of the respondents in both the control and intervention groups was found to be mostly women, namely 76.6% and 66.7%. Most of the respondents' education in the control and intervention groups was secondary education (Senior High School or equivalent), namely 90% and 83.3%, respectively.

#### 2. Characteristic of variables

Table 2. Characteristic of variables between Intervention and Control Groups in

## Ngebong Village in July 2022

No	Characteristic of Variables	Category	Group							
			Control				Intervention			
			Before		After		Before		After	
			n	%	n	%	n	%	n	%
1	Perceived susceptibility	No risk	2	6,7	2	6,7	1	3,3	0	0
		Less risk	17	56,7	14	46,7	20	66,7	5	16,7
		High risk	11	36,7	14	46,7	9	30	25	83,3
2	perceived severity	Very dangerous behavior	24	80	22	73,3	20	66,7	29	96,7
		Less harmful behavior	6	20	8	26,7	10	33,3	1	3,3
3	perceived benefits	Very helpful	27	90	20	66,7	27	90	28	93,3
		Less useful	3	10	10	33,3	3	10	2	6,7
4	perceived barrier	Lots of obstacles	16	53,3	27	90	17	56,7	18	60
		Slight obstacle	14	46,7	3	10	13	43,3	12	40
5	perceived self efficacy	Very capable	3	10	17	56,7	3	10	28	93,3
		Less fortunate	27	90	13	43,3	27	90	2	6,7
6	perilaku tentang seksual berisiko	Low	0	0	10	33,3	0	0	27	90
		Medium	22	73,3	20	66,7	17	56,7	3	10
		High	8	26,7	0	0	43,3	35	0	0

Source: Research primary data, 2022

Based on table 2 it can be seen about the characteristics of the variables in the respondents both in the control group and the intervention group between before and after being given health education with the Case Base Learning (CBL) method in Ngebong Village, Pakel District, Tulungagung Regency in 2022. Variables perceived susceptibility in the control group before being given health education was mostly (56.7%) in the less risky category, after being given health education almost half (46.7%) were in the less risky and high risk categories. The perceived susceptibility variable in the intervention group before being given the intervention was mostly (66.7%) in the less risky category, after being given the intervention almost entirely (83.3%) in the high risk category.

The perceived severity variable in the control group before and after being given health education was mostly (80%) in the category of very dangerous behavior, namely 80% and 73.3%. The perceived severity variable in the intervention group before being given the intervention was mostly (66.7%) in the category of very dangerous behavior, after being given the intervention almost entirely (96.7%) in the category of very dangerous behavior.

The perceived benefits variable related to preventing or avoiding risky sexual behavior in the control group before being given health education was almost entirely (90%) in the very useful category, after being given health education most (66.7%) were in the very useful category. The perceived benefits variable in the intervention group before and after the intervention was almost entirely in the less useful category, namely 90% and 93.3%, respectively.

The perceived barrier variable related to barriers to risky sexual behavior in the control group before being given health education was mostly (53.3%) in the category of many barriers, after being given health education almost entirely (90%) in the category of many barriers. The perceived barrier variable in the intervention group before and after being given the intervention was mostly in the category of many barriers, namely 56.7% and 60%.

The perceived self-efficacy variable related to the ability to prevent risky sexual behavior in the control group before being given health education was almost entirely (90%) in the poor category, after being given health education most (56.7%) were in the very capable category. The perceived self-efficacy variable in the intervention group before being given health education was almost entirely (90%) in the poor category, after being given health

education almost entirely (93.3%) in the very capable category.

Risk sexual behavior variables in the control group before and after being given health education were mostly in the medium category, namely (73.3%) and (66.7%). Most of the risky sexual behavior variables in the intervention group (56.7%) were in the moderate category, after being given health education almost all (90%) were in the low category.

