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Factors Affecting Intention to Use Hormonal Contraception among Female Undergraduate Students at XYZ University in Chiang Mai Province, Thailand

Kunsalyn Srinamon[1], Natwara Mahawongsanan[2], Supanika Leurcharusmee[3], and Pithoon Thanabordeekij[4*]

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Abstract

This research aims to study the influence of attitude and self-regarding preference, subjective norm, and perceived behavior control on the intention to use hormonal contraception among female undergraduate students in Chiang Mai province, Thailand. The sample population consists of 213 respondents, and the data was analyzed using regression analysis. The results of the study show that 74.1% of female undergraduate students at XYZ University in Chiang Mai currently use contraception pills. The intention to use is measured with a five-level Likert scale in five aspects with the following results: belief in the benefits of using (M = 4.03, S.D. = 0.841), continuing to use (M = 4.01, S.D. = 0.924), plan to use (M = 4.98, S.D. = 0.939), intend to use (M = 3.94, S.D. = 0.904), and expect to use (M = 3.89, S.D. = 0.970). For the factors determining the intention to use, the results are consistent with previous studies and confirm the hypotheses that attitude and self-regarding preference, subjective norm, and perceived behavior control have positive and significant relationships with the intention to use hormonal contraception. The demographic variables, which include relationship status, the field of study, income, and current usage, have no significant relationship to the intention to use hormonal contraception.

Keywords: Hormonal Contraception, Intention, Theory of Planned Behavior, the Rational Choice Theory, Female Undergraduate Students

Introduction

According to World Contraceptive Use, United Nation, Intrauterine devices (IUDs) are the most commonly used contraceptive method in Eastern and Southeast Asia (18.6%), followed closely by male condoms (17.0 %). Female sterilization is the most common method in Central and Southern Asia (21.8 %). Overall, short-acting methods, such as pills, injectables, and male condoms, constitute more than half of all contraceptive methods used in 125 countries. For

[1,2,3,4]Faculty of Economics, Chiang Mai University, Thailand
*E-mail: pithoon.th@cmu.ac.th

Thailand, the most common contraceptive methods used are the pill, female sterilization, and injection, respectively.

According to the Bureau of Reproductive Health, Department of Health, the adolescent birth rate (aged 10-14 years) in 2019 was 1.1 per 1,000 persons, and the adolescent birth rate (aged 15-19 years) in 2019 was 31.3 per 1,000 persons. The adolescent birth rate (aged 10-14 years) and adolescent birth rate (aged 15-19 years) decreased from 2018 to 1.2 and 35 per 1,000 populations. The fertility rate is expected to decline while the understanding and use of contraception increases (Bureau of Reproductive Health, Department of Health, 2020; Bureau of Reproductive Health, Department of Health, 2021).

The Department of Health reported using three key indicators to represent teenage pregnancy: Adolescent birth rate (aged 10-14 years), Adolescent birth rate (aged 15-19 years), and percentage of recurrent pregnancies among low-aged females over 20 years. Pregnancy at a young age leads to problems of misunderstanding in contraception, unwanted pregnancy, and teenage pregnancy (Bureau of Reproductive Health, Department of Health, 2020). Also, the government pushes forward to solve problems by supporting unwanted teenage pregnancy control and sexually transmitted diseases, such as free condoms at public hospitals and subdistrict health promotion hospitals. Moreover, young people under 20 years old can get contraception implants and IUDs with progestogen. The adolescent birth rate (aged 10-14 years) in 2019 was 1.1 per 1,000 persons, and the adolescent birth rate (aged 15- 19 years) in 2019 was 31.3 per 1,000 persons. Moreover, the adolescent birth rate (aged 10-14 years) and adolescent birth rate (aged 15-19 years) decreased from 2018 to 1.2 and 35 per 1,000 populations, respectively. Expect that the fertility rate will decline while the understanding and use of contraception increases (Bureau of Reproductive Health, Department of Health, 2019a; Bureau of Reproductive Health, Department of Health, 2021)

Research Objectives

1. To examine current usage behavior and future intention to use hormonal contraception of female undergraduate students at XYZ University in Chiang Mai. (For confidentiality reasons, university information in this research cannot be disclosed. Therefore, the researcher named it as XYZ University).

2. To determine demographic factors affecting female undergraduate students' behavior on hormonal contraception at XYZ University in Chiang Mai.

