



INCREASING ATTITUDE AND BEHAVIOR OF DELAYING PREGNANCY OF THE RISKY BRIDE CANDIDATES THROUGH PRECONCEPTIVE HEALTH EDUCATION

Megayana Yessy Maretta^{1*}, Dedi Rachmadi², Farid Husin², Deny Eka Widyastuti¹, Desy widyastutik¹, Siti Khuzaiyah^{3,4}, Muhammad Tayyeb⁵

¹*Kusuma Husada University, Surakarta, 11, Jaya Wijaya St. Kadipiro Banjarsari, Surakarta City, Central Java, Indonesia*

²*Padjadjaran University, Bandung, 38 Professor Eyckman St, Pasteur, Sukajadi, Bandung City, West Java, Indonesia*

³*Midwifery Department, Faculty of Health Sciences, Universitas Muhammadiyah Pekajangan, Pekalongan, Indonesia*

⁴*PAPRSB Institute Health Sciences, Universiti Brunei Darussalam*

⁵*Medical Teaching Institution, College of Medical Technology Bacha Khan Medical College, Mardan, Pakistan*

* *Corresponding author*

E-mail: megapastibisa@gmail.com

ABSTRACT

Background: World Health Organization identified some factors of high-risk pregnancy. Health education with booklets can improve individual knowledge, attitudes, and behavior. This study aims to analyze the effect of preconception of health education with booklets on increasing the attitudes and behavior of the risky bride candidates.

Method: This quasi-experimental pre-posttest design with control groups study was conducted at 4 Religious Affairs Office in Surakarta with a sample of 60 prospective brides divided into 2 groups and selected by consecutive sampling technique. Attitudes and behavior on delaying pregnancy were measured using an attitude questionnaire and a family planning acceptor card. Data analysis with Fisher's test, Chi Square Test, Z Test.

Result: There was an increase in positive attitudes (delaying pregnancy) (36.7%), and there were n=10(33.3%) brides who delayed pregnancy (using contraception) in the group that was given education with a booklet with $p < 0.05$ between the two groups. The group that received education using the booklet had the opportunity to improve attitudes 1.3 times and use contraception 1.45 times compared to the control group.

Conclusion: This study concludes that pre-conceptual health education using booklets can be an alternative in increasing the positive attitude and behavior of delaying pregnancy at risky prospective brides.

Keywords: *Attitudes, Behavior, Booklets, Delaying Pregnancy, Education, Pre-conceptual Health, Risky Bride Candidate*

INTRODUCTION

Mortality and morbidity of Parturients and neonates occur every day almost all over the world, especially in developing countries. More than 350,000 Women of Reproductive Age (WRA) are reported to die every year due to complications during pregnancy and childbirth, while more than 15 million WRA experience long-term illness^[1]. Based on 2012 Indonesian Demographic and Health Survey (IDHS), the Maternal Mortality Ratio (MMR) in Indonesia increased to 359/100,000 live births^[2]. The causes of the high MMR were mostly dominated by direct causes, such as bleeding (30.1%), hypertension (26.9%), infection (5.6%), prolonged labor (1.8%), and abortion (1, 6%) which is a form of complications during pregnancy, childbirth, or childbirth. Most complications occur due to interactions between risk factors before pregnancy and the pregnancy itself^[3].

According to the World Health Organization (WHO), the poor quality of maternal and infant health is influenced by multiple factors that can be altered before conception, including age, nutritional status, diet, Hb levels, stress levels, lifestyle choices, and environmental exposure^[1,4]. The time before a woman becomes pregnant is referred to as preconception. The health of WRA during the preconception period plays an important role in determining the quality of the next generation^[1,5]. Although not all complications can be prevented or treated, treatment in the preconception period increases the opportunity to improve the health of the mother and neonate. Therefore, WHO defines 13 preconception care area packages to improve health status, improve individual behavior, and reduce environmental factors that contribute to poor maternal and infant health^[4,5].