### 1. Difference Analysis

Analysis of Perceived Susceptibility Differences about risky sexual behavior in adolescents in Ngebong Village, Pakel District, Tulungagung Regency in July 2022

Table 3. Analysis of Perceived Susceptibility Differences about risky sexual behavior in adolescents in Ngebong Village, Pakel District, Tulungagung Regency in July 2022

Variable	Category	Group			
		Control		Intervention	
		n	%	n	%
<i>Perceived susceptibility</i>	No risk	2	6,7	0	0
	Less risk	14	46,7	5	16,7
	High risk	14	46,7	25	83,3
	Total	30	100	30	100
	<i>Mean Rank</i>	24,83		36,17	
	<i>p-value</i>	0,003			

Source: Research primary data, 2022

Table 3 describes the results of the analysis of differences in the effect of health education with the CBL method on Perceived susceptibility about risky sexual behavior in adolescents between the intervention and control groups. Mann Whitney test results obtained p value  $0.003 < \text{value} = 0.05$  so it can be concluded that there is a difference in the effect of CBL health education compared to conventional health education methods on Perceived susceptibility about risky sexual behavior in adolescents. The mean rank value in the intervention group was  $36.17 > \text{the mean rank value in the control group} = 24.83$ , this indicates that health education using the CBL method is more effective in increasing perceived susceptibility to risky sexual behavior in adolescents compared to conventional health education methods.

1. Analysis of *Perceived Severity* Differences about risky sexual behavior in adolescents in Ngebong Village, Pakel District, Tulungagung Regency in July 2022

Tabel 4. Analysis of *Perceived Severity* Differences about risky sexual behavior in

## adolescents in Ngebong Village, Pakel District, Tulungagung Regency in July 2022

Adolescents in Ngeboong Village, Pakar District, Karangasung Regency in July 2022						
Variable	Category		Group			
			Control		Intervention	
			n	%	n	%
<i>Perceived severity</i>	Less harmful behaviour		22	73,3	29	96,7
	Very dangerous behaviour		8	26,7	1	3,3
	Total		30	100	30	100
	<i>Mean Rank</i>		34		27	
<i>p-value</i>			0,012			

Source: Research primary data, 2022

Table 4 describes the results of the analysis of the differences in the effect of health education with the CBL method on the perceived severity of risky sexual behavior in adolescents between the intervention and control groups. Mann Whitney test results obtained  $p$  value  $0.012 < \text{value} = 0.05$  so it can be concluded that there is a difference in the effect of CBL health education compared to conventional health education methods on the perceived severity of risky sexual behavior in adolescents. The mean rank value in the intervention group was  $27 < \text{the mean rank value for the control group} = 34$ . This indicates that health education using the CBL method is more effective in increasing the perceived severity of risky sexual behavior in adolescents compared to conventional health education methods.

2. Difference Analysis *Perceived benefits* about risky sexual behavior in adolescents between the intervention and control groups after being given health education with the CBL

Tabel 5. Analysis of Perceived benefits about risky sexual behavior in adolescents in Ngebong Village, Pakel District, Tulungagung Regency in July 2022

Variable	Category	Group			
		Control		Intervention	
		n	%	n	%
<i>Perceived benefits</i>	Less useful	20			
			66,7	28	93,3
	Very helpful	10	33,3	2	6,7
	Total	30	100	30	100
	<i>Mean Rank</i>	34,5		26,5	
	<i>p-value</i>	0,010			

Source: Research primary data, 2022

Table 5 describes the results of the analysis of the difference in the effect of health education with the CBL method on the perceived benefits of risky sexual behavior in adolescents between the intervention and control groups. Mann Whitney test results obtained  $p$  value  $0.010 < \text{value} = 0.05$  so it can be concluded that there is a difference in the effect of CBL health education compared to conventional health education methods on perceived benefits of risky sexual behavior in adolescents. The mean rank in the intervention group was  $26.5 < \text{the mean rank in the control group} = 34.50$ , this indicates that the CBL health education method is more effective in increasing the perceived benefits of risky sexual behavior in adolescents compared to conventional health education methods.