3. To study the influence of attitude and self-regarding preference, subjective norm, and perceived behavior control on intention to use hormonal contraception.

Literature Review

Introduction of Related Theories and Related Variables

This study will apply the framework of the theory of planned behavior (TPB). However, this study would like to expand the attitude element of the theory of planned behavior by adopting some concepts of the rational choice theory (RCT), which is self-regarding preference.

The Theory of Planned Behavior (TPB)

The theory of planned behavior is behaviors influenced by intentions, which are determined by attitudes, subjective norms, and perceived behavioral control. External factors can also

directly drive or inhibit various behaviors, regardless of the intention, depending on the degree to which the individual controls behavior and the degree to which perceived behavioral control is an accurate measure of actual behavioral control (Bosnjak et al., 2020; Sansom, 2021). Additionally, the theory of planned behavior is the influential model for predicting human social behavior (Ajzen, 2011). From the early research of the theory of planned behavior and smoking cessation, Norman et al. (1999) offered the theory of planned behavior to explain why smokers intend to attend health promotion clinics to quit smoking, resulting in reducing their risk for adverse health outcomes.

The Rational Choice Theory (RCT)

Rational choice theory is that Individuals use rational calculations to make rational choices and attain outcomes that match their goals. According to rational choice theory, these outcomes also optimize a self-regarding preference. Rational choice theory is often associated with the concepts of rational actors, self-regarding preference, and the invisible hand. Given the limited options, the rational choice theory is considered to generate results that offer people the most benefit and happiness (Ganti & Anderson, 2021). It is essential to comprehend its intended consequences or results to explain the intent of an action (Rabušic & Kepáková, 2003).

According to early research on Beliefs and attitudes towards lifestyle change and risks in primary care, Mäntyselkä et al. (2019). The information is the cause of self-regarding preferences and beliefs about possible active opportunities, which are related to attitude variables from the theory of planned behavior (TPB) (Ajzen, 2011). People who underestimate risks and resist health promotion because they have negative beliefs about health behavior change, have the unhealthiest life, and have the least capacity to modify it. These findings imply that diverse groups of people with different needs, readiness, and ability to modify their health behavior can be identified (Mäntyselkä et al., 2019).

There is a similarity between self-regarding preference and attitude because this study would like to see it from the point of view of economics. Moreover, instead of attitudes that define reflection, a person's key behavior beliefs indicate the behavior's perceived likely consequences (Godin & Kok, 1996; Fishbeing & Ajzen, 1975). In addition, this study added self-regarding preference, which is more related to economic perspectives that define guideline decision-making, with (all) actors attempting to maximize their self-interest (Hardin, 1968; Heinz & Koessler, 2021). Therefore, this study adopted a self-regarding preference from the rational choice theory (RCT) into the attitude of the theory of planned behavior (TPB).

Introduction of Related Variables and Research Hypothesis

Attitude and Self-Regarding Preference

Attitude reflects a person's key behavioral beliefs, which indicate the behavior's perceived likely consequences. Additionally, attitude is an expression of one's positive or negative evaluation of performing a given behavior, such as exercising to reduce the risk of heart disease (Godin & Kok, 1996; Fishbein & Ajzen, 1975).

Self-regarding preference or self-interest comes from an invisible hand that guides self-interested competition within a free-market economy Adam Smith (Paternoster et al., 2017). The self-regarding Interest assumption states that the actions of the individual (Ogu, 2013) and Abell (2003) noted that the fundamental assumption in the rational choice approaches is less critical than the assumption of optimality, which is concerned with self-preference.

In summary, this study would like to see it from the view of economics. Therefore, this study adopted self-regarding preference from the Rational Choice Theory (RCT) into the attitude of the Theory of Planned Behavior (TPB).

Subjective Norm

Subjective norm is a social factor that refers to the perceived social pressure to perform or not to perform the behavior (Ajzen, 1991). Subjective norms are the belief that an important person or group will approve and support a particular behavior. In research from Ham et al. (2015), subjective norms are determined by the perceived social pressure from others for an individual to behave in a particular manner and their motivation to comply with those people's views.

Perceived Behavior Control

Perceived behavior control refers to a person's perception of his or her capacity to perform the desired behavior. Therefore, a person may believe that, in general, her or his outcomes are determined by her behavior (Ajzen, 1991).

