

# The Effect of Premarital Counseling on Grooms' Preconception Health Knowledge and Attitudes

Yulia Fauziah Amizuar<sup>1</sup>, Joserizal Serudji<sup>2</sup>, Rafika Oktova<sup>3</sup>

<sup>1</sup>Magister Midwifery Program, Faculty of Medicine, Universitas Andalas, Padang, Indonesia

<sup>2</sup>Departement of Maternal-Fetal Medicine Subspecialist, Faculty of Medicine, Universitas Andalas, Padang, Indonesia

<sup>3</sup>Midwifery Department, Faculty of Medicine, Universitas Andalas, Padang, Indonesia

Corresponding Author: Yulia Fauziah Amizuar

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## ABSTRACT

The preconception preparation improved the health outcome and quality of the offspring. The early premarital education was giving grooms' changes in health behavior domains such as knowledge and attitudes. This study aimed to prove the effect of premarital counseling on preconception health knowledge and attitudes among prospective grooms in Padang City.

**Methods:** The quasi-experimental *pretest* and *posttest* with a control group design were used. The technique of purposive sampling was used, and the respondents used were 100. The questionnaires, which had validity and reliability, were used in collecting data. Bivariate analysis applied the Mann-Whitney test on SPSS program.

**Results:** The premarital counseling influenced preconception health knowledge in the intervention group than control group (*pretest*  $p = 0.79$ ; *posttest*  $p = 0.00$ ). The mean knowledge gain score in the intervention group was higher than the control group (intervention= $12.10 \pm 15.34$ ; control= $0.60 \pm 7.23$ ). The premarital counseling did not affect preconception health attitudes (*pretest*  $p=0.93$ ; *posttest*  $p=0.47$ ).

**Conclusion:** Premarital counseling proved to improve the pre-conception health knowledge of prospective grooms, but it was not proved to increase their preconception health attitudes.

**Keywords:** Premarital Counseling, Knowledge, Attitudes, Groom's Preconception Health

## INTRODUCTION

Preconception care is a series of intervention activities to identify biomedical, behavioral, and social risks to the health of couples before conception that presents promotive, preventive, and social intervention efforts, so that the health of mother and babies will improve.<sup>[1,2]</sup> Improving education, attitudes, and behaviors not only for women but also for men related to preconception health is an important part of preconception care. The goals of education are increasing awareness, knowledge, and engagement in preconception health practices among couples.<sup>[3,4]</sup> Men's understanding and support of healthy reproductive planning are substantial to support fruitfulness of preconception preparation.<sup>[5]</sup> The early interventions carried out during the preconception period and part of preconception care were premarital education.

Premarital education is the provision of knowledge, understanding, skills, and raising awareness about household life, general health, and reproductive health to bridal couple.<sup>[6]</sup> The premarital education is expected to change health behavior domains, especially knowledge and attitudes. Knowledge is the result of sensing processes related to the learning process.<sup>[7]</sup> Attitudes are a person's tendency to like or dislike an object, person,

institution, or event. Attitudes cannot be seen immediately, but can be interpreted in advance of behavior. Attitudes factually indicate the suitable of reactions to certain stimulus.<sup>[8,9]</sup>

Previous study conducted by Oktalia and tim (2021) revealed more than 40% bridal couples considers that healthy pregnancy occurs naturally without special preparation, which indicates that these couples have no sufficient knowledge about healthy pregnancy preparation and counseling, which has not been obtained adequately.<sup>[10]</sup> A survey about preconception health knowledge and behavior on men in England revealed that 46.9% of them had information about pregnancy before their partners' pregnancy, and 74% men had planners as assessed by London Measure of Unplanned Pregnancy (LMUP). Men who had admitted information about preconception and planned for health pregnancy were more possible to reduce smoking, reduce alcohol consumption, and eat more healthy food than other men who had not. It has potential to optimize paternal reproductive health and maternal health, as well as to improve pregnancy and neonatal outcomes.<sup>[11]</sup> Previous study on the effect of preconception education resulted in a significant difference in knowledge between the intervention group compared to that of the control group. The most significant change was in knowledge about preconception nutrition, namely of 53.5%.<sup>[12]</sup>

