

ORIGINAL ARTICLE

USING THEORY OF PLANNED BEHAVIOR TO EXPLORE FACTORS RELATED TO CONTRACEPTIVE USE AMONG WOMEN IN REPRODUCTIVE AGE

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ABSTRACT

In developing countries, millions of women of reproductive age do not use contraception, while research on factors related to contraceptive use behavior are still lacking. The study aimed to identify the factors relate to the behavior of contraceptive use. A cross-sectional study design was conducted from January to March 2020 in Bantul District, Yogyakarta Province, Indonesia. Data were collected using questionnaires from 369 females in reproductive age. The sample size was calculated using the Slovin formula with a 95% confidence level from 4,869 women of childbearing age. Using path analysis, it revealed that high intention had a direct effect on contraceptive use behavior. Attitudes, subjective norms, and self-efficacy have indirect effects on contraceptive use through intention. Knowledge had an indirect effect through self-efficacy and level of education through knowledge. Initiatives related to increasing contraceptive use behavior are needed to reduce the risk of unmet need. Furthermore, the results of this study can be used by stakeholders to formulate strategies in an effort to encourage family planning practices.

Keywords: contraceptive use, family planning, woman of reproductive age

INTRODUCTION

Indonesia is one of the countries with a high population globally, which reached 273 million in 2020¹. While the national-level birth rate is expected to decline, the unmet need for family planning in Indonesia remains. Various family planning programs have been implemented to reduce birth rates. Based on the performance report of the National Population and Family Planning Agency in 2019², the realization of the total fertility rate target was 2.45 from the 2018 target of 2.28. This achievement is in the very good category; However, the number of unmet needs in Indonesia is still high, namely 12.1% of the achievement target that has been set at 9.9% in 2018. Unmet need is defined based on survey data as the percentage of women who are not currently using contraception and want to stop or delay to pregnant. The unmet need for family planning is a valuable concept widely used for advocacy, family planning policy development, and the implementation and monitoring of family planning programs worldwide³.

There is a high potential for unwanted pregnancies among women without contraceptives. This condition causes pregnancy, childbirth complications, maternal and infant mortality. Meanwhile, unwanted pregnancies have produced several adverse physical and psychological health problems for mother and baby, which increases the

risk of abortion and morbidity⁴. Therefore, contraceptives are a primary and effective prevention strategy in developing countries to reduce maternal mortality⁵.

Bantul Regency is one of five districts in Yogyakarta Province, Indonesia. The Bantul District Health Office profile in 2017 and 2020 states that the unmet needs from year to year have increased from 8.4% in 2017 to 10.6% in 2019. Unfulfilled problems also occur in several other districts in Yogyakarta Province. Based on a preliminary study at the Representative of the National Population and Family Planning Agency of the Yogyakarta Special Region in 2018, the number of unmet needs in five districts of Yogyakarta Province was in a range of 8.8% to 15.7%.

Several previous studies have identified various psychological variables such as fear of side effects, motivation, attitudes, interests, which are the most likely causative factors of unmet need for contraception^{6,7}. Other psychosocial factors such as self-efficacy, subjective norms, and intentions have been associated with contraceptive use among women in general⁸.

The Theory of Reason Action (TRA) states that the most important determinant of behavior is intention while the direct determinant of a person's intentions are attitudes toward behavior and subjective norms. Furthermore, the Theory of

Planned Behavior (TPB) includes Perceived Behavior Control (PBC), hence, attitudes, subjective norms, and PBC tend to affect intentions, as well as behavior⁹.

Addressing persistently unmet needs and low contraceptive use remains a challenge, given that contraceptive use is under the influence of a number of factors. For all of these reasons, addressing unmet needs for family planning has become a top global health priority, addressed by the Millennium Development Goals 4 (reduction of child mortality) and 5 (improvement of maternal health through universal access to sexual and reproductive rights)¹⁰.