3. Difference Analysis of Perceived barrier about risky sexual behavior in adolescents between the intervention and control groups after being given health education with the CBL method

Table 6. Difference Analysis Perceived barrier on risky sexual behavior in adolescents in Ngebong Village, Pakel District, Tulungagung Regency in July 2022

Variable	Category	Group			
		Control		Intervention	
		n	%	n	%
<i>Perceived barrier</i>	Lots of obstacles	27	90	18	60
	Slight obstacle	3	10	12	40
	Total	30	100	30	100
	<i>Mean Rank</i>	26		35	
<i>p-value</i>		0,008			

Source: Research primary data, 2022

Table 6 describes the results of the analysis of the differences in the effect of health education with the CBL method on Perceived barriers about risky sexual behavior in adolescents between the intervention and control groups. Mann Whitney test results obtained p value  $0.008 < \text{value} = 0.05$  so it can be concluded that there is a difference in the effect of health education with CBL methods compared to conventional health education methods on Perceived barriers to risky sexual behavior in adolescents. The mean rank value in the intervention group is  $35 >$  the mean rank value for the control group  $= 26$ . This indicates that health education using the CBL method is more effective in increasing perceived barriers to risky sexual behavior in adolescents compared to conventional health education methods.

4. Difference analysis of *Perceived self efficacy* about risky sexual behavior in adolescents between the intervention and control groups after being given health education with the CBL method

Tabel 7. Difference analysis of *Perceived self efficacy* on risky sexual behavior in adolescents in Ngebong Village, Pakel District, Tulungagung Regency in July 2022

Variable		Category	Group			
			Kontrol		Intervensi	
			n	%	n	%
<i>Perceived self efficacy</i>	Less capable	17		28		
			56,7		93,3	
	Very capable	13		2		
			43,3		6,7	
	Total	30	100	30	100	
<i>Mean Rank</i>		36		25		
<i>p-value</i>		0,001				

Source: Research primary data, 2022

Table 7 describes the results of the analysis of the differences in the effect of health education with the CBL method on perceived self-efficacy regarding risky sexual behavior in adolescents between the intervention and control groups. Mann Whitney test results obtained p value  $0.001 < \text{value} = 0.05$  so it can be concluded that there is a difference in the effect of CBL health education compared to conventional health education methods on perceived self-efficacy regarding risky sexual behavior in adolescents. The mean rank value in the intervention group was  $25 <$  the mean rank value for the control group  $36$ . This indicates that health education using the CBL method is more effective in increasing perceived self-efficacy

regarding risky sexual behavior in adolescents compared to conventional health education methods.

5. Analysis of differences in risky sexual behavior in adolescents between the intervention and control groups after being given health education with the case base learning method in Ngebong Village, Pakel District, Tulungagung Regency in 2022

Table 8. Analysis of differences in risky sexual behavior in adolescents between the intervention and control groups after being given health education with the case base learning method in Ngebong Village, Pakel District, Tulungagung Regency in 2022

Variable		Category	Group			
			Control		Intervention	
			n	%	n	%
Risky sexual behavior		High	10	33,3	27	90
		Medium	20	66,7	3	10
		Low	0	0	0	0
		Total	30	100	30	100
		<i>Mean Rank</i>		39		22
		<i>p-value</i>	0,00			

Source: Research primary data, 2022

Table 8 describes the results of the analysis of the differences in the effect of health education with the CBL method on risky sexual behavior in adolescents between the intervention and control groups. Mann Whitney test results obtained p value  $0.000 < \text{value} = 0.05$  so it can be concluded that there is a difference in the effect of CBL health education compared to conventional health education methods on risky sexual behavior in adolescents. The mean rank value in the intervention group  $22 < \text{the mean rank value in the control group } 39$  this indicates that CBL health education is more effective in reducing risky sexual behavior in adolescents than conventional health education methods.

## DISCUSSION

A. Differences in *Perceived susceptibility* about risky sexual behavior in adolescents between the intervention and control groups after being given health education using the Case Base Learning (CBL) method in Ngebong Village, Pakel District, Tulungagung Regency in 2022

Based on the results of research conducted in Ngebong Village, Pakel District, Tulungagung Regency, it was found that there was a difference in the effect of CBL health education compared to conventional health education methods on Perceived susceptibility of risky sexual behavior in adolescents.

Perceived susceptibility refers to a subjective assessment of the risk to health problems. Individuals who believe that they have a low risk of disease are more likely to engage in unhealthy behavior, and individuals who perceive that they have a high risk of disease are more likely to engage in behaviors to reduce their risk of disease (Onoruoiza et al., 2015).