The research result from Roy, Mondal, and Chaudhuri in 2019 showed that husbands who had inadequate exposure knowledge on reproductive health regarding antenatal care was 55%, and that knowledge about family planning was 42%, which was still relatively low among the husbands.<sup>[13]</sup> Aitken in 2017 stated that the piece of the puzzle that is missing is the role of the paternal germ line in the etiology of genetic (and possibly epigenetic) mutations in the offspring. Most spontaneous genetic mutations arise in our species via the father's (not the mother's) germ

line and are powerfully influenced by age and environmental/lifestyle factors, such as smoking and obesity.<sup>[14,15]</sup> The holistic promoting preconception care for men is a chance to repair family planning and pregnancy results, augment the reproductive health and health behaviors, and better prepare men to be dads.<sup>[15]</sup>

Based on data Badan Pusat Statistik (BPS) of Padang City (2020), there were 6.349 marriages in Padang City.<sup>[16]</sup> The primary survey on health department in Padang City stated that only did 1,308 prospective brides have reproduction care before marriage. In contrast, there are no data of grooms' participation on reproduction care before marriage. Primary survey conducted at the Ministry of Religious Affairs in Padang City found that the implementation of premarital education has a quota of 250 couples in one year. The implementation of premarital education at the Office of Religious Affairs in each sub-district in Padang City is also held for all bridal couples; however, the learning material provided is limited to religion education and does not yet comprehensively involve preconception health education. The purpose of this study was to prove the effect of premarital counseling on preconception health knowledge and attitudes of prospective grooms in Padang City.

## **MATERIALS & METHODS**

### **Study Design and Research Sample**

This was a quasi-experimental pretest-posttest with control group design. The intervention group received premarital counseling with the contents of Islamic marriage guidance and preconception health (introduction to preconception health and medical check-up before marriage, nutrition, reproduction rights and gender, risky lifestyle, mental health, family planning). The control group was not provided with preconception health education, but received contents of Islamic marriage guidance. Premarital

counseling used classical methods in both groups. The samples were selected by purposive sampling technique with inclusion and exclusion criteria. The inclusion criteria: (1) the age of prospective grooms was  $\geq 20$  years old; (2) the subjects of the research were willing to be respondents; (3) the subjects of the research were able to read and write. The exclusion criteria: (1) the prospective grooms did not attend class until the end of session; (2) the research subjects had received preconception health education; (3) the research subjects had previous marriages; (4) the prospective grooms' professions were nurses and doctors. Furthermore, there were 100 respondents (51 respondents in intervention group and 49 respondents in control group) who were suitable with the criteria.

This research has obtained ethical approval from the ethical committee of the Faculty of Medicine Universitas Andalas with registration number 942/UN.16.2/KEP-FK/2022. The instrument of research was questionnaires made by the researchers and whose validity and reliability were tested. There are three parts of the questionnaires, namely: part A was characteristics of the respondents, part B was the preconception health knowledge that used multiple choice format. Part B has a valid number of questions of 27 and the reliability score was 0.89. Part C

of preconception health attitude that used Likert scale format contains favorable and unfavorable statements. Part C had valid number of statements of 18, and the reliability score was 0.88. The research was located at Offices of Religious Affairs (KUA) in Koto Tengah, Kuranji, and Padang Utara. The research was carried out from September until November 2022. Analysis bivariate used difference t-test. Data entry and data analysis used SPSS 24 software.

### Statistical Analysis

Data description was written as frequencies and percentages. The normality test was carried out to determine the normality of the data distribution before determining the bivariate analysis using parametric test. The normality test results on grooms in the intervention group and control group showed that the preconception health knowledge variable did not have normal distribution, and its significance value according to Shapiro Wilk was 0.00 ( $\text{sig} < 0.005$ ). In contrast, the significance value of Shapiro Wilk on the preconception health attitude variable showed normally distributed data ( $\text{sig} > 0.005$ ). Therefore, knowledge variable on the intervention group and control group used non parametric test (Mann Whitney), but attitude variable on intervention group and control group used parametric test (independent t-test).