Despite a wealth of evidence exploring why women do not use contraception, the factors behind behavioral outcomes associated with contraceptive use are poorly understood. Understanding the factors that underlie behavior directly or indirectly can help improve strategies for implementing family planning programs that are more specific and targeted for increasing contraceptive use. Therefore, the main objective of this article is to present the exploration of the factors relate to contraceptive use by using the Theory of Planned Behavior (TPB) as a theoretical framework.

METHODS

Study Design

The research was conducted in 17 sub-districts and 75 villages in Bantul District. Among these sub-districts, 8 were randomly selected as the study locations with 32 villages. Furthermore, 2 villages from each sub-district were selected randomly and were used as the study locations.

The inclusion criteria include women of childbearing age without the intention to have any more children, have delayed pregnancy, and did not use contraception. A total of 4,869 samples were obtained by random sampling technique. Meanwhile, the sample size was calculated using Slovin formula with a 95% confidence level, hence, the total participants that need to be recruited are 369¹¹.

Data Collection

The main instrument used in this study is a questionnaire developed by researchers based on the Theory of Planned Behavior (TPB)⁹. A grid-based on five constructs of TPB, namely attitudes, subjective norms, self-efficacy, intentions, and behavior in using contraceptives and a construct of knowledge about contraception, were prepared as guidelines for preparing questions. The number of questions on the knowledge variable is thirty (30) items, attitudes are fifteen (15) items, subjective norms are twelve (12) items, self-efficacy is eighteen (18) items, intentions are eight (8) items, and contraceptive use behavior a total of six (6)

items. A five-point Likert scale was used to assess their agreement on attitudes, subjective norms, self-efficacy, intentions, and behavior of using contraceptives. Favorable statements (1=strongly disagree, 2=disagree, 3=somewhat agree, 4=agree, 5=strongly agree) and unfavorable statements (1=strongly agree, 2=agree, 3=agree somewhat, 4=disagree, 5=strongly disagree). In addition, data such as age, parity, education level, and knowledge level were also collected through questionnaires.

Mother's knowledge is the respondent's ability to answer questions about the definition of contraceptives, types, working methods, advantages and disadvantages of contraceptives, and side effects of contraceptives. Knowledge is classified into high knowledge and low knowledge. Knowledge is said to be high if the respondent's answer score is more than the median and low if the respondent's answer score is less than the median. Attitude is a pleasant and unpleasant response to the use of contraception in terms of affective, cognitive, and conative aspects. Attitudes are grouped into positive and negative attitudes. Attitudes are said to be positive if the answer score is more than the median and negative if it is less than the median. Self-efficacy is the belief in the ability to take action so that couples of childbearing age can shape the behavior of using contraceptives in accordance with the desired expectations. Self-efficacy is classified into high and low. Self-efficacy is said to be high if the respondent's answer score is more than the median and low if the respondent's answer score is smaller than the median. Subjective norms are perceptions or views of couples of childbearing age on the beliefs of others that affect their interest in using/not using contraceptives. Subjective norms are grouped into high and low. Subjective norm is said to be high if the respondent's answer score is more than the median and low if the respondent's answer score is less than the median. Intention is the desire to use/not use contraception. The intentions are grouped into high and low; The intention is categorized to be high if the respondent's answer score is more than the median and low if the respondent's answer score is less than the median. Contraceptive use behavior is an attempt to find information about contraceptives, acceptance of contraception, and the decision to use contraception which is grouped into positive behavior and negative behavior. It is said to be positive if the answer score is more than the median, and negative if it is less than the median. Product moment correlation formula was used to test the validity of the instrument with the results of the p-value <0.05, and the formula was alpha Cronbach used to test the reliability with the results of $r_{\text{count}} > r_{\text{table}}$ (0.361).

Data collection was carried out from January to March 2020. Furthermore, informed consent was obtained before data collection, then

questionnaires were administered to women of childbearing age. This study was conducted before the COVID-19 pandemic, hence, face-to-face meetings between the researchers and participants were still feasible.

