

Original Research Article

Development process of the preconception education booklet

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ABSTRACT

Background: Healthy preconception is very essential to prepare for pregnancy, childbirth, and healthy babies. However, many women still lack of knowledge on having healthy preconceptions. Effective education requires relevant and standardized material and educational media. The objective of this study aimed to explain the process of developing a preconception education booklet.

Methods: We have developed a preconception education booklet. The method to develop this booklet involved five main stages: literature review, interviews with preconception women and health care workers in primary health care, focus group discussions with the lecturer of midwifery, nutrition, and health promotion, expert review, and measure response test from women of reproductive age.

Results: Our literature review has come out with a summary of the preconception educational materials consist of 15 topics that have been present. By using In-depth interviews, we observed and then developed materials that were required by women of reproductive age and health workers and they consisted of 10 topics. Our Focus Group Discussion has come out with the need to grouping the materials into 4 groups (pillars). We then validated our booklet material by using Expert review. Finally, our response test showed that 96% of respondents agree that booklet material is easy to understand, 90% of respondents agree that booklets are interesting to read, 93% of respondents agree that booklet material is relevant to their condition, 90% of respondents agree that the material in the booklet is the material it needs, 86% of respondents agree that the material in this booklet can help with their health problems, 80% of respondents agree that the choice of words in the booklet is easy to understand, 90% of respondents agree that the cover of the booklet is very interesting, 100 respondents agree that the font of the letters in the booklet is easy to read, 80% of respondents agreed that the illustrations relevant with the materials. Booklets were positively appreciated by 87% (26 out of 30 respondents) of reproductive-age women.

Conclusions: Our preconception booklet can be used by health care workers to provide pregnancy preparation counselling for women of reproductive age.

Keywords: Booklet, Development, Preconception, Preconception education, Women of reproductive age

INTRODUCTION

Preconception care is one of the solutions for pregnancy preparations. Preconception care has not yet received sufficient attention and is generally not included in antenatal care.¹ Preconception care aims to improve the health of reproductive-age women before conception, screen health problems, provide information, and give appropriate interventions, thereby being able to improve pregnancy outcomes.² The scope of preconception health services according to the systematic review written by Lassi et al includes five key components. First is the completion of education for girls and the prevention of teenage pregnancy.³ The second is nutrition counseling and family planning. The third is nutrition optimization and weight loss programs. Fourth is the multicomponent youth development program includes the prevention of infection. Fifth is chronic disease screening and management.

Counseling is one of the important components of preconception health services. Preconception counseling material can consist of conception and pregnancy preparation, management of stress, physical activity, and healthy nutrition.⁴

Based on a preliminary study in the Sedayu sub-district, it is known that preconception counseling for reproductive-age women has not been routinely given, and if it was given, it did not follow a standardized procedure such as the validated material and specific steps in how to provide counseling. Health care workers in the Sedayu sub-district stated that they need a standardized and effective guidebook to provide pregnancy preparation counseling for women of reproductive age. Women of reproductive age need preconception counseling for pregnancy preparation. The material needed is about how to prepare for a healthy pregnancy, what to do when a mother is planning a pregnancy, and what foods should be eaten to best start preparing for a pregnancy. The preconception education booklet as a material guidebook is needed by health care workers and women of reproductive age to prepare for a healthy pregnancy.

METHODS

Booklets were developed through five main stages as follows (Figure 1): literature review, in-depth interviews with preconception women and health care workers in primary health care, focus group discussions with the lecturers of midwifery, nutrition, and health promotion, expert review, and use test for women of reproductive age.⁵⁻¹¹

Literature review

The process of developing material was initiated through a literature review by conducting literature searches related to the results of research on preconception education curriculum. We used the following search terms: “preconception education” “preconception education

curriculum”. “preconception education materials”, “prepregnancy education”, “prepregnancy curriculum”, “prepregnancy education materials”, “preconception counseling”, and “pre-pregnancy counseling” on PubMed, Ebsco and Google Scholar. Searchable articles are those available in full text and published within a period of 10 years, from 2008-2018. Inclusion criteria for articles were: articles that are the results of human studies with quantitative designs including Randomized Controlled Trials (RCTs), cluster RCTs, quasi-experimental, pre-post intervention, cohort, and cross-sectional studies, and systematic reviews.