## RESULT

The result of age respondent showed on Table 1

**Table1 Characteristic of age respondent, grooms'in the intervention group and in the control group**

Characteristic	Intervention group			Control group		
	f	Mean±SD	Min-Max	f	Mean±SD	Min-Max
Age	51	27.16±3.46	21-37	49	28.04±4.24	21-42

Table 1 showed the mean age and standard deviation of the participants of 27.16±3.46 on the intervention group and 28.04±4.24 on the control group. The minimum age in both groups was 21 years old, and the maximum age was 37 in the intervention group and 42 in the control group.

Table 2 showed the distribution educational background, information about medical check-up, participation on medical check-up before marriage as well as smoking behavior. The educational background of the intervention group was dominated by Bachelor's Degree (43.1%), while in the

control group, it was dominated with senior high school (53.1%). After that, more than half of the respondents (66.7%) from the total intervention group had not received information about the medical check-up service for the prospective bridegrooms. In contrast, the dominant answer on the distribution of information on medical check-up service for the bridegrooms on control group was "yes" (51%). The percentage of

prospective grooms on both group dominance which did not participate on medical check-up before marriage was 74.5% on intervention group and 79.6% on control group. The distribution of smoking behavior on intervention group who claimed not smoking was 50.9%, which was more dominant than smoking. In contrast, who claimed smoking on the control group was 59.2%, which was more dominant.

**Table2** Characteristic of educational background, statue information health check-up, participation grooms on health check-up before marriage and smoking behavior

Characteristic	Intervention group		Control Group	
	f	Percentage	f	Percentage
<b>Education</b>				
Elementary	6	11.8%	7	14.3%
Junior High School	4	7.8%	2	4.1%
Senior High School	19	37.3%	26	53.1%
Bachelor degrees	22	43.1%	14	28.6%
Total	51	100%	49	100%
<b>Information about health check-up</b>				
No	34	66.7%	24	49%
Yes	17	33.3%	25	51%
Total	51	100%	49	100%
<b>Participation on health check-up</b>				
No	38	74.5%	39	79.6%
Yes	13	25.5%	10	20.4%
Total	51		49	
<b>Smoking Behavior</b>				
No	26	5.9%	20	40.8%
Yes	25	49.1%	29	59.2%
Total	51	100%	49	100%

**Table 3** The different test result of preconception health knowledge on prospective grooms in the intervention group with the control group

Variable	Group	f	Mean rank	Median	Min~Max	p-value
Pretest of knowledge	Intervention	51	51.25	63.00	19~85	0.79
	Control	49	49.71	62.96	4~85	
	Total	100				
Posttest of knowledge	Intervention	51	60.57	74.00	19~96	0.000
	Control	49	40.02	62.96	4~85	
	Total	100				

**Table 4** Preconception health knowledge gain test in the intervention group between the control group

Group	f	Mean Gain±SD	95% CI Lower~Upper	Mean Rank	p-value
Intervention	51	12.10±15.34	7.78~16.41	65.18	0.00
Control	49	0.60±7.23	(-1.47)~2.68	35.22	

Table 3 represents the results of different tests (t-tests) of the two samples group (intervention and control) pretest and posttest on preconception health knowledge. The p-value for the difference in pretest knowledge between the intervention and control groups was 0.79. The difference in posttest knowledge between the intervention and control groups resulted in p-value of 0.00.

Based on the results, it can be concluded that the intervention group and the control group had equivalent preconception health knowledge before premarital education was given. Furthermore, after premarital counseling, it was showed significantly the impress knowledge of preconception health in the intervention group compared to that of the control group.

Table 4 showed the result of gain test of preconception health knowledge. The mean gain test on the intervention group showed a higher mean gain (12.10±15.34) than that of the control group (0.60±7.23). Furthermore,

different tests of gain showed a p-value of 0.00, which means that the treatment of premarital counseling in the intervention group significantly increased preconception health knowledge higher than the control group.