Data Analysis

Data analysis in this study was carried out using path analysis at Stata 14. Path analysis is a multivariate analysis technique based on a system of linear equations, so that all causal relationships are linear and additive. All models are recursive where the causal relationship moves in one direction, there is no bidirectional causal relationship, all relevant causal variables are included in the model¹². The analysis steps include model specification, model identification, parameter estimation, and model specification (if needed). Model identification aims to assess whether path analysis can be used to analyze the data. It is run by calculating the degrees of freedom. The model identification aims to assess if path analysis can be used to analyze the data. It was run by calculating the degree of freedom. The formula for degree of freedom (d.f) is $d.f = ((\sum \text{observed variables}) * (\sum \text{observed variables} + 1)) / 2 - (\sum \text{parameters} + \sum \text{endogenous variables} + \sum \text{exogenous variables})$. The path analysis can be used to analyze the data if the d.f. = 0 (just identified) or d.f. > 0 (over identified).

Because the outcome variable is binary, the analysis is based on path analysis estimation using general structural equation modeling (GSEM) to estimate the behavioral determinants of contraceptive use that have a direct relationship to the outcome variable and indirect effects through a mediator¹³. One feature of structural

equation modeling is that it provides goodness-of-fit statistics for assessing model fit. However, GSEM estimation using Stata software is not applicable for calculating the conformity index. To solve this problem, the fit of the model was carried out based on the principle that most of the path coefficients are significant at an error rate of 5% provided the observed and predicted frequencies match¹⁴.

Access to the community is provided to us through the Bantul Regency Regional Development Planning Agency. Ethical approval for research was obtained from Universitas Sebelas Maret Surakarta, Central Java with Number: 365 / UN27.06 / KEPK / EC / 2019 which includes informed consent, anonymity, confidentiality, and ethical permission. The issue of data confidentiality and how data will be stored after data collection was discussed, and all participants agreed in writing by signing an informed consent.

RESULTS

The result showed that 197 participants (53.4%) are ≥ 35 years old, and approximately three-quarters (277, 74.5%) have two or more children. Most participants have education levels lower or equivalent to senior high school (319, 68.4 %), and 196 (53.1%) have low knowledge of contraception. Furthermore, 203 participants (55.0%) have a negative attitude towards contraception, 199 (52.3%) have a low intention to use contraception, and 189 (50.9%) have low efficacy. Also, approximately half of the participants (200, 54.2%) have low subjective norms and suboptimal contraceptive use behavior (212, 57.5) (Table 1).

Table 1. Characteristics of research participants

Variable	Category	Frequency (n)	Percentage (%)
Maternal Age	>35 years old	197	53.4
	≤ 35 years old		
Number of Children	≥ 2	277	74.5
	< 2		
Educational	≤ high school	319	68.4
	> high school		
Knowledge	Low	196	53.1
	High		
Attitude	Negative	203	55
	Positive		
Intention	Low	193	52,3
	High		
Self-efficacy	Low	188	50,9
	High		
Subjective norms	Low	200	54,2
	High		
Contraceptive Use Behavior	Negative	212	57,5
	Positive	157	42,5

The result of the bivariate analysis showed that there was a significant relationship between maternal education (OR = 0.51, 95% CI = 0.27 to 0.98, p = 0.044), knowledge about contraception (OR = 1.52, 95% CI = 1.00 to 2.30, p = 0.048), attitude (OR = 2.51, 95% CI = 1.64 to 3.84, p =

<0.001), self-efficacy (OR = 2.85, 95% CI = 1.86 to 4.38, p <0.001), subjective norm (OR = 3.46, 95% CI = 2.24 to 5.33, p <0.001), and intention (OR = 3.46, 95% CI = 2.24 to 5.33, p <0.001) on contraceptive use behavior (Table 2).