In-depth interviews

We conducted in-depth interviews with preconception women and health care workers at primary health care to explore their needs for preconception education. The in-depth interviews for needs assessment were conducted in February 2018 with 14 preconception women, 5 midwives, and 2 nutrition officers.

Focus group discussions

The next step in the development of the preconception education booklet was the focus group discussions (FGD). We invited health professionals including midwiferies, nutritionists, health promoters, nurses and public health practitioners to be involved in our FGDs. FGD topics discussed the draft of the booklet material based on literature review and in-depth interviews.

Expert review

The expert review was conducted after the FGD. The review was conducted by a fetomaternal obstetrics and gynecology expert, a public health nutritionist, and a health promotion expert. All experts have doctoral degrees.

Response test

To measure the response of the woman of reproductive age on our booklet we conducted counseling to 30 women of reproductive age using the booklet media. Women of reproductive age were then asked to answer questions in the response questionnaire related to the booklet.

RESULTS

Educational materials were prepared based on recommendations in making educational materials that are easily absorbed and effective, namely by paying attention to aspects of material content, language, material sequences, layouts, illustrations, learning, and motivation to be delivered through educational materials 7.

The draft of the booklet

The draft of the booklet was developing as the result of the literature review and in-depth interviews. The result of the

literature review identified four articles containing the types of preconception counseling materials and curriculum. The preconception counseling materials contained in the article are health reproductive age, preconception health screening, preconception vital sign checking, preconception physic checking, history of reproductive health, preconception blood checking, preconception urine checking, tetanus immunization, preconception screening specific illness, preconception food intake, iron intake, folic acid intake, personal hygiene, rest and activity style, smoking and drugs. Details of the preconception material education finding can be seen in Table 1.

Table 1: Material and curriculum preconception counselling.

Material	Dean 2012	Elsinga 2009	Williams 2012	Carl 2009
Health reproductive age	V	V		
Preconception health screening	V			V
Preconception vital sign checking				V
Preconception physic checking				V
History of reproductive health	V			V
Preconception blood checking				V
Preconception urine checking				V
Tetanus Immunization			V	
Preconception screening specific illness	V	V	V	V
Preconception food intake	V			
Iron intake			V	
Folic acid intake		V	V	V
Personal hygiene	V			
Rest and activity style	V			
Smoking and Drugs	V	V	V	V

From the in-depth interviews, we collected information about the need for reproductive-age women and the health workers' education material recommendations.

The information that is needed included reproductive health, premarital preparation, gender equality in marriage, family planning, care for pregnancy, prevention of complications, labor and postpartum, and marriage myths.

Table 2: General recommendation from the experts.

Expert	Recommendation
Expert 1	The contents are good. Some English terms must be changed to Indonesian terms. Each recommendation should be written as a reference and then included in the bibliography (at the end of the book) as well as images taken from other sources, do not forget to write the references. Mention a reference on each page of the booklet, repairing the image/content.
Expert 2	This book is generally very interesting. To increase the curiosity and interest to read for the user, the booklet must be printed on paper and good color quality. The messages conveyed are easy to understand. Make into a pocketbook / educational book.
Expert 3	It's good, there are several related entries: Fill in the message Image selection Color choice

Interviews with health workers who provided preconception services at the primary health care indicated that preconception counseling had not received enough attention from the government, so there had been no specific counseling that was part of the routine program. In-depth interviews provided information about the material that is needed regarding pregnancy preparation there are nutritional status, healthy diet, supplementation, health screening, pregnancy planning, vaccination, reproductive health, preconception and antenatal care, healthy lifestyle and (health insurance).

Face and content validity

The FGD and expert review were held to assess the face and content validity of the booklet. From the FGD activities, we get a very important recommendation in the preparation of booklets that are grouping materials into 4 groups called 4 pillars there is healthy nutrition, stop unhealthy habits, health screening, and social-economic preparation. This is needed to direct the reader's mindset understanding the booklet easier. there were several suggestions related to material content, one of which was that for body mass index (BMI), which should be differentiated for people under the age of 18 years and over

18 years. Other recommendations were related to illustrative images, one of which is a picture of tea and coffee which is crossed-out with good food intake during pregnancy preparations, which should be replaced because

it can be misleading. Tea and coffee are allowed during pregnancy, but the amount is limited. Based on the results of the discussion in the FGD, the researcher refined the draft educational booklet.

Table 3: Detailed recommendations of each page.