Unfortunately, most WRA does not realize that health in the preconception period contributes to determining future health. Research showed mutually supportive results that women's awareness of preconception health care is still low

^[6,7]. Low awareness of WRA about preconception health increases the likelihood that WRA will carry risk factors that can interfere with the mother's health during pregnancy, childbirth, and the puerperium, including the baby's health^[8]. Based on the basic health research data (*Riset Kesehatan Dasar*) Indonesia, from 2013, 20.8% of WRA who were not pregnant were at risk of experiencing Chronic Energy Deficiency (CED). Moreover, 32.9% of WRA aged >18 years were obese, 37.1% of WRA who were pregnant were anemic, 64.9% were men and 2.1% of women were active smokers, and 3.9% of men and 4.8% of women had the habit of chewing tobacco^[9]. WHO adds that WRA who are pregnant at the age of <20 years and before pregnancy are in a condition of CED, overweight/obese, and anemia. They also experienced anxiety/excessive stress and had a habit of smoking/chewing tobacco. They are included in the WRA category at risk of getting pregnant and have a greater chance of having a bad pregnancy^[4]. Therefore, Couples of Reproductive Age (CRA) need to understand the importance of optimizing the health of prospective parents, especially prospective mothers, before pregnancy occurs. They also must realize delaying pregnancy when the health of prospective parents, especially prospective mothers, is not optimal or allows them to have a healthy pregnancy.

The use of contraception is a way of delaying pregnancy which is also a part of preconception health care recommended by WHO to help CRA determine the right time to get pregnant.^[4,10] The Indonesian Ministry of Health (2015) states that CRA, including newlyweds who do not want to get pregnant immediately after marriage, can use contraceptive pills, injections, implants, and IUDs to delay their pregnancy^[11].

However, so far, most people have not understood that delaying pregnancy when the health of the father and mother during the preconception period is not

optimal is important. Most partners only concentrate on the process of pregnancy and childbirth but pay less attention to preparing for their pregnancy. The phenomenon also often happens to the bride and groom, who mostly only focus on wedding preparations. A mini survey conducted on 20 brides and 17 grooms in Surakarta in 2018 showed that the activities carried out by the bride and groom before marriage included 15 people (75%) preparing for a wedding and 12 people (60%) looking for information about building a household. Meanwhile, activities carried out by the groom before marriage included n=15(88%) preparing for the wedding and n=7(41%) looking for information about building a household. The data illustrates that most of the prospective bride and grooms have insufficient knowledge about preconception health due to the minimal delivery of information about preconception health by health workers to the prospective bride and the WRA in full^[6].

Based on the above, it can be concluded that education about preconception health is considered one of the bride and groom's needs. Health education is one way to shape knowledge and attitudes and change individual behavior^[12,13]. Studies state that women who receive preconception health education better understand preconception health and show more efforts to improve their health before pregnancy than women who do not receive health education^[14,15].

The media also determines the success of health education. Good educational media, is capable of providing information or health messages following the level of acceptance of the target so that the target is willing and able to change behavior according to the message conveyed^[16]. More memory retention is produced by educational media that involve more of the five senses, for example, films that include audio-visual media, which provide information through

the senses of hearing and sight so that a person can remember 50% of what he hears and sees. Unfortunately, the more complex a medium is, the more expensive it will be to manufacture^[12].

Visual media can be an alternative media that can be used in health education because visual media has a fairly high level of effectiveness. Approximately 75-87% of an individual's knowledge is obtained from the sense of sight, and 13-25% is obtained from other senses. Currently, there are information media on reproductive health for prospective brides in the form of a pocketbook entitled Pocket Book on Reproductive and Sexual Health for Brides-to-be, compiled by the Ministry of Health, totaling 78 pages covering extensive reproductive health material. Based on the results of interviews with Mother and Child Health (MCH) midwives at 5 Surakarta city health centers in 2018, it was found that education was given to prospective brides and grooms. However, there were still cases of CED, obesity, anemia, and active smoking behavior in WRA and Low Birth Weight Babies (LBW)^[2,9].