**Table 5** The different test result of preconception health attitude on prospective grooms in the intervention group with the control group

Variable	Group	f	Mean	SD	p-value
Pretest of attitude	Intervention	51	70.06	10.53	0.93
	Control	49	70.22	9.23	
Posttest of attitude	Intervention	51	72.65	8.77	0.47
	Control	49	71.41	8.44	

**Table 6** Preconception health attitude gain test in the intervention group between the control group

Group	f	Mean Gain±SD	95% CI Lower-Upper	Mean rank	p-value
Intervention	51	2.61±7.45	0.51~4.70	53.83	0.22
Control	49	1.18±4.34	(-0.06)~2.05	47.03	

Table 5 represents the results of different tests assessed on preconception health attitudes between intervention group and control group. The pretest p-value for the difference of attitudes between the intervention and control groups was 0.93. The difference of posttest preconception health attitudes between the intervention and control group was 0.47. Based on the results, it can be concluded that the intervention group and the control group had equivalent preconception health attitudes before premarital counseling. Subsequently, after premarital counseling between the intervention group and the control group, there was no significant impact on preconception health attitudes.

Table 6 represents the results of gain score of preconception health attitudes. The mean gain test of preconception health attitudes in the intervention group was slightly higher (2.61±7.45) than the mean gain in the control group (1.18±4.34). Although there was an average increasing on preconception health attitudes in the intervention group, but in fact, preconception health attitudes did not have a significant difference, namely having p-value of 0.22. It means that the treatment of premarital counseling in both groups had not yet impacted grooms' preconception health attitudes.

## DISCUSSION

The age characteristics of the grooms seen in Table 1 showed an average age of 27 years old in intervention group and 28 years old in control group. These indicate that the age of the respondents in both groups was the optimal age in the reproductive cycle. The ideal reproductive age is defined as the ideal period for pregnancy to occur. The respondents were all in the twenties. Early adulthood is compiled based on Hurlock's (2015) categorization of adult human development, which divides adult human development into three age ranges.<sup>[17]</sup> First, the early adulthood age range of 18-40; second, middle adulthood age range of 40-60; and third, the advanced adulthood age range of 60 years old until death.<sup>[17,18]</sup> Furthermore, into the psychology of development, it requires individuals to be able to let go of parental reliance, to become mature creatures, to have completed their growth, and be able to reproduce and pass developmental test.<sup>[19]</sup> Age becomes a person's factor towards wisdom, which is an attitude that is owned by each individual and is a part of cognitive and emotional development that is obtained from long experience.<sup>[20]</sup>

The educational background of participants revealed that higher education of

bachelor's degree was more dominant in the intervention group (43.1%) than the control group. The level of educational background on theory mentioned one of the factors related to an individual's ability to understand information and the effect on cognition, so that it had an impact on knowledge. The educational connection between knowledge makes it predisposition factor on health behavior [8]. Furthermore, of the characteristics of respondents regarding the information they received on medical check-up before marriage, it was found that there were differences between the two groups. The control group more dominantly knew information of premarital check-up (51%) than the intervention group (33.3%), even so both groups had a low percentage of participation in premarital check-up. This showed that knowing information about premarital check-up did not make them took part in premarital check-up. Later, there were still respondents who did risky health behavior, which is smoking behavior. The smoking behavior can impact DNA damage, where DNA damage is potential to cause abnormal formation problems on the prospective fetus. [21,22]