Page	Recommendation
Cover	Very Interesting
1	Mention and explain the address/contact of the companion counselor.
2	Small pictures around people are not clear,
5	Explain, what preconception is? (in the title) the image needs to be adjusted to the message, the picture should be relevant or describe the things that are relevant to the message. It would be nice if given in the form of a pointer.
6	The image needs to be adjusted to the message, the picture should be relevant or describe the things that are relevant to the message. It would be nice if given in the form of a pointer.
8	The picture should be a pregnant person, looking at the side view.
9	Pillar 2: stops unhealthy habits.
12	Specify the source of the picture from where if the visualization of my "dinner plate" can be clearer (make it yourself) it will be better.
13	Mention the source of the image.
15	Explain the calories; make the booklet will be better.
16	Explain the calories; make the booklet will be better.
17	Mention the source of the literature, how many portions, there needs to be visualization, for example how much 100 g of the cow's heart? How many 100 g of kidney beans it is? The booklet can use a household measure or use a scale like in a food photo book.
19	The English term absorption is must be replaced by the Indonesian term "penyerapan".
22	The picture of food displayed should indeed be commonly consumed and exist in Indonesia or the research area.
23	Add information, that commercial Fe tablets (buy in pharmacies, not a distribution from public health center usually taste better and do not cause nausea.
24	Do not use sentences in English. The picture of food displayed should indeed be commonly consumed and exist in Indonesia or the research area.
25	Check the duration and frequency of the sport, is that true? Then to brush your teeth, be clarified 2x at any time: the morning after breakfast and the night before going to bed.
26	Pillar 2 Title adjusted: stop unhealthy habits.
27	Adjustment of the title, the husband should not smoke inside the home, but go outside the home.
30	Pink for letters in point 2 does not contrast.
34	The sentence in the box is must be made shorter, to make it clearer.
36	The term overweight and obesity is replaced by Indonesian.
38	Photos/pictures in the health insurance section are replaced with BPJS card photos Pictures of health services can be replaced by photos of the health center/hospital
43	Explain what a healthy eating pattern is like

Table 4: Summary of respondent respond frequencies.

No	Question items	Answer Yes		Answer No	
		N	%	N	%
1.	Is the booklet material easy to be understood?	29	96	1	4
2.	Is the booklet interested to be read?	27	90	3	10
3.	Is the booklet material relevant to your condition?	28	93	2	7
4.	Is the information in the booklet is the information that you are needed?	27	90	3	10
5.	Is the booklet information can help to solve your preconception health problem?	25	83	5	17
6.	Is the diction in the booklet easy to be understood?	24	80	6	20
7.	Is the booklet cover interested to be read the booklet?	27	90	3	10
8.	Is the font of the booklet easy to be read?	30	100	0	0
9.	Are illustration pictures of the booklet relevant to explaining the information?	26	86	4	16

The expert review resulted in some recommendations from the experts that provided input as follows:

Recommendations from the experts were used to develop and refine the booklet, so the booklet can be improved. Based on the results of the expert review, the booklet draft was improved, so that the latest draft booklets became more understandable. Some examples of pages that were improved in the booklet are as follows:

Evaluation and testing of use

The use test discover that 96% of respondents agree that booklet material is easy to understand, 90% of respondents agree that booklets are interesting to read, 93% of respondents agree that booklet material is relevant to their condition, 90% of respondents agree that the material in the booklet is the material it needs, 86% of respondents agree that the material in this booklet can help with their health problems, 80% of respondents agree that the choice of words in the booklet is easy to understand, 90% of respondents agree that the cover of the booklet is very interesting, 100 respondents agree that the font of the letters in the booklet is easy to read, 80% of respondents agreed that the illustrations relevant with the materials (Table 4)

The total score of each respondent is calculated and then categorized as having a score of more than 80 and which has a value of less than 80 (Table 5). The evaluation and response test indicated that 26 people (87%) stated that the booklet was effective with a positive response value of more than 80%, while the remaining 4 people gave a response value of less than 80% (Table 5).

Table 5: The score of respondent response test.

Score >80%		Score <80%	
N	%	N	%
26	87	4	13

The researchers also conducted a qualitative response test. A qualitative response test was done among respondents who gave a positive response when answering the question and for the respondents who gave a negative response when answering the questionnaire, asking the following question: why did this book appeal to them or not?

Respondents answering the booklet material was easy to understand because the diction of the sentences and the information are well explained. Respondents answering that the booklet material was not easy to understand, explained it was because of some of the health terms used in the information.