Therefore, information media about pre-marital preparation in the form of a booklet that focuses on preparing for the bride and groom's pregnancy is considered important while presenting complete information but still attractive and simple. A booklet is printed visual media that gives information by combining letters and still images. Edgar's Cone of Learning illustrates that a person can remember 10% of what he reads and 30% of what he sees^[12]. Booklets are used effectively in health education because they are small, practical, attractive, inexpensive, and can reach many people individually. Furthermore, it allows the educational process to occur repeatedly according to user needs. It is cheaper than films and more informative than leaflets but is presented in a simpler book^[12,17,18]. Booklets can increase knowledge because they consist of several words, pictures, or

photos that are made in an interesting way^[18]. Health education with booklets is more effective for increasing knowledge and controlling blood sugar levels in patients with diabetes mellitus than leaflets^[17]. Information about preconception health requires mutual understanding from the couple so that the Religious Affairs Office (RAO) is seen as a strategic place to provide health education to the bride candidates. This study aimed to analyze the effect of preconception health education with booklets on increasing the attitudes and behavior of at risky bride candidates.

METHODS

This study was quasi-experimental with a control group. The data were taken from pre-test and post-test experiments. The study was conducted at 4 RAO in Surakarta City from January to March 2018. The research sample was 60 bride candidates registered at 4 RAO in Surakarta City who met the inclusion criteria and did not include the exclusion criteria.

The inclusion criteria were: brides who were going to marry for the first time, aged 16-34 years, had at least 1 risk factor for a healthy pregnancy (age <20 years, BMI <18.5 kg/m² or >24.9 kg/m², Hb < 12 gr/dl, and stress score > 15), located in the RAO research area, able to read and write, and willing to become research subjects. The exclusion criteria were: brides who were pregnant and worked as health workers in both education and service.

The research sample was divided into two groups: the intervention group and the control group.

The researcher used a simple random sampling technique (toss a coin) to select 4 out of 5 RAO in Surakarta City. The control group was Banjarsari RAO and Laweyan RAO. The intervention group was Jebres RAO and Pasar Kliwon RAO. Furthermore, to select the sample in each RAO, the researcher used the consecutive

sampling technique until the number of subjects in each group was met.

The research instruments used in this study included: Microtoise GEA brand microtoise, Carmy brand weight scales, Portable hemoglobin digital analysis with Easy Touch brand, Kessler Psychological Distress Scale (K10) stress level questionnaire which has been tested for validity and reliability in populations in Indonesia by UI students in their research entitled *The Relationship Between Coping and Psychological Distress in Wives Experiencing Domestic Violence* to determine the risk factors for pregnancy among participants, a questionnaire on delaying pregnancy, and birth control cards.

The study was started by medical examinations for both groups: the first stage measured body weight (BB), height (TB), Hb levels, and mental health, and a pretest was carried out. The second stage was giving treatment based on the group of participants. The intervention group was given education with counseling and the provision of preconception health booklets. This booklet covers risk factors for pregnancy (age, physique, HB levels, mental) and preparation for pregnancy (physical preparation, nutrition, immunization, lifestyle healthy, and family planning for women who need to improve their physical and mental conditions) made by researchers. On the other hand, the control group had been asked to re-read pre-marital preparation material in the reproductive and sexual health pocketbook for prospective brides made by the government, including physical preparation, nutritional preparation, TT immunization status, and how to maintain the cleanliness of the reproductive organs. Four (4) weeks after the treatment, a post-test was carried out in both groups.

This research received ethical approval from the Ethics Committee for Health Research, Faculty of Medicine, Padjadjaran University, Bandung, No. 1290/UN6.C.10/PN/2017. Data were

analyzed using Fisher's, Chi Square, and Z tests.