Research (Y. Zhao et al., 2015) states that susceptibility is related to adherence to antihypertensive medication. Each individual has a different way of taking action for healing or prevention aimed at overcoming the perceived health problems. It all depends on the belief of each individual whether he or she accesses existing health services or not. Belief in question is related to cognitive such as knowledge about health problems and individual perceptions of the perceived symptoms of the disease (Safarino, 2006) in (Setiyaningsih, Tamtomo and Suryani, 2013). HBM predicts that individuals who feel vulnerable to the risk of developing disease will try to reduce the risk of developing health problems, whereas individuals who feel they are not vulnerable to the risk of developing health problems will deny that they have a risk of health problems. (Khorsandi et al., 2017; Onorouiza et al., 2015; Setiyaningsih et al., 2016).



Thus, adolescents who have a high perception of vulnerability will try to control themselves such as staying away from peers who have experienced sexual behavior, watching pornographic films, looking for wrong information and accessing social media about sexuality.

The difference in the results of statistical analysis of perceived susceptibility about risky sexual behavior in adolescents between the control group given conventional health education and the intervention group given CBL health education shows that the CBL method of health education is more effective than conventional health education on perceived susceptibility.

Case-based learning is an instructional strategy approach to learning methods that encourages active-learning processes and directs students to engage in critical thinking processes such as analysis and synthesis. Critical thinking is a cognitive activity related to the use of reason. Learning to think critically means using mental processes, such as paying attention, categorizing, selecting, and judging/deciding. Analysis is the ability to classify material into its parts, track and identify the relationships of each part, and how the parts are formed. Indicators of analysis are the ability to frame ideas, identify arguments or information, break down sections, track relationships, and track how those relationships are formed. Synthesis is the ability to put parts together to form something new. Synthesis indicators are the ability to use old knowledge or ideas into new things, combine ideas into new things, and use knowledge in new or different contexts. One alternative learning that allows the development of students' thinking skills (reasoning, communication, and connection) in solving problems is Case-Based Learning which is an innovation in learning because in the learning process students' thinking abilities are really optimized through a systematic group or team work process, so that students can empower, hone, test, and develop their thinking skills on an ongoing basis. This is also in line with the results of Regina's research, which states that training with problem-based learning methods increases knowledge and retains knowledge longer than conventional methods or lectures. Case-based learning is used and facilitated in online business education, and case-based learning is found to be a valuable instructional method for students in practicing solving by applying what they learn. It also increases student engagement in understanding the context embedded in cases towards solutions from various aspects. This case-based learning process was developed based on the theory of modern cognitive psychology which states that learning is a process in which students actively construct their knowledge through their interaction with the learning environment designed by the learning facilitator. This is in accordance with research conducted by Rahayu, et al (2022) which showed that the CBL method was effective in increasing mother's knowledge about adolescent sex education.

B. Differences in *Perceived severity* of risky sexual behavior in adolescents before and after being given health education using the Case Base Learning (CBL) method in Ngebong Village, Pakel District, Tulungagung Regency in 2022

Based on the results of research conducted in Ngebong Village, Pakel District, Tulungagung Regency, it was found that there were differences in the effect of CBL method health education compared to conventional method health education on Perceived severity of risky sexual behavior in adolescents.

Perceived severity refers to a subjective assessment of the severity of a health problem and its potential consequences. HBM proposes that individuals who perceive a given health problem as serious are more likely to behave to prevent the problem or reduce its severity. Perceived seriousness includes beliefs about the disease itself, for example whether the disease is life-threatening or can cause disability or illness as well as the wider impact of work and social roles (Onoruoiza et al., 2015). Perceived seriousness includes beliefs about whether the disease itself is life-threatening or can cause disability, as well as the broader impact of the disease on functioning in social roles (Onorouiza et al., 2015). Adolescents who have the perception that the impact of risky sexual behavior can cause various sexually transmitted

diseases and can even damage the future, then there will be concerns that these adolescents will make efforts to prevent or control themselves.

