

# Predictors of Using Safe or Unsafe Contraception among Women with Unplanned Pregnancy: Applying BASNEF Model

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## Research article

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# Abstract

**Background** Unplanned pregnancy is an important public health problem. Most of the unplanned pregnancies occur with using unsafe contraceptive methods. The psychological determinants for choosing contraceptive methods are not properly clear. This study aimed to determine psychological predictors for using safe and unsafe contraception among women with unplanned pregnancy.

**Methods** This cross-sectional study was conducted among 227 married women with unplanned pregnancy. The census sampling was used for data gathering. Participants were interviewed using a questionnaire. Chi-square, linear and logistic regression, and correlation tests have been used for data analysis.

**Results** The most common contraceptive method in women with unplanned pregnancies was male condom (32.2%). Women's awareness of contraceptive methods was low. The mean of age of women with unwanted pregnancy was 30 years. The intention was significantly associated with contraceptive methods (OR = 1.44; 95% CI: 1.095-1.889). There was a significant relationship between attitude toward behavior and intention (  $P < 0.01$ ). There was a significant association between the number of daughters, previous unplanned pregnancy, husband's job, and household income and contraceptive methods (  $P < 0.01$ ).

**Conclusion** The finding of this study suggest that public health strategies to reduce unplanned pregnancy, particularly among women around ages 30 years, should focus on addressing attitude and intention in contraceptive advice and healthy childbearing interval.

## Background

Unplanned pregnancy is a global concern. It defines as a pregnancy that couples or one of them want or desire to terminate it or occur unintended and unwanted [1]. According to the World Health Organization, one-third of pregnancies have been unplanned [2]. A recent study declared that the average rate of unplanned pregnancy is 30.6% in Iran [3]. The most important consequences of unplanned pregnancy are unsafe abortions. It may lead to maternal death, especially in countries where induced abortion is illegal [2]. Reducing unplanned pregnancy and unsafe abortions are one way to reduce maternal deaths [4]. Age of women, education, number of children, number of girls, lack of knowledge about family planning, fear of side effects of contraception, negative attitude towards contraception, irregular use of contraceptive methods, and unsafe methods have been correlated with unplanned pregnancies [5–7].

Behavioral change models provide a good framework to examine the factors that affect on health behavior. Also, the most effective educational programs are theory-based approaches. The BASNEF model was created by combining of PRECEDE and behavioral intention models and focuses on both individual factors and external factors. The BASNEF model includes beliefs and attitudes, normative belief and subjective norms, intention, and enabling factors [8]. The attitude toward behavior expresses an individual opinion about the level of favorable or unfavorable of a particular behavior due to the

positive or negative beliefs about the behavior. The subjective norms indicate persons who affect an individual's views and behavior [8, 9]. Enabling factors such as time, money, facilities, and skill enable one to adopt a behavior [8]. This model has been used in some studies about physical activity, nutritional supplement, and contraception [10–12].

Unplanned pregnancies are often associated with using unsafe contraceptive methods such as condoms or withdrawal methods. Detecting the factors which influence on selecting and using a safe contraceptive method in the viewpoint of unplanned pregnant women can be effective in providing a strategy to reduce unplanned pregnancies. The results are expected to help health care staffs for advising to the childbearing interval and maternal health. Based on our search, there is no study in this target group. Therefore, this study aims to assess the association of sociodemographic, reproductive, and psychological factors based on BASNEF model for choosing contraceptive methods in women with an unplanned pregnancy.

## Materials And Methods

This cross-sectional study was conducted in Hamadan, Iran. All of 227 women who had unplanned pregnancies entered in the study using census sampling. The sample size was determined based on the previous study with a prevalence of unwanted pregnancy(30%) and  $d = 0.06$  [13]. The inclusion criteria were the statement of pregnant women that pregnancy is unplanned by her or her spouse or both, referring to the health care centers. The exclusion criteria were any medical contraindication for using safe contraception or unwilling to participate in the study.

## Sampling and data collection

The questionnaire was used for data gathering among 227 women with an unplanned pregnancy. It included demographic and obstetric questions, knowledge about contraception, and a questionnaire based on BASNEF model. Knowledge about contraception methods was measured with 14 multiple-choice questions that were scored one for the correct answer and zero for the false answers. The BASNEF based questionnaire includes attitude toward behavior with 8 questions (such as fear of contraceptive complications, interest to safe contraception, and benefits of the safe contraception), beliefs about the outcomes of the contraception with 5 questions (such as influence on beauty and mind, weight gain, and harmful for health), subjective norms with 5 questions (the influence of health staff, husband, mother, friends, and sisters for using contraceptive methods), normative belief with 5 questions (such as the importance of the husband's opinion, books, and written materials), and enabling factors with 7 questions (e.g. access to a training class or pamphlet, face to face counselling with a counsellor, and telephone counselling). All questions scored on five-point Likert scales ranging from 1 for strongly disagree to 5 for strongly agree. Intention assessed with two questions including a question (I intended to use safe methods) ranging from one to five in Likert scale ranging from 1 for strongly disagree to 5 for strongly agree and an open question (which method do you intended to use). Contraceptive methods