Relationship of Related Variables and the Research Hypothesis

Attitude and Self-regarding preference and intention to use hormonal contraception

According to the theory of planned behavior (Ajzen, 1991), the attitude toward the behavior refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question. Attitude is an essential factor in physical activity intentions and behavior, and the results indicated that the attitude-intention relationship was stable over time (Chatzisarantis et al., 2005). Research from Seddig et al. (2022) concludes that attitude and intention have a direct relationship. The positive attitude led to the positive intention to use hormonal contraception; conversely, the negative attitude led to negative intention. This study applied the Fishbein and Ajzen model of attitude and intention to use hormonal contraception evaluations. The model advocated a positive relationship between respondents' attitudes and intention to use hormonal contraception (Hooper, 2010; Stewart, 1982).

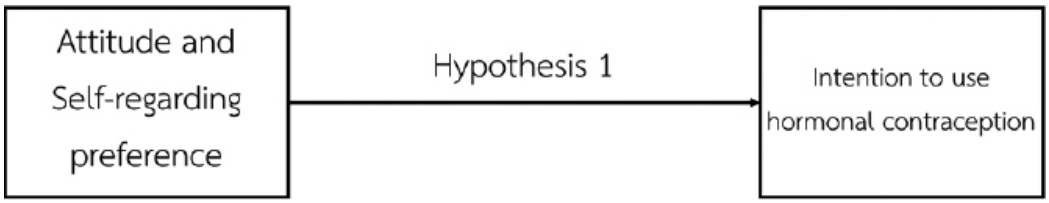

Figure 1 Relationship between Attitude and Self-Regarding Preference and Intention to Use Hormonal Contraception

Hypothesis 1: Attitude and Self-regarding preference have a positive and significant relationship influencing the intention to use hormonal contraception.

Subjective Norm and Intention to Use Hormonal Contraception

Subjective norm is the perceived pressure influenced by others, such as friends, who participate in the behavior of interest and impact the respondent's behavior directly or indirectly (Ajzen & Driver, 1992). Subjective norm was found to be a strong predictor of behavioral intention, and it was found to be positively and significantly connected to behavioral intention.

In addition, the study results are comparable with many other studies that have found that subjective norms impact behavioral intentions (Bindin et al., 2009; Chen, 2007; Chiou, 1998; Noor et al., 2020; Ravi et al., 2007). Such as public opinion and expectations from different groups will influence consumers. Hence, in this study, the subjective norm positively and directly affects the respondent's decision to use hormonal contraception.

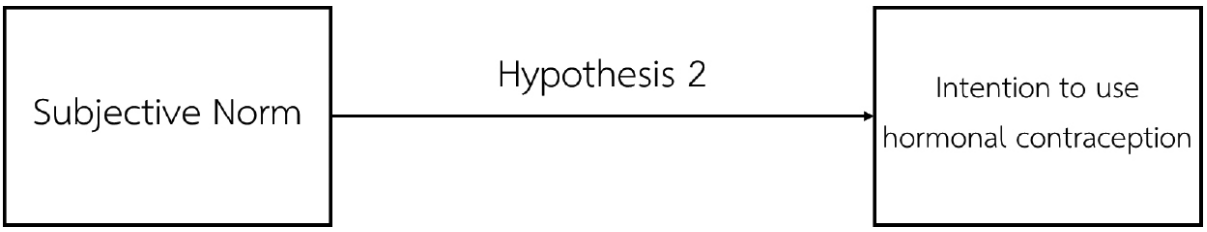

Figure 2 Relationship between Subjective Norm and Intention to Use Hormonal Contraception

Hypothesis 2: Subjective norm has a positive and significant relationship with the intention to use hormonal contraception.

Perceived behavior control (PBC) and intention to use hormonal contraception. Ajzen (1988) established 'perceived behavioral control' as a factor of both behavioral intention and behavior. Perceived behavior control predicts an individual's intention, which refers to their perception of the difficulty and simplicity with which they can carry out a behavior (Ajzen, 1991). Perceived behavioral control is conceptually related to self-efficacy. A person's behavior is under his or her control; however, in actuality, perceived behavioral control is often measured by the ease or difficulty of the behavior (Wallston, 2001). At the same time, self-efficacy is defined as an individual's belief in their ability to act in the face of difficulty (Wallston, 2001). Such as consumer-perceived benefits since an eco-friendly house usually has parks and plants, which will chill the room and can significantly reduce air conditioning usage. Also, it can reduce electricity consumption. So, perceived benefits lead consumers to have the intention to buy eco-friendly houses (Wijayaningtyas et al., 2019). Hence, this model shows a positive relationship between the respondents' perceived behavior control and intention to use hormonal contraception.