Respondents answered this book was interesting because they had never found a similar book to become a preconception health guide. Other respondents also stated that this book was interesting because the appearance and

images were interesting and the information was complete and useful.

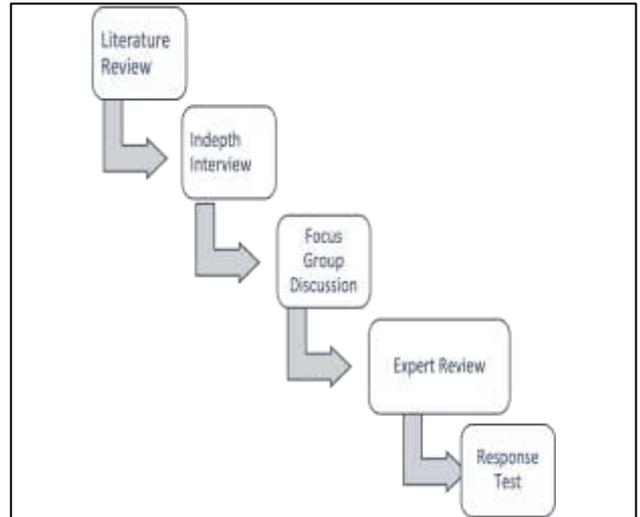


Figure 1: Development process of preconception education booklet.



Figure 2: Pages 5 and 6 that have been revised.



Figure 3: Cover of the booklet and one page of the booklet.

Respondents who answered that the booklet was not very interesting explained that it was because the shortcomings of this book were: it was lacking some information, had too many images, while some answered that the pictures were less interesting because it was animated, and would be better if replaced with actual photographs. The booklet was refined from these results by using some real pictures and reforming sentences for more understandable information (Figure 2 and 3).

DISCUSSION

Preconception education and counseling allow women from before pregnancy to facilitate and reduce possible risk factors for unfavorable pregnancy outcomes.¹² Fertile women who receive preconception education and counseling are more likely to change risk behaviors such as stop smoking before becoming pregnant, reduce alcohol consumption and avoid the use of drugs.

Based on Indonesian Basic Health Research data in 2018, as many as 95.4% of pregnant women received antenatal care (ANC) and 74.1% did ANC as much as four times during pregnancy, but only 86% did ANC in the first trimester (pure K1 / K1 ideal) and only 69.1% did ANC according to recommendations with standardized operational procedures in ANC (10T).¹³ This shows that around one-fifth of pregnant women were still late in doing their first ANC, and one-third of pregnant women did not fulfill the recommended frequency and timing of ANC visits during pregnancy.

Delay in attending the first ANC can be caused by delays in receiving information about recommended health behaviors, including when to start to consume iron (Fe) supplementation tablets. A Ugandan study of 400 pregnant women who were late for ANC visits (first visit at > 20 weeks' gestation) showed that most pregnant women did not know at what gestational age they should have ANC visits for the first time, and also did not know the importance to do ANC earlier. The study recommended the early provision of education for mothers, even before pregnancy.¹⁴

The published materials given in counseling are recommendations for avoiding harmful substances or protection related to health and pregnancy, the right time for pregnancy and childbirth, screening of diseases, and consumption of folic acid with Fe. Other material that needs to be given in preconception counseling includes conception and assessment, stress management, physical activity, nutrition, gynecological infections, and avoiding smoking and drinking alcohol. Women who get preconception counseling have higher self-efficacy to eat healthy food, more intensive consumption of healthy food, are more physically fit, and more often read food labels and use daily multivitamins and or folic acid with Fe according to the dose-response.⁴

Preconception counseling is expected to provide a higher level of knowledge about these matters which are important items in assessment preparation. The most important of which is to build this knowledge before becoming pregnant so that more change their habits to improve expected good outcomes.¹⁵

Effective preconception education requires clear and valid guidelines. This preconception education book was developed based on a literature review and identification of the needs of premarital women and health workers. This booklet was also validated through FGD and expert reviews and was approved for use in preconception women, with positive responses of more than 80% of respondents.

CONCLUSION

We have successfully developed a preconception booklet through 5 steps of development procedures. Based on the results of the user's response test, it can be concluded that this booklet is ready to be used by health workers in providing preconception education to women of reproductive age. Future research needs to examine how to best use this booklet and the effectiveness of giving counseling using this booklet for positive pregnancy outcomes.

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