RESULT

A. Results

1. Respondent Characteristics

Table 1. Characteristics of Respondents

No.	Characteristics	Group		p-value
		Intervention	Control	
		n=30 (%)	n=30 (%)	
1.	Age			1,000*
	16-20 years	4 (13,3)	5 (16,7)	
	21-34 years	26 (86,7)	25 (83,3)	
2.	Education			0,298**
	≤ Middle School	5 (16,7)	7 (23,3)	
	Senior High School	17 (56,7)	11 (36,7)	
	University	8 (26,6)	12 (40)	
3.	Profession			0,739**
	Doesn't work	6 (20)	5 (16,7)	
	Work	24 (80)	25 (83,3)	
4.	Income			0,605**
	≤ UMR (IDR 1,500,000)	17 (56,7)	15 (50)	
	> UMR (IDR 1,500,000)	13 (43,3)	15 (50)	
5.	Sources of Preconceptional Health Information (other than when injecting TT)			0,696**
	There aren't any	13 (43,3)	12 (40)	
	Print media	4 (13,4)	1(3,3)	
	Electronic Media	4 (13,4)	6 (20)	
	Friend	1(3,3)	2 (6,7)	
	Parent	1(3,3)	1(3,3)	
	Health workers	6 (20)	8 (26,7)	
	Etc	1(3,3)	0 (0)	

Note: *) Fisher's test, **) Chi Square test

Table 1 shows that most of the subjects in both groups were aged 21-34 years, had a high school education and had a job. Only a small proportion of the subjects had ever received information about preconception health from health

workers. Meanwhile, based on income, the number of subjects was the same between those with income less than IDR 1,500,000 and more than IDR 1,500,000 (±50%). Statistical tests on subject characteristics showed that age, education, occupation, income, and sources of information between the intervention and control groups did not show significant differences (p>0.05).

2. Increasing Positive Attitudes (Delaying Pregnancy) After Intervention

Table 2. Increase in Positive Attitudes After Intervention

Attitude	Group		p-value*
	Intervention	Control	
	n = 30 (%)	n = 30 (%)	
Before Education			
Positive	3 (10)	4 (13,3)	
After Education			
Positive	14 (46,7)	9 (30)	
Enhancement (%)	36,7	16,7	0.040*

Note: *) Z test, α=0.05

Table 2 shows that there was an increase in positive attitudes as evidenced by the subject's willingness to use contraception with a significant difference (p <0.05) between the intervention and control groups, where the increase in positive attitudes in the intervention group was higher (36.7%) than control group (16.7%).

3. Differences in Contraceptive Use Behavior Between the Two Groups

Table 3. Differences in Contraceptive Use Behavior Between the Two Groups

Group n=30	Pregnancy Delay Behavior		Pregnancy Delay Behavior	p-value*
	Not Using Contraception n(%)	Using Contraception n(%)		
Control	29 (96.7)	1(3,3)	30 (100)	0.003*
Intervention	20 (66.7)	10 (33.3)	30 (100)	

Note: *) Chi-Square test

The results of table 3 show that there were significant differences in contraceptive use behavior between the two groups ($p < 0.05$). In the intervention group, almost half of the subjects used contraception, namely ten people (33.3%), while in the control group, nearly all of them, namely 29 people, did not use contraception.

4. Effect of Preconception Health Education on Attitudes on Pregnancy Delay

Table 4. The Effect of Preconception Health Education on Attitudes to Delaying Pregnancy

Group n=30	Increased Positive Attitude		p-value*	RR
	Not Increasing n(%)	Increase n(%)		
Control	25 (83.3)	5 (16.7)	0.030*	1.316 (0.959-1.804)
Intervention	19 (63.3)	11 (36.7)		

Note: *) Chi-Square test

Based on table 4, it is known that there were differences in attitudes toward delaying pregnancy after education between the two groups. The group that received an education with the booklet had the opportunity to experience an improvement in attitude to a positive attitude 1.3 times compared to the control group.

5. Effect of Preconceptional Health Education on Delaying Pregnancy Behavior

Table 5. Effect of pre conceptional Health Education on Delaying Pregnancy Behavior

Group n=30	Pregnancy Delay Behavior		p-value*	RR
	Not Using Contraception n(%)	Using Contraception n(%)		
Control	29 (96.7)	1(3.3)	0.003*	1.450 (1,116-1,884)
Intervention	20 (66.7)	10 (33.3)		

Note: *) Chi-Square test

Table 5 shows that the group that received an education with booklets had a 1.45 times chance of using contraceptives compared to the control group.