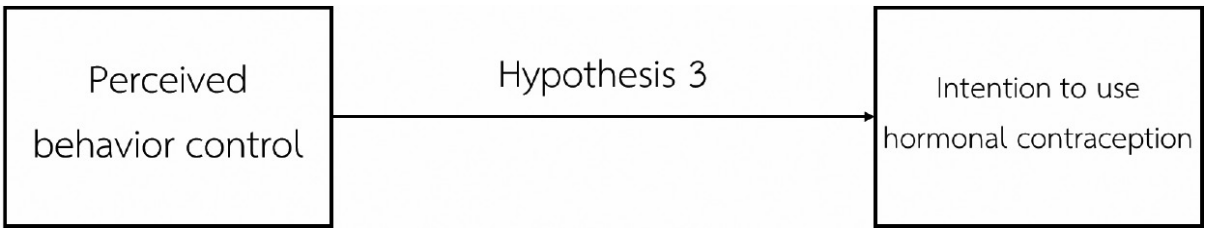

Figure 3 Relationship between Perceived Behavior Control (PBC) and Intention to Use Hormonal Contraception

Hypothesis 3: Perceived behavior control has a positive and significant influence on the intention to use hormonal contraception

Methodology

Conceptual Frameworks

This study investigates how attitude and self-regarding preference, subjective norms, and perceived behavior control influence female undergraduate students on hormonal contraception at XYZ University in Chiang Mai.

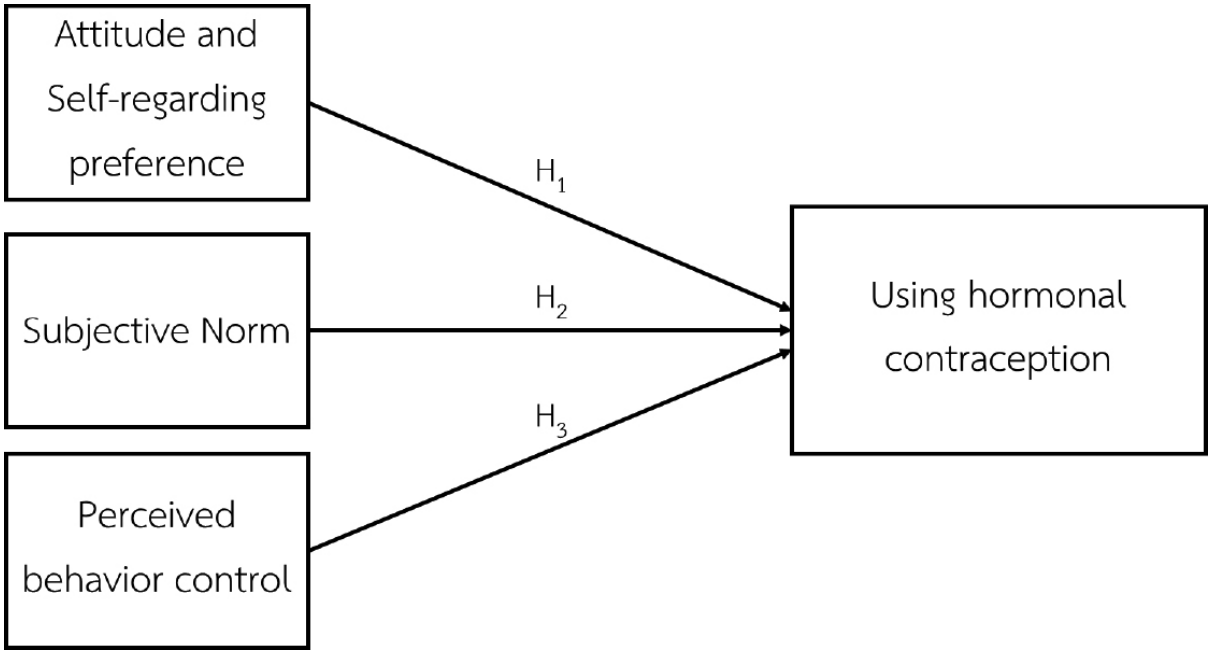

Figure 4 Conceptual Frameworks

Based on the literature review, a framework for the current study is shown in Figure 4. This framework describes the hypothesis relationships among attitude and self-regarding preference, subjective norm, perceived behavior control, and intention.