### **The Impression of Premarital Counseling on Preconception Health Knowledge**

This study conducted a bivariate analysis to determine the impact of premarital counseling on grooms' preconception health knowledge in intervention group and control group. The results before premarital counseling on the grooms' preconception health knowledge in the intervention and the control groups before premarital class was equivalent at p-value of 0.79. Furthermore, after being given premarital counseling, the results obtained had a p-value of 0.00, which indicated that there was a significant impress of premarital on preconception health knowledge between the intervention and control groups, and there was a considerable gain in knowledge (p-value of 0.00). The

findings revealed that the premarital counseling material delivered to the intervention group had a substantial effect on enhancing preconception health knowledge. This result had same line with Puspita and her team's research in 2023. Their research showed that there was significant effect of health education on preconception nutritional knowledge in prospective brides with p-value of 0.036. The similarity of this research with the research from Puspita was that both studies were experimental study and tested the participants, namely knowledge before and after educational exposure. [23] Besides, this study had similarities with previous study conducted by Ningsih and Husna (2022) on the nutritional education that the bridegrooms received. It was indicated that nutrition education for bridegrooms took effect on the bridegrooms' knowledge, with a p-value of 0.005 and mean gain of 5.50. The characteristics of their research were an age dominance range of 21-30 years old, but it did not include educational background as the characteristics of respondents. [24] In addition, this study had similar results with other studies on the influence of premarital classes on knowledge, one of which was experimental research conducted by Yuliana and team in 2021. The similarity between Yuliana and the team's research with this research was that both assessed the knowledge of bridal respondents before and after intervention, but there was a difference, namely it did not include control group. Both experimental studies showed that there was a statistical effect of health education before and after premarital class, with level of knowledge increase of 16.75, and the characteristics of the respondents showed that most of them had completed higher education. [25]

The learning process on human that is realized involves the five senses to produce information of an object, that it is called knowledge. [7] Individual behavior is influenced by center of cognitive aspects, and

it emphasizes on the intellectual aspect, that is knowledge.<sup>[8]</sup> The cognitive domain itself has six levels based on Bloom's theory refined by Anderson and Krathwohl. These levels of knowledge include remembering, understanding, applying, analyzing, evaluating, and creating.<sup>[7]</sup> Learning in the cognitivism theory involves complex processes such as thinking, knowing, understanding, and mental activities (such as attitudes, beliefs, and expectation), so that the theory of cognitivism emphasizes processes, not outcomes.<sup>[26-28]</sup> Cognitive activity in learning involves neuroscience processes.<sup>[27]</sup>

Etymologically, neuroscience is a science that studies the nervous system with a multidisciplinary approach. Neuroscience is the development of biology focusing on the function and structure of the human brain, then studying the awareness and sensitivity of the brain in terms of perception, memory, and its relation to learning as part of living things.<sup>[27,29]</sup> Individual knowledge related to rational thinking processes and memory is a function of the cerebral cortex. The function of the cerebral cortex is supported by four lobes, namely the frontal lobe, which is responsible for thinking; the temporal lobes, which are responsible for perception and sound as well as short-term memory; the parietal lobe, which is responsible for thinking and setting memory; and the occipital lobe, which regulates visual performance.<sup>[29,30]</sup> The mechanism of processing information into a long-term or short-term knowledge in an individual begins with the capture of information from the environment through sensory senses such as eyes, ears, nose, and others. Information is then filtered into the brain and then inserted into short-term memory. When information is repeated, information from the short-term memory will be transferred to the long-term memory. This long-term memory is expected from the learning process of the individual. This long-term memory is expected to change

and shape behavior through knowledge, attitudes, and practices.<sup>[26,31]</sup>

### **The Impression of Premarital Counseling on Preconception Health Attitude**

The analysis of the different tests (t-tests) and gain tests in preconception health attitudes on the grooms in intervention group compared to control group can be seen in Tables 5 and 6. The results of the statistical test showed that the researcher failed to reject hypothesis null, meaning that there was no effect of premarital counseling on preconception health attitudes among the grooms. This study had similar results as the research conducted by Utami and team in 2021. They used cross-sectional design especially case-control method. Their study indicated that there was no difference on knowledge and attitudes among case group (participants who visited prospective bridegroom counseling) and control group (respondents who did not visit prospective bridegroom counseling) with p-value on knowledge of 1.00 and p-value on attitudes of 0.487.<sup>[32]</sup>