DISCUSSION

1. Characteristics of Respondents

In accordance with the results of the distribution of the characteristics of the respondents in table 1, it is known that the comparison of the characteristics of the respondents, including age, education, occupation, income, and sources of information between the intervention and control groups did not show a significant difference ($p > 0.05$).

The characteristics of the research subjects were analyzed to determine the distribution/spread and to assess the equivalence of the research subjects^[19]. Based on the analysis results in table 1, it can be concluded that the conditions of the two groups are homogeneous and equal, so it is feasible to compare.

2. Increasing Positive Attitudes (Delaying Pregnancy) After Education

The results of the study in table 2 show an increase in positive attitudes (pregnancy delay) with a significant difference between the two groups ($p < 0.05$).

Attitude is a potential tendency of an individual to react to an object in a certain way when faced with a stimulus that requires a response. The response expressed as an attitude arises based on the evaluation process within the individual, which provides conclusions about the stimulus in the form of good-bad, positive-negative, and pleasant-unpleasant values. This means that attitude can also be interpreted as a positive-negative assessment of an object^[20]. Attitude shows the connotation of the suitability of reactions to certain stimuli^[21].

The results of this study were still in line with the research about the effect of health education using booklets to increase attitudes regarding the early detection of cervical cancer. The results of this study show that health education with booklets effectively increases knowledge and attitudes with a value of $p = 0.001$ ^[22]. Furthermore, providing booklet media can influence the knowledge and attitudes of young women about personal hygiene during menstruation^[23].

Based on the results of this study, it can be concluded that the attitude towards delaying pregnancy for newlyweds is determined by the extent to which individuals consider positively or negatively delaying pregnancy. Therefore, postponing pregnancy allows WRA to improve their health status before pregnancy. They also can enhance the health quality of babies born and avoid morbidity and mortality of mothers and children due to health conditions that were not optimal before pregnancy and could not be repaired.

3. Differences in Contraceptive Use Behavior Between the Two Groups

Table 3 shows significant differences in pregnancy delay behavior between the intervention and control groups with a $p = 0.003$. In the intervention group that received preconception health education with booklets, ten people (33.3%) delayed pregnancy, meaning that these respondents used contraception. Whereas in the control group, only one respondent (3.3%) delayed pregnancy,

which means that only one used contraception.

Information is one of the factors that influence personal knowledge. The knowledge possessed by an individual can change his attitude and behavior toward an object ^[21]. The theory states that the proper use of media in health education can improve an individual's behavior ^[24].

This finding is in accordance with a previous study stating that health education using booklets effectively increases knowledge and improves attitudes and prevention practices of osteoporosis in working women, with each variable having a $p = 0.001 < 0.005$ ^[25]. The use of booklet media affected the return visit time of 3-month injection family planning acceptors ^[26].

The occurrence of differences in pregnancy delay behavior of risky brides between the two groups is thought to be caused by a positive pattern of a significant increase in attitudes in the intervention group shown in table 2. An increase in good knowledge becomes a positive cognitive foundation for the formation of positive attitudes so that efforts arise on the bride to apply what she knows and believes well in her daily life.

4. Effect of Preconception Health Education on Attitudes on Pregnancy Delay

Table 4 shows differences in positive attitudes (delaying pregnancy) after education between the two groups. The group that received an education with the booklet had the opportunity to experience an improvement in attitude to a positive attitude 1.3 times compared to the control group.

Attitude is a person's response to an object. The mass media has a great influence on conveying information. This condition, in turn, will affect one's

opinions and beliefs. The existence of new information about something will provide a new cognitive foundation for forming attitudes. Suggestive messages carried by the media will provide an effective basis for assessing something so that certain directions and attitudes are formed ^[27]. Furthermore, one research showed a significant relationship between knowledge and attitudes to prevent anemia with a $p\text{-value} = 0.014$ ^[28].

A number of studies state that health education provided with media that displays attractive illustrations and strong content and the closeness of the content to the target will more easily influence the target's behavior ^[27]. Attitude formation needs to be done by involving personal experience as a strong stimulus so that attitudes are more easily formed. This can be done by utilizing the media to convey information ^[21]. A study stated that health education improves individual attitudes as measured 30 days after giving treatment with a $p\text{-value} = 0.01$ ^[24]. Furthermore, education with booklets effectively increased pregnant women's attitudes about danger signs in pregnancy with a value of $p=0.000$ ^[29].