categorized into two categories of safe and unsafe methods. Unsafe methods include condom and withdrawal[14]. The model-based questionnaire was prepared by researchers using valid articles and WHO guideline for contraception. The content and face validity was measured by a panel of experts including ten health education and midwifery professionals (CVR = 0.89 & CVI = 0.89). Reliability was calculated by The Cronbach's alpha coefficient. The Cronbach's alpha coefficient for each one of the BASNEF model constructs was higher than 0.71 and for knowledge was 0.73. Questionnaires were completed by face to face interviewing.

## Data analysis

Data analysis was done using SPSS software. Chi-square test was used for the relationship between some of the demographic variables and using safe or unsafe contraception. Logistic regression was used to determine the relationship between the structures of the BASNEF model with safe and unsafe contraception. Linear regression was used to determine the relationship between intention and other constructs of the BSANEF model. The correlation was used to the relationship between the model structures. The significance level for the test was set at less than 0.05.

## Ethics:

The research ethics committee of Hamadan University of Medical Sciences approved this study (No 35.2851). All participants completed a written informed consent.

## Results

All of 227 questionnaires were completed. The mean and standard deviation of the age of pregnant women with unplanned pregnancy was  $29.76 \pm 5.8$  years and it ranged between 16 and 49 years. The most contraceptive methods used in women with unplanned pregnancy were male condoms and withdrawal (77%). Nearly a quarter of women tended to abort the fetus, and about ten percent of participants had tried to traditional or illegal abortion that it was not successful. The relationship between demographic and obstetric variables with safe and unsafe contraceptive methods is presented in Table 1.

Before pregnancy, only 33% of the participants planned to use safe contraceptive methods (OCP, IUD, and vasectomy). Moreover, about 18% of participants knew about using the emergency contraceptive pills correctly. Statistical indicators of the structures of the BASNEF model with safe and unsafe contraceptive methods showed that only the intention is statistically predicted choosing safe or unsafe contraceptive method  $P$ -value  $<0.01$  OR = 1.438; 95% CI: 1.095- 1.889 (see Table 2).

Linear regression analysis revealed that attitude ( $P$ -value  $<0.01$ ) as a predictor of intention. Consequently, by increasing one unit in attitude, the average of intention for using safe contraception will increase 0.188

units (Table 3). Further, there was a significant correlation between the variable of attitude and subjective norms and intention (see Table 4).

## Discussion

Unplanned pregnancy is a risk factor for mother and child health. In this study, the prediction of

BASNEF model constructs for using contraceptive methods among women with unplanned pregnancy were studied. Only 33% of women intended to use safe contraceptive methods and most of them intended to use the male condom barrier. The most unplanned pregnancies had occurred with using the male condom barrier. In this study, the intention was a predictor for choosing safe or unsafe contraception that was similar to the results of previous studies. Also, the construct of attitude was a predictor for the intention that was similar to the results of previous studies [15, 16].

The majority of women used unsafe methods. Unsafe methods include condom and withdrawal [14, 17]. Foster et al, In California, showed unplanned pregnancy occur among Asian and North Asian women who tended to use condoms and withdrawal[18].

The average women's knowledge of contraceptive methods was less than the mean of total knowledge score. Regarding knowledge about condom prevention and emergency contraception, 67% of the participants knew how to use and keep a condom correctly. Also, 80% of the women had heard about emergency contraception (EC) but only 18% of them knew how to use EC pills correctly [19, 20]. Researchers in Turkey found that the emergency procedures were known among 40% of women and only 29% knew how to use EC correctly [21]. It seems that the condom users had not used it correctly. Inadequate knowledge about emergency contraception among women with an unplanned pregnancy is a remarkable issue and needs consideration.

The level of education in most of the women that they had used unsafe contraceptive methods and have unplanned pregnancy was primary school[17]. People with higher levels of education seem to be able to read and understand contraceptive guidelines and medical subjects. Family income was associated with contraceptive methods similar to previous studies [14, 22]. Increasing social welfare and per capita income is effective in improving the health of individuals and communities. It seems reasonable to consider the training of middle and lower-income couples to empower them to properly use contraceptive methods. In studies of the relationship between unplanned pregnancy and its related factors, the attitude toward contraceptive methods has been reported to be a major factor [23, 24]. Considering that contraceptive methods may affect women's beauty and mood, or decrease her health and may cause obesity or weight loss. Therefore, those problems may directly affect her attitude toward choosing methods. Proper and continuous education may be the key factor in the prevention of unplanned pregnancies.