Table 2. Determinant of contraceptive use behavior

Independent Variables	Contraceptive Use Behavior				OR	95% CI		p
	No		Yes			Lower Limit	Upper Limit	
	N	%	N	%				
Maternal Age								
≤ 35 years								
> 35 years	67	39.18	104	60.82	0.77	0.51	1.17	0.225
	90	45.45	108	54.55				
Education								
≤ high school	15	29.41	36	70.59	0.51	0.27	0.98	0.044
> high school	142	44.65	176	55.35				
Number of Children								
< 2	122	44.36	153	55.64	1.34	0.83	2.17	0.228
≥ 2	35	37.23	59	62.77				
Knowledge								
Low	83	47.98	90	52.02	1.52	1.00	2.30	0.048
High	74	37.76	122	62.24				
Attitude								
Negative	91	54.82	75	45.18	2.51	1.64	3.84	<0.001
Positive	66	32.51	137	67.49				
Self-Efficacy								
Low	101	55.19	82	44.81	2.85	1.86	4.38	<0.001
High	56	30.11	130	69.89				
Subjective Norm								
Low	99	58.58	70	41.42	3.46	2.24	5.33	<0.001
High	58	29.00	142	71.00				
Intention								
Low	99	58.58	70	41.42	3.46	2.24	5.33	<0.001
High	58	29.00	142	71.00				

Based on the results, we find that most of the parameters for the model are significant at an error rate of 5%; this indicates that our model is of high quality and fits the data well. In addition, the values of degrees of freedom, AIC and BIC presented in the table notes indicate the suitability of the model with the sample data.

The contraceptive use behavior is directly influenced by high intention (b=1.24, 95% CI= 0.80 to 1.67, p=0.001), and is indirectly influenced by positive attitude (b=0.87, 95% CI=0.36 to 1.38, p=0.001) through high intentions. Furthermore, it is indirectly influenced by subjective norms through high intention (b=1.37, 95% CI=0.84 to 1.90, p=0.001), and positive attitude (b=1.93, 95% CI= 1.42 to 2.43, p=0.001), self-efficacy through high intention (b=0.78, 95% CI=0.27 to 1.28, p=0.002), and positive attitude (b=0.61, 95% CI=0, 10 to 1.12, p=0.018). Also, contraceptive use behavior is indirectly influenced by high knowledge through self-efficacy (b=0.57, 95% CI=0.16 to 0.99, p=0.006), and high education > high school through high knowledge (b=0.84; 95% CI=0.23 to 1.46;

p=0.007) (Table 3).

DISCUSSION

Based on the results, there is a direct relationship between high intention and contraceptive use behavior. Furthermore, the study results also show that attitudes, subjective norms, and self-efficacy are indirectly related to the behavior of using contraceptives through intention. The level of knowledge is indirectly related to self-efficacy, the level of education through the level of knowledge.

The results showed that women aged 35 were less likely to use contraception and had two or more children. It shows that older women are less likely to use contraception than younger women and have more than two children. The prevalence of contraceptive use should increase with age¹⁵. The reason is, pregnant women over the age of 35 years are more at risk of complications during pregnancy and childbirth. Pregnancy among women older than 30 years increases the risk of prematurity,

perennial lacerations, preeclampsia, placental abruption, postpartum hemorrhage, unfavorable

neonatal outcome, and risk of cesarean delivery¹⁶.

Table 3. Result of Path Analysis of factors that influence contraceptive use behavior

Dependent Variable	Independent Variable	Path Coefficient (b)	CI 95%		p-value
			Lower Limit	Upper Limit	
Direct Effect					
Contraceptive use behavior	← High intention	1.24	0.80	1.67	0.001
Indirect Effect					
High intention	← Positive attitude	0.87	0.36	1.38	0.001
	← High subjective norm	1.37	0.84	1.90	0.001
Positive attitude	← High self-efficacy	0.78	0.27	1.28	0.002
	← High subjective norm	1.93	1.42	2.43	0.001
High subjective norm	← High self-efficacy	0.61	0.10	1.12	0.018
	← High knowledge	0.47	-0.00	0.95	0.053
High self-efficacy	← High knowledge	0.25	-0.15	0.66	0.228
High knowledge	← High Education > High School	0.57	0.16	0.99	0.006
		0.84	0.23	1.46	0.007
N Observation N = 369					
Log Likelihood = -1395.8706					
Degree of Freedom =16					
AIC =2823.741. BIC = 2886.314					