Experience is one of the factors that can form a positive attitude toward an individual. The experience of obtaining information through booklet media in this study was considered capable of bridging the process of changing the attitude of respondents according to the target conditions.

5. Effect of Preconception Health Education on Delaying Pregnancy Behavior

Table 5 shows that the group that received an education with booklets had the opportunity to use contraception 1.45 times compared to the control group. From table 5, it is also known that the intervention group who received preconception health

education with booklets was as many as ten people (33.3%) of respondents who delayed pregnancy by using contraception. It means that these respondents were willing to use contraception because their health conditions were still at risk if pregnancy occurred. In the control group, only one person (3.3%) was not ready to get pregnant, which means that even though the respondent is at risk if pregnancy occurs, she is not willing to use contraception.

Gredler said that the process of changing attitudes and behavior occurs in an artificial environment, and very little is in a natural situation. Therefore, the role of the media is needed in the process of forming this behavior. Behavior is a person's response or reaction to a stimulus ^[21].

This finding supports the previous study in Sidoarjo that counseling using booklet media can reduce student misbehavior or improve positive student behavior with a value of $p = 0.016$ ^[30]. The effect of providing education with booklets and demonstrations on mother's infant massage behavior was similar ^[31].

The information obtained by individuals can increase knowledge, raise awareness, and improve individual behavior. This finding support research that a relationship between family knowledge and prevention of dengue hemorrhagic fever with a value of $p = 0.007$ and a relationship between attitudes and prevention of dengue hemorrhagic fever with a value of $p = 0.009$ ^[32]. Based on this, the final results show a delay in pregnancy behavior as indicated by the use of contraception in most respondents in the intervention group. However, from table 5, it can also be seen that most respondents still did not use contraception even though they already knew the examination results. This condition showed that

respondents had at least one risk in the event of pregnancy and received health education and an increase in attitude. The reason for the risk: the influence of the family (parents/in-laws) to get pregnant soon, the desire to get pregnant soon, the notion that without using contraception, it is not certain that you can get pregnant right away, religious reasons, there are concerns about family planning, socio-cultural reasons, namely the assumption that the community is afraid of infertility if newlyweds use contraception, and they do not believe that all the risk factors presented harm the health of the mother and baby if pregnancy occurs because they have never had previous experience. The desire of the bride and groom to have babies immediately after marriage is based on the view that pregnancy and childbirth are natural things for a woman when she is married. In addition, there is an understanding in most people that pregnancy is a natural thing for married individuals. The ideal gestational age is >20 years, causing respondents to plan to get pregnant immediately and not use contraception after marriage ^[10,33-35]. This is supported by the analysis results in table 1, which illustrates that most respondents are in the productive age of 21-34 years. Family and sociocultural influences in society also significantly influence newlyweds to get pregnant soon. A previous study found that there is a view of each ethnicity on the value of children in a family; that is, a marriage must have children and children as a marriage bond cause most people do not want to delay their pregnancy ^[36]. The reluctance of prospective teenage brides to use contraception is due to several reasons: social culture, which considers that the use of contraception in newlyweds can cause infertility, the view that earlier pregnancy is more fertile; and there is family influence

(parents/parent in-laws), and there are concerns about family planning^[37].

The limitation of this study is that the research method used is quantitative, so it could not find out further the reasons for participants using/not using contraceptives. The impact of this study for society is it can provide information to the public about the importance of optimizing preconception health, one way is to delay pregnancy if the health of the prospective mother and/or the prospective father is not optimal.

CONCLUSION

This study indicates that educating high-risk future brides about the benefits of delaying childbearing using printed media may be an effective strategy for changing their minds and actions.

Advice for health cares are the health workers should promote education to prospective brides to optimize preconception health and delay pregnancy if the prospective parents have healthy pregnancy risk factors. Suggestions for future researchers are the future researchers should use a mixed method research design in order to find out more about the reasons for using contraceptive.

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