H_1: Attitude and Self-regarding preference have a positive and significant relationship influencing the intention to use hormonal contraception.

H_2: Subjective norm has a positive and significant relationship with the intention to use hormonal contraception.

H_3: Perceived behavior control has a *positive and significant relationship with the intention to use hormonal contraception.*

Population and Sample

The target population of this study was female students of XYZ University over 18 years old who have experience using hormonal contraception and using sample size calculation as $N \geq 50+8m$ (where m refers to the number of predictors in the model, eight predictors in this study). The minimum required for sample size was 114. Researchers collected the questionnaires from 213 respondents to satisfy the minimum sample size requirement.

Sampling Technique

This quantitative research used survey questionnaires to collect data from the samples. The method that we used to collect the data is random, convenient sampling. Elements in the survey questionnaires were derived from the literature review and accommodated questionnaires to suit the research.

Data Collection

According to early research, Data collection is how the information collected is used, and what explanations it can generate are determined by the methodology and analytical approach applied by the researcher (Paradis et al., 2016). This study performs a quantitative research method using survey questionnaires to collect sample data. The questionnaire survey was divided into two sections. The first section consists of five questions covering the respondents' personal information: age, status, education level, monthly income, and experience of using hormonal contraception. The second section, which has a five-point Likert scale, consists of twenty-one questions covering the attitude, subjective norm, perceived behavior control, and self-regarding preference for hormonal contraception. Elements in the questionnaire were acquired from the literature review, adjustments to be suitable for this research, and five-point Likert scales in which respondents specify their level of agreement to a statement typically in five points: (1) Strongly disagree; (2) Disagree; (3) Neither agree nor disagree; (4) Agree; (5) Strongly agree ("5-Point Likert Scale", 2010).

Data Analysis

The model used in this study is based on the surveyed cross-sectional data. The regression analysis is as follows:

$$IHC_i = \beta_0 + \beta_1 AS_i + \beta_2 SN_i + \beta_3 PBC_i + \gamma_1 InRelationship + \gamma_2 Field_i^{Tech} + \gamma_3 Field_i^{Med} + \gamma_4 HighIncome + \gamma_5 Usage + u_i \quad (1)$$

where IHC is the intention to use hormonal contraception, the behavior factors include attitude and self-regarding Preference (AS), subjective norm (SN), and perceived behavior control (PBC). The demographic factors include relationship status (InRelationship), the field of study ($Field^{Tech}$ and $Field^{Med}$), income (HighIncome), and current usage (Usage). See Table 2 for variable description and statistics.

Research Results

This study examines the factors affecting consuming behavior to hormonal contraception of female undergraduate students at XYZ University, including current usage behavior and future intention, demographic variables, and behavior variables. Two hundred thirteen respondents collected the data.

Current usage behavior and future intention to use hormonal contraception

According to the data collected, 135 respondents have used contraception. The majority of current usage of hormonal contraception by female undergraduate students in XYZ University is contraception pills, with 100 people representing 74.07%, followed by condoms, contraception implants, injectable contraception, and contraception patches, with 69 people representing 51.11%, 11 people representing 8.15%, nine people representing 6.67%, and three people 2.22%, respectively.

According to Table 1, which shows the levels of intention agreement in each question, an average of each aspect had an agreeable level of opinion, with an average of 3.97. Sort the averages from greatest to least as follows: the aspect of believing (M = 4.03, S.D. = 0.841) had the highest mean, followed by continuing using (M = 4.01, S.D. = 0.924), planning to use (M = 4.98, S.D. = 0.939), intention to use (M = 3.94, S.D. = 0.904), and the least was expectation (M= 3.89, S.D. = 0.970).