The difference in the results of the statistical analysis of perceived severity regarding risky sexual behavior in adolescents between the control group who received conventional health education and the intervention group who received the CBL method of health education showed that the CBL method of health education was more effective than conventional health education for perceived severity. This is in accordance with research conducted by Wilandika (2017) which proves that there are differences in student knowledge about HIV/AIDS, stigma against PLWHA and student acceptance of PLWHA before and after case-based learning. Further analysis found a significant effect ( $p < 0.005$ ) of the case-based learning method on knowledge, stigma and acceptance of nursing students.

A person's health behavior is also influenced by the perceived benefits of taking an action. This perceived benefit refers to an individual's judgment about the value or efficacy of an action in reducing the risk of disease (Onorouiza et al., 2015). If adolescents believe that self-control, getting closer to the creator, avoiding pornography, refusing friends' invitations to have sexual behavior will reduce the vulnerability to sexual behavior, then adolescents will tend to behave positively and control themselves from negative behavior.

Differences in the results of statistical analysis of perceived benefits regarding risky sexual behavior in adolescents between the control group who were given conventional health education and the intervention group who were given health education with the CBL method showed that the CBL method of health education was more effective than conventional health education for perceived benefits. This is in accordance with research conducted by Wilandika (2017) which proves that there are differences in student knowledge about HIV/AIDS, stigma against PLWHA and student acceptance of PLWHA before and after case-based learning. Further analysis found a significant effect ( $p < 0.005$ ) of the case-based learning method on knowledge, stigma and acceptance of nursing students.

Perceived Barrier or Perceived barrier is an individual's assessment of how big the obstacle is to take the recommended action. Individuals may not take an action even though they know about the benefits of the action because there are many obstacles, for example expensive, far away, troublesome, unpleasant and painful. This perceived barrier is the opposite of other perceptions. HBM education is aimed at reducing perceived barriers to taking action (Onorouiza et al., 2015). Adolescents who perceive high barriers in preventing risky sexual behavior, these adolescents will tend to refuse such as staying away from peers for fear of being bullied or having no friends.

The difference in the results of statistical analysis of perceived barriers regarding risky sexual behavior in adolescents between the control group who were given conventional health education and the intervention group who were given health education with the CBL method showed that the CBL method of health education was more effective than conventional health education against perceived barriers. This is in accordance with research conducted by Wilandika (2017) which proves that there are differences in student knowledge about HIV/AIDS, stigma against PLWHA and student acceptance of PLWHA before and after case-based learning. Further analysis found a significant effect ( $p < 0.005$ ) of the case-based learning method on knowledge, stigma and acceptance of nursing students.

#### C. Difference in *Perceived self efficacy* of risky sexual behavior in adolescents before and after being given health education using the Case Base Learning (CBL) method in Ngebong Village, Pakel District, Tulungagung Regency in 2022

Based on the results of research conducted in Ngebong Village, Pakel District, Tulungagung Regency, it was found that there was a difference in the effect of CBL health education compared to conventional health education methods on perceived self-efficacy regarding risky sexual behavior in adolescents.

Self-efficacy refers to the belief in the extent to which an individual estimates his ability to carry out a task or perform a task required to achieve a certain outcome. Confidence in all self-efficacy includes self-confidence, adaptability, cognitive capacity, intelligence and capacity to act in stressful situations. Belief in one's own ability to influence changes in outcomes (self efficacy) is the key to changing health behavior (Onoruoiza, Musa, Umar, & Kunle, 2015). A person's self-efficacy can be used in predicting healthy behavior and can facilitate the modification of one's behavior. People are more likely to adopt health behaviors if they think they will succeed. According to (Bandura, 1994) natural self-efficacy is grown and learned through four things, namely: experience of mastering something, social modeling, social persuasion, physical and emotional conditions. The level of a person's self-efficacy in each task varies greatly. This is due to the existence of several factors that influence the perception of individual abilities. There are several factors that influence self-efficacy, including: culture, gender, nature of the task at hand, external intentions, status or individual roles in the environment, information about self-ability (Bandura, 1994). Factors that influence self-efficacy are direct experience and indirect experience (Yansen Gultom, 2015). Dchwarzer & Renner (2000) mention three main predictors that influence a person's intention are risk perception, outcome expectation and coping self efficacy. Dchwarner & Renner (2000) stated that individuals who have good self-efficacy will have good nutritional behavior.

