KNOWLEDGE OF FAMILY PLANNING AND ASSOCIATED FACTORS AMONG WOMEN AGED 18 – 49 IN PHONG DIEN DISTRICT, CAN THO CITY IN 2025

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This descriptive cross-sectional study was conducted to describe the knowledge of family planning (FP) and associated factors among women aged 18 – 49 years old in 2025. 405 married women aged 18 – 49 old in Phong Dien district, Can Tho city were selected to participated to complete a validated 12-items knowledge questionnaire. The proportions of women with good, moderate, and poor knowledge of FP were 46.9%, 51.9%, and 1.2%, respectively. Most women in Phong Dien District had moderate to good knowledge of FP. Higher knowledge was significantly associated with having a religious affiliation (p = 0.006), higher educational level (p < 0.001), and higher economic status (p < 0.001). Therefore, health communication and education programs should be enhanced, with a focus on women with lower educational attainment and limited economic resources.

Keywords: Knowledge, family planning, women aged 18 – 49, associated factors.

I. INTRODUCTION

Family planning (FP) empowers women to manage the number and spacing of their children, enhancing reproductive health and alleviating economic, healthcare, and social burdens. Limited FP knowledge often leads to uninformed reproductive decisions, increasing risks of unintended pregnancies and unsafe abortions. Globally, over 97% of unsafe abortions occur in developing countries, with a mortality rate of up to 220 per 100,000 cases.[1] In Vietnam, high abortion rates, particularly among young and rural women, highlight disparities in access to FP information and services.[2] These outcomes result in significant psychological, social, and economic consequences.[3] Research consistently identifies inadequate knowledge, attitudes, and practices (KAP) regarding FP as key contributors to unintended pregnancies and unsafe abortions,[4-6] posing risks to maternal and child health.[7]

Despite Vietnam's robust reproductive health initiatives, rural women often face barriers to FP information and services.[2] Phong Dien District, Can Tho City, exemplifies a transitional region with a mix of rural and urban characteristics, diverse populations, and varying socioeconomic and educational profiles. The absence of studies examining FP knowledge and its associated factors in this district represents a critical research gap, limiting the development of targeted interventions. Investigating FP knowledge in this setting is essential, as its rural-urban dynamics reflect challenges in many transitioning regions of Vietnam. Therefore, we conducted this study to describe the current state of knowledge of FP and its associated

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factors among women aged 18 – 49 in Phong Dien District, Can Tho City in 2025.

II. MATERIALS AND METHODS

1. Subjects

Married women aged 18 – 49 years old currently residing in Phong Dien District, Can Tho City. The study was conducted from November 2024 to November 2025, with data collection occurring from January to February 2025.

Inclusion criteria

Married women aged 18 – 49 years old residing in Phong Dien District, Can Tho City, who agreed to participate in the study.

Exclusion criteria

Women diagnosed with severe mental disorders (e.g., schizophrenia) or experiencing conditions that impair their ability to communicate or respond to interview questions, or those absent at the time of data collection.

2. Methods

Study design: A descriptive cross-sectional study.

Sample size: The sample size was determined using the formula for estimating a single proportion:

$$n = Z^2_{(1-\alpha/2)} \cdot \frac{p(1-p)}{d^2}$$

Where: p = 0.5 representing the proportion of women aged 18 – 49 with good KAP regarding FP, based on Jay Lincoln's 2021 study;[4] d = 0.07, the acceptable margin of error; α = 0.05; Z = 1.96. As the study employed a multistage sampling method, to account for potential random sampling errors, we applied a design effect (DE = 2). Thus, the minimum sample size was 392. The actual sample size collected was 405 participants.

Sampling method

A multistage sampling strategy was employed as follows:

Stage 1: Stratified random sampling was used to select 4 out of 7 communes/ townships in Phong Dien District. First, the seven administrative units were divided into two strata: stratum 1 included the township (Phong Dien Township), and stratum 2 included six communes (Giai Xuan, My Khanh, Nhon Ai, Nhon Nghia, Tan Thoi, Truong Long). Subsequently, 1/1 unit was randomly selected from stratum 1 and 3/6 units from stratum 2. The selected units were: Nhon Ai Commune, Nhon Nghia Commune, Phong Dien Township, and Giai Xuan Commune.

Stage 2: In each selected commune/ township, two hamlets or areas were randomly chosen using simple random sampling.

Stage 3: In each selected hamlet/area, participants were selected using a house-to-house sampling method based on inclusion and exclusion criteria until the required number (approximately 49 participants per hamlet/ area) was met. If the required number was not achieved, additional participants were recruited from neighboring hamlets/areas.

Study tool

A 12-items self-administered questionnaire was developed based on the study by Jay Lincoln et al. to assess knowledge of FP.[4] Each item offers three response options (correct, incorrect, or don't know). Correct answers are scored 2 points, don't know answers 1 point, and incorrect answers 0 points, with a maximum total score of 24. Knowledge levels are categorized as follows: 0 – 11 points indicate poor (low level) knowledge, 12 – 18 points indicate moderate (medium level) knowledge, and 19 – 24 points as good (high level) knowledge. The scale was translated from English to Vietnamese and evaluated for reliability following Beaton's process.[8] The internal

consistency reliability test, using Cronbach's Alpha, yielded a coefficient of 0.74, indicating good internal consistency and confirming the scale's suitability for research purposes. The demographic characteristics group includes age, religion, ethnicity, occupation, educational level, and economic status. The obstetrics and gynecology characteristics group includes the number of children, history of abortion, history of gynecological infections, current contraceptive use and method, and history of chronic diseases.