Table 1 Intention Behaviors

List	1	2	3	4	5	Mean	S.D.
I intend to use hormonal contraception.	5 (2.30%)	8 (3.80%)	39 (18.30%)	103 (48.40%)	58 (27.20%)	3.94	.904
I expected to use hormonal contraception regularly.	6 (2.80%)	12 (5.60%)	41 (19.20%)	95 (44.60%)	59 (27.70%)	3.89	.970
I believe it is worthwhile for me to use hormonal contraception.	3 (1.40%)	6 (2.80%)	36 (16.90%)	105 (49.30%)	63 (29.60%)	4.03	.841
I plan to use hormonal contraception.	7 (3.30%)	8 (3.80%)	30 (14.10%)	106 (49.80%)	62 (29.10%)	3.98	.939
I would continue to use hormonal contraception for my personal preference.	8 (3.80%)	2 (0.90%)	35 (16.40%)	102 (47.90%)	66 (31.00%)	4.01	.924

Source: Using a 5-Point Likert Scale, (1) Strongly disagree; (2) Disagree; (3) Neither agree nor disagree; (4) Agree; (5) Strongly agree

Factors Determining the Intention to Use

Factors determining the intention to use hormonal contraception examined in this study are shown in Table 2.

Table 2 Summary Statistics of Factors Determining the Intention to Use Hormonal Contraception

Variable	Mean	S.D.
Intention to use hormonal contraception (IHC) 1. I intend to use hormonal contraception. 2. I expected to use hormonal contraception regularly. 3. I believe it is worthwhile for me to use hormonal contraception. 4. I plan to use hormonal contraception. 5. I would continue to use hormonal contraception for my personal preference.	3.97	.778

Table 2 Summary Statistics of Factors Determining the Intention to Use Hormonal Contraception (Con.)

Variable		Mean	S.D.
Attitude and Self-Regarding Preference (AS) 1. It is likely to be challenging to get hormonal contraception (For example, you have to get a physical exam or drive to the pharmacy/doctor). 2. It is likely to be embarrassing for me to buy/use hormonal contraception. 3. I would consider using one of the most effective hormonal contraception methods, even if associated with menstrual cycle changes. 4. I would accept irregular bleeding initially if it meant fewer or no periods over time. 5. I have discussed hormonal contraception issues with the pharmacy/doctor. 6. It is hard to figure out how to use hormonal contraception.		3.99	.663
Subjective Norm (SN) 1. Most people who are important to me approve of using hormonal contraception. 2. I expected to use hormonal contraception to prevent unwanted pregnancy. 3. The administrators (pharmacy/doctor) would approve of using hormonal contraception. 4. I generally do what my administrators (pharmacy/doctor) expect me to do. 5. My parents agree with the effectiveness of hormonal contraception.		4.13	.572
Perceived Behavior Control (PBC) 1. I am confident that I will be able to take hormonal contraception as prescribed. 2. Using hormonal contraception is up to my considerable. 3. I have the knowledge and ability to use hormonal contraception. 4. If I wanted to, I could easily use hormonal contraception. 5. I have personal control over using hormonal contraception.		4.12	.631
Field Tech	= 1, if study in the Faculty of Engineering, Agriculture, Agro-industry, Architecture, and Communication Arts.	.21	.406
Field Med	= 1, if study in the Faculty of Medicine, Dentistry, Pharmacy, Associated Medical Sciences, Nursing, and Veterinary Medicine.	.21	.406
Field Soc	= 1, if study in the Faculty of Humanities, Education, Fine Arts, Business, Economics, Mass Communication, Political Science and Public.	.59	.494
In Relationship	= 1, if in relationship	.42	.494
HighIncome	=1, if the average income per month is greater than 8,000 Baht.	.68	.469
Usage	=1, if you have ever been using contraception.	.63	.483

Source: Author's Calculation

From the total of 213 respondents, the majority of respondents did not have a relationship, with 124 people representing 58.22%, and having a relationship, with 89 people representing 41.78%. Most respondents were from the Humanity and Social Science groups, with 125 people representing 58.68%, the science and technology group, and the health science group, with 44 people representing 20.66%. Average monthly income between 8,000 - 10,000 Baht, more than 10,000 Baht, between 6,000 - 8,000 Baht, between 4,000 - 6,000 Baht, and less than 4,000 Baht were 86 people representing 40.38%, 58 people representing 27.23%, 35 people representing 16.43%, 25 people representing 11.74%, and nine people representing 4.23%, respectively. Most of the respondents have been using contraception, with 135 people representing 63.38%, and never been using contraception, with 78 people representing 36.62%.