The difference in the results of the statistical analysis of self-efficacy regarding risky sexual behavior in adolescents between the control group given conventional health education and the intervention group given CBL health education indicates that the CBL method of health education is more effective than conventional health education on perceived self-efficacy. This is in accordance with research conducted by Wilandika (2017) which proved that this case-based learning method was able to increase knowledge and self-efficacy beliefs in preventing HIV risk behavior in students.

D. Differences in risky sexual behavior based on the health belief model between the intervention group and the control group in Ngebong Village, Pakel District, Tulungagung Regency in 2022

According to the theory of the Health Belief Model, a person's perception or belief in one's health will influence a person's decision to behave healthily. The Health Belief Model has both positive and negative perceptions (Widjayanti, 2021). The Health Belief Model theory (Glanz, 2008) states that human behavior can be influenced by: 1) Perceived susceptibility, 2) Perceived benefits, 3) Perceived barriers, 4) Severity / perceived seriousness (perceived severity/seriousness), 5) Ability to take action (perceived self-efficacy), and 6) Encouragement to take action (cues to action) (Winarti & Saadah, 2021). The Health Belief Model (HBM) is a health promotion approach used in behavior change that is oriented towards patient perceptions. Several studies have shown that the Health Belief Education Model is effective in increasing preventive behavior (Puspita, Tamtomo, & Indarto, 2017), adherence (Alalah, 2017; Rajpura & Nayak, 2014), quality of life (Lismayanti; Sari Nina, 2017), knowledge, perception, and self-efficacy (Onoruoiza, Musa, Umar, & Kunle, 2015), other studies obtained data that vulnerability is the dominant factor in compliance (Kurniawan, Ibrahim, & Sugwignyo, 2011). HBM has been developed for a long time, but it seems that it is only up to research, while implementation in the field is still rarely carried out (Rachman et al., 2021).

Case-based learning is an instructional strategy approach to learning methods that encourages active-learning processes and directs students to engage in critical thinking processes such as analysis and synthesis. The case-based learning method uses a structured case approach to direct students to understand the important elements of a problem or situation so that they are ready when facing real cases. Case studies can help develop critical thinking skills in analyzing available information and identifying faulty logic or assumptions (Walker, Leary, Ertmer, & Hmelo-Silver, 2015).

Based on the explanation above, researchers can argue that there is a significant reduction in risky sexual behavior through the educational method with the Health Belief Model approach because respondents have been stimulated by being given material through health education, where this method has advantages that can influence a person's decision to behave healthily. The advantages of this media are that it is more interesting and more effective to use because health behavior is influenced by individual perceptions of their beliefs about disease and the methods available to reduce the occurrence of symptoms of the disease they suffer (Rachmawati, 2019) so that respondents understand more clearly the meaning conveyed. Respondents also felt enthusiasm when learning was given as seen during the question and answer session, and had a high interest in learning so that it could affect the level of knowledge of the respondents.

## CONCLUSIONS

Adolescent reproductive health education using the CBL method has proven effective in increasing *perceived susceptibility* regarding risky sexual behavior in adolescents in Ngebong Village, Pakel District, Tulungagung Regency in 2022. Adolescent reproductive health education using the CBL method has proven effective in increasing *perceived severity* of risky sexual behavior in adolescents in Ngebong Village, Pakel District, Tulungagung Regency in 2022. Adolescent reproductive health education using the CBL method has proven effective in increasing *perceived benefits* regarding risky sexual behavior in adolescents in Ngebong Village, Pakel District, Tulungagung Regency in 2022.

Adolescent reproductive health education using the CBL method has proven effective in reducing *perceived barriers* to risky sexual behavior in adolescents in Ngebong Village, Pakel District, Tulungagung Regency in 2022. Adolescent reproductive health education using the CBL method has proven effective in increasing *perceived self-efficacy* regarding risky sexual behavior in adolescents in Ngebong Village, Pakel District, Tulungagung Regency in 2022. Youth reproductive health education using the CBL method has proven effective in reducing risky sexual behavior in adolescents in Ngebong Village, Pakel District, Tulungagung Regency in 2022.

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