Furthermore, there are diverse results in the experimental research conducted by Rutdamayanti and team in 2022 regarding the effect of preconception nutritional counseling on bridal food selection behavior. Based on that research, it was found that there was a significant effect of education on the attitudes of bridegrooms between intervention group and control group (p-value = 0.001). Furthermore, to review more closely related to previous research by Rutdamayanti, the characteristics of this study were that most of the respondents were of reproductive ages (20-30 years) with a predominance of high school education distribution. Moreover, the research method was carried out with educational rounding three times a week (experiment with time series).<sup>[33]</sup> There were differences in the findings of this study and those of the Rutdamayanti study in terms of the results of

the respondents' attitude changes after exposure to education. This situation can be understood and analyzed that in Rutdamayanti's research, there was a process of exposing information that was repeated and intensively used over a period of time, so that the perceptions and beliefs of the prospective bridegrooms changed, and therefore, a change in attitude occurred.

On the other hand, in this study, there was no method of repeating education with comprehensive preconception health material. Providing information with a limited time, then there are differences in the ability to process and understand information for each respondent, which is still not enough to significantly change the attitudes of the prospective bridegrooms. Furthermore, individual perceptions regarding preconception health can theoretically influence changes in attitudes. The process of perceptions in individuals will occur through selection in brain activity, which process is influenced by experience, way of thinking, current circumstances, and the individuals' own social interactions. The conditions in these two studies are in accordance with the theory that changes in attitudes do not occur in short time, but are influenced by various factors and require repeated and specific exposures. This argument is drawn from theory of Azwar and Saifuddin, who stated that there are several factors that influence attitudes, namely internal factors and external factors. The internal factors are educational background, life experience, perceptions, background culture. The external factors are mass media, group interaction, intensive communication, suggestion, and motivation. [34,35]

Attitudes are an individual's propensity that determines whether an object is liked or disliked; attitudes cannot be seen instantly, but are evaluated in advance of behavior with the proper reaction to a stimulus that is obtained. [8,9] There are three components

making attitudes, that are cognitive, affective, and conative. [34,35] The cognitive theory was expressed by Greenwald (1968); Petty and team (1981) cited by Wisman (2020) mentioned cognitive response analysis, which is an effort to understand what a person thinks when faced with a persuasive stimulus and how thoughts and cognitive processes determine whether they experience a change in attitudes and to what extent this change occurs. [28] The persuasive stimulus in this event was premarital class with preconception health substantial. The cognitive component is the beginning of taking individual attitudes related to knowledge, which is evaluative and contributes from life experiences. Afterwards, it is an affective component, namely an attitude towards emotional forms. Finally, the conative component tends to encourage someone to take certain actions related to the attitude object. [36]

Kurt Levin as quoted by Yuliana explained that human behavior is a function of the interaction between individuals and their environment and is influenced by different human characteristics. This research gave premarital class to bridegrooms, namely that intervention group took preconception health comprehensive material, so the bridegrooms can work together to achieve their optimal health, which was in contrast to control group which did not have such material. Emotional responses involve amygdala activity, whereas cognitive control of emotions is linked to prefrontal cortex activity. [37] Theory of reasoned action by Ajzen reveals that effective change requires the presence of specific intensity from individuals towards their behavior, a positive attitude towards new behavior, and the perception that their social group also views the new behavior positively. [37] Theory of planned behavior describes that alteration of behavior occurs with the collaboration of reasoned action theory with the individual's perception of the current situation, so that it is able to influence behavior. Attitudes can predict a person's



behavior as desired by Bandura (1999) that behavior change begins with a change in attitudes. In addition, social psychology concerning communication process is able to change the views of individual attitudes.<sup>[38]</sup>

## CONCLUSION

Based on the results of this study, premarital class has been proven to have an effect on increasing knowledge of preconception health in prospective grooms. In contrast, premarital counseling has not been proven to have an effect on increasing preconception health attitudes in prospective grooms in Padang City. Furthermore, the characteristics of respondents' ages were among 27 and 28 years old. The educational background, with the majority of respondents had completed senior high school. Formerly, most of the respondents did not take a medical check-up even though they had received information about medical check-up before marriage.

### Declaration by Authors

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