According to the data collected, 135 respondents have been using contraception, divided into hormonal contraception and non-hormonal contraception. Hormonal contraception was divided into contraception pills, with 121 people, representing 89.63%; injectable contraception with 22 people, representing 16.30%; contraception patches with eight people, representing 5.93%; contraception implants with 12 people, represent8.89%; and never used 11 people, representing 8.15% of usage. Non-hormonal contraception was divided into condoms and never been used, 104 and 31 respectively. Currently, most of the respondents have been using contraceptive pills, which means 100 people, representing 74.07%. The average monthly expense was 291.40 Baht. The reasons for using hormonal contraception were birth control, adjusting hormone levels, and a prescription by a doctor.

To examine the factors determining the intention to use hormonal contraception, this study estimates three specifications of regression as follows:

Table 3 Regression Results for Intention to Use Hormonal Contraception

Variables	Model 1	Model 2	Model 3
AS	.225*** (3.574)	-	.212*** (3.190)
SN	.279*** (4.189)	-	.283*** (4.181)
PBC	.370*** (5.772)	-	.345*** (5.099)
In Relationship	-	-.035 (-.506)	-.003 (-.072)
Field Tech	-	.002 (.034)	-.002 (-.049)
Field Med	-	.115* (1.728)	.018 (.394)
High Income	-	.364*** (5.054)	.000 (.001)
Usage	-	.078 (1.150)	.072 (1.336)

Source: t-statistics in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

Model 1 was estimated using only the behavior variables, which are attitude and Self-regarding preference, subjective norm, and perceived behavior control, showing that all behavior variables have a positive and significant relationship influenced by the intention to use hormonal contraception.

Model 2 was estimated using only the demographic variables, having two variables (the Health Science group and the high-income group) that have positive and significant relationships that influenced the intention to use hormonal contraception and three variables (in a relationship, the Science and Technology group, and usage of hormonal contraception) that have no positive and significant relationship with intention to use hormonal contraception.

Model 3 was estimated using both demographic variables and behavior variables. The results show that behavior variables (attitude and self-regarding preference, subjective norm, and perceived behavior control) have positive and significant relationships influencing the intention to use hormonal contraception. On the other hand, the demographic variables are in relationship; the Science and Technology group, the Health Science group, the high-income group, and usage have no positive and significant relationship influencing the intention to use hormonal contraception.

Conclusion and Policy Recommendations

Conclusion and Discussion

According to the hypothesis testing, attitude and self-regarding preference have a positive and significant relationship influencing the intention to use hormonal contraception. The results are consistent with previous research from Seddig et al. (2022), which concludes that attitude and intention have a direct relationship. Subjective norm has a positive and significant relationship with the intention to use hormonal contraception. The results are consistent with previous research from Bindin et al. (2009), who noted that public opinion and expectations from different groups will influence intention. Perceived behavioral control is conceptually related to self-efficacy. A person's behavior is under his or her control related to a hypothesis: Perceived behavior control (PBC) and intention to use hormonal contraception (Wallston, 2001). Additionally, the most significant influences on the decision are attitude and self-regarding preferences, subjective norms, and perceived behavior control.

According to the data collected for demographic variables, the majority of the respondents who have been using hormonal contraception and the current usage of hormonal contraception is contraception pills, which is related to the research of Morakul et al. (2020) on the decision to choose hormonal contraception are contraception pills and emergency contraception pills.

Policy Recommendations

Many components need to be considered at any given point in their lifetimes when choosing the most appropriate contraceptive method. Experts, such as doctors, should provide advice and clear education about the use of contraception. According to the data collected, no one is using the UID. However, the government's measures to support free condoms include the contraception implant and the UID in adolescents under 18 years. Therefore, governments should survey to collect data to maximize the benefits for their citizens. Also, provide a curriculum for basic information on contraception to reduce the unwanted pregnancy rate and narrow the gap in access to contraception because the Thai population with an income lower than the poverty

line tends to increase (Poverty Headcount Ratio at National Poverty Lines (% of population) - Thailand which is why they are more unlikely to access contraception. In addition, in the case of the government's desire to reduce the abortion rate. So, the government should provide and improve access to consistent, effective, and affordable contraception.

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