Many factors cause mothers to have more than two children, one of which is the religion known to play an essential role in contraceptives. Muslim women generally have more children, want more children, and are less likely to use contraception than non-Muslim women¹⁷. Non-Muslim women are much more likely than Muslim women to receive pills and permanent methods¹⁸.

Previous research has shown that attitudes, social norms, and perceived behavioral control are significant predictors of contraceptive use¹⁹ and emerged as critical, independent variables for predicting intention to use Long-acting Reversible Contraceptives²⁰. There is plenty of evidence to show that it takes optimism and self-confidence to achieve human well-being. Belief in oneself determines how humans feel, think, motivate, and behave²¹. Perceived self-efficacy levels for contraceptive use are positively related to intention to use and increase the likelihood of contraceptive use²². Women who have higher self-efficacy tend to have stronger intentions to use contraception²³.

Attitudes influence behavior through careful and reasoned decision-making, whereas subjective norms are beliefs about what other people want us to do. Attitudes towards behavior are present, with subjective norms forming intentions to act. Attitudes, social norms, and perceptions of behavioral control are predictors of contraceptive use¹⁹. Therefore, preferred attitudes, norms, and

self-efficacy mainly influence the formation of intentions²².

This study also shows that knowledge is a factor that is significantly related to contraception through self-efficacy. Self-efficacy will develop gradually along with increasing abilities and experiences related to personal knowledge. Higher self-efficacy will motivate individuals to take appropriate and directed actions. Similar research shows that women who know that using condoms can prevent HIV transmission have greater self-efficacy than women who lack knowledge²⁴.

The results also show that the education variable has a significant effect on using contraceptives through knowledge. This finding is consistent with a study conducted in Kenya, where women with higher levels of education were more likely to adopt family planning methods²⁰. Education enhances learning and positively influences health-supportive behaviors, such as contraceptive use²⁵. Lack of knowledge about family planning sources and methods determines contraception due to low levels of education. It is not surprising that education is also closely related to the use of contraceptives.

A large population, high growth rates, and an unbalanced distribution between regions are characteristic of the population of Indonesia and middle-income countries and constitute a significant population problem. This condition of

the population complicates efforts to increase and distribute people's welfare, and in the end, it can slow down the achievement of national development. Given the vulnerability of the population problem, efforts are needed that can reduce birth rates directly and quickly. It can be done by disseminating and providing family planning facilities and increasing knowledge, attitudes, and family planning practices. This finding has implications for strategies to increase contraceptive use behavior. By utilizing research results to provide education about reproductive health with an emphasis on increasing attitudes, subjective norms, attitudes, and intentions to use contraception, building information networks, strengthening self-confidence, maintaining reproductive health, and attitudes in maintaining reproductive health.

The limitation of this study is the use of cross-sectional design, which cannot show a causal relationship between the observed variables. This study only involved married women aged 15-49 years (and some were unmarried but needed contraception), which might limit the generalizability of the study. A study on perceptions on vulnerability and the threat of not using contraception among women of reproductive age needs to be conducted in the future.

CONCLUSION

Behavior related to contraceptive use was predicted using TPB. High intentions directly influenced contraceptive use behavior. Attitudes, subjective norms, self-efficacy, knowledge, and education indirectly effect on contraceptive use. Therefore, TPB is a unified theory to understand using contraceptives to improve women's reproductive health in Bantul District, Indonesia.

Conflict of Interest

The authors declare that there is no conflict of interest in this study

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