The most influential subjective norms for using contraceptive methods were as follows: health staffs, spouses, mothers, friends, and sisters. Policies seem to be needed for participating men on reproductive

health issues [25]. Also, health staffs need more empowerment for proper counseling as the most influential subjective norm.

This study had some limitation; we collected the data just from women with an unplanned pregnancy. Regarding this point that unsafe methods utilize by husbands, further studies recommended detecting psychological factors that have an effect on the male decision. Besides, considering more psychological factors in future researches are recommended. Moreover, this study provides for health workers some insight. They can promote positive attitudes towards safe contraceptive methods via educating and encouraging couples to use safe methods to reduce unplanned pregnancies.

Implication for practice: In general, the results of this study showed that the most unplanned pregnancies occurred in couples who were used condom and withdrawal as unsafe methods, respectively. The construct of intention predicts using safe contraceptive methods and attitude predicted intention. Therefore, improving attitudes should be effective for enhancing women intention for couples who are at risk of an unplanned pregnancy.

## Declarations

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Availability of data and materials:

The dataset will be available for other researchers through contacting with corresponding author.

Author contribution:

MMH did the overall direction. MRM was involved in data collection and entry, data analysis and manuscript writing. BM participated in the conception of the idea. GR performed data analysis. MN participated in manuscript writing. All authors contribute in design and analysis of study, more over all of them read and approved the manuscript.

Competing of interest:

The authors declare that they have no competing of interests in this study.

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## Tables

Table I- Distribution of demographic and obstetric variables and their relationship with safe and unsafe contraceptive methods (chi-square test)

Table II: The Relationship between the Constructs of the BASNEF Model and Using Safe or Unsafe Contraception (logistic regression)

Variables	Percent	Number	P-value
<b>Number of daughters</b>			
0	44.9	102	0.01
≥2	49.4	112	
≥3	5.7	13	
<b>Spouse job</b>			
Business	56.82	129	0.05
Employee	22.04	50	
Worker	21.14	48	
<b>Family income</b>			
low	67	52	0.001
Moderate	10.1	152	
Good		23	
<b>Previous unwanted pregnancy</b>			
yes	24.3	55	0.01
No	59.9	136	
No previous pregnancy	15.8	36	NS
(no significant)			
<b>Women education</b>			
Illiterate	2.6	6	NS
Elementary	29.5	67	
Guidance school	25.1	57	
High school	26.4	60	
Academic	16.3	37	
<b>Women job</b>			
Housewife			
Employed			

Variables	B	S.E.	Wald	Sig.	OR	CI
Intention	.363	.139	6.829	.009	1.438	1.095, 1.889
Enabling Factors	.000	.028	.000	.986	1.000	.947, 1.057
Attitude	.003	.026	.011	.916	1.003	.954, 1.054
Subjective Norms	.032	.039	.653	.419	1.032	.956, 1.114
Normative Belief	.025	.052	.237	.626	1.025	.927, 1.135
Believes toward contraceptives knowledge	.015	.038	.150	.699	1.015	.942,1.094
	.005	.064	.007	.934	1.005	.887, 1.139

Table III: Relationship between Attitudes, Subjective Norms, Believes, Normative Belief, Knowledge and Intention (linear regression)

Variables	B	Std. Error	Beta	t	p-value
Knowledge	-.020	.029	-.047	-.696	.487
Enabling factors	.013	.012	.072	1.069	.286
Attitude	.031	.011	.188	2.772	.006
Subjective norms	.033	.017	.132	1.903	.058
Normative belief	.023	.022	.068	1.031	.304
Believes toward contraceptives	-.007	.017	-.029	-.417	.677

R<sup>2</sup>:0.074, Adjusted R<sup>2</sup> 0.049

Table IV: Correlation Matrix of Study Variables Based on BASNEF Model

Variables	Intention	Enabling Factors	Attitude	Subjective norms	Normative belief	Believes toward contraceptives
Intention	1					
Enabling Factors	.098	1				
Attitude	.219**	.108	1			
Subjective norms	.166*	.112	.217**	1		
Normative belief	.072	.068	.040	-.028	1	
Believes toward contraceptives	.069	.121	.238**	.306**	.127	1

\*\* Correlation is significant at the 0.01 level. \* Correlation is significant at the 0.05 level.

## Abbreviations

*BASNEF*: Beliefs, Attitude, Subjective Norms, Enabling Factors

*PRECEDE*: Predisposing, Reinforcing and Enabling Constructs in Educational Diagnosis and Evaluation

*OCP*: Oral Contraceptive Pills

*IUD*: Intra Uterine Device