Data collection method

Data were collected through self-administered answers using a pre-designed questionnaire consisting of two parts: (1) the first part gathered demographic information and obstetrics and gynecology history characteristics; (2) the second part assessed knowledge of FP in Vietnamese version. Study population who met the inclusion criteria who consented to participate in the research were asked to fill a questionnaire survey to identify the level of knowledge towards FP.

Data processing method

Data were entered and analyzed using SPSS software version 22.0. Descriptive statistics: qualitative variables were described in terms of frequency or proportion, while quantitative variables were described using mean and standard deviation (for normally distributed data) or median, minimum, and maximum values (for non-normally distributed data). Analytical statistics: the Chi-square test (χ^2) was used to determine the association between the study participants' characteristics and their knowledge of FP. Statistical significance was set at $p \leq 0.05$.

3. Research ethics

The study was approved by the Ethics Committee in Biomedical Research of Can Tho University of Medicine and Pharmacy under approval number 24.154.SV/PCT-HDDD dated November 9, 2024, and was supported by the consent and cooperation of local healthcare facilities. Participants were fully informed about the study and participated on a completely voluntary basis. All personal data were encrypted and strictly confidential, used solely for research purposes.

III. RESULTS

1. Characteristics of the Study Population

Table 1. General and Obstetric and Gynecological Characteristics

Characteristics		Frequency (n = 405)	Percentage (%)
General characteristics			
Age	18 – 34 years	152	37.5
	35 – 49 years	253	62.5
	Mean ± SD	37.10 ± 7.74	
Religion	No religion	285	70.4
	With religion	120	29.6
Ethnicity	Kinh	396	97.8
	Others	9	2.2

Characteristics		Frequency (n = 405)	Percentage (%)
General characteristics			
Occupation	Housewife	174	43.0
	Others	231	57.0
Education	Secondary school	296	73.1
	< Secondary school	109	26.9
Economic status	≥ 5 million VND	285	70.4
	< 5 million VND	120	29.6
Obstetric and gynecological characteristics			
Number of children	0 – 1 child	152	37.5
	≥ 2 children	253	62.5
History of abortion	Yes	64	15.8
	No	341	84.2
History of gynecological infections	Yes	63	15.6
	No	342	84.4
Current or previous chronic disease	Yes	37	9.1
	No	368	90.9
Current or previous contraceptive use	Yes	288	71.1
	No	117	28.9

SD: Standard Deviation

The mean age of the participants was 37.10 ± 7.74 years old, with 62.5% fitting to the 35–49 age group. The majority of women (70.4%) reported no religious affiliation. The Kinh ethnic group predominated, representing 97.8%. Non-housewife occupations were reported by 57% of participants. Education levels of secondary school or higher were observed in 73.1% of the women. Additionally, 70.4% of households had a monthly income of 5 million VND or more. Women with two or more children comprised 62.5% of the sample. The majority (84.2%) had no history of abortion, and 84.4% had no history of gynecological infections. Similarly, 90.9% had no history of or were not currently diagnosed with chronic diseases. Furthermore, 71.1% of women reported current or previous use of contraceptive methods.

2. Knowledge of Family Planning Among Women Aged 18 – 49

Most women had good knowledge regarding contraceptive methods (89.4%), the role of health education (87.4%), and the effectiveness of condoms in preventing sexually transmitted infections (81.7%). However, knowledge about the effectiveness of oral contraceptives, management of side effects, and female sterilization was only moderate (53.6% – 66.9%). Notably, correct understanding of side effects and cancer risks associated with oral contraceptives was low (23.0% – 27.9%)

Table 2. Knowledge of Family Planning Among Women Aged 18 – 49

No.	Item	Correct answer n (%)	Incorrect answer n (%)	Don't know n (%)
1	Have heard of contraceptive methods	362 (89.4)	5 (1.2)	38 (9.4)
2	Effectiveness of oral contraceptives when missed for 2–3 consecutive days	180 (44.4)	88 (21.7)	137 (33.8)
3	Female sterilization as a contraceptive method	237 (58.5)	12 (3.0)	156 (38.5)
4	Health education plays a vital role for women who want to use contraception	354 (87.4)	5 (1.2)	46 (11.4)
5	Oral contraceptives not guaranteeing 100% effectiveness	271 (66.9)	36 (8.9)	98 (24.2)
6	Condoms preventing sexually transmitted infections	331 (81.7)	10 (2.5)	64 (15.8)
7	Mood changes and weight gain as common side effects of oral contraceptives	213 (52.6)	24 (5.9)	168 (41.5)
8	Use of estrogen-containing oral contraceptives increasing the risk of breast cancer	113 (27.9)	22 (5.4)	270 (66.7)
9	Women using the birth control shot must get an injection every 3 months.	145 (35.8)	8 (2.0)	252 (62.2)
10	Possibility of switching to another contraceptive method if side effects occur with oral contraceptives	217 (53.6)	7 (1.7)	181 (44.7)
11	High effectiveness of contraception when combining oral contraceptives and condoms	230 (56.8)	20 (4.9)	155 (38.3)
12	Oral contraceptives increasing the risk of ovarian, endometrial, or cervical cancer in women	93 (23.0)	27 (6.7)	285 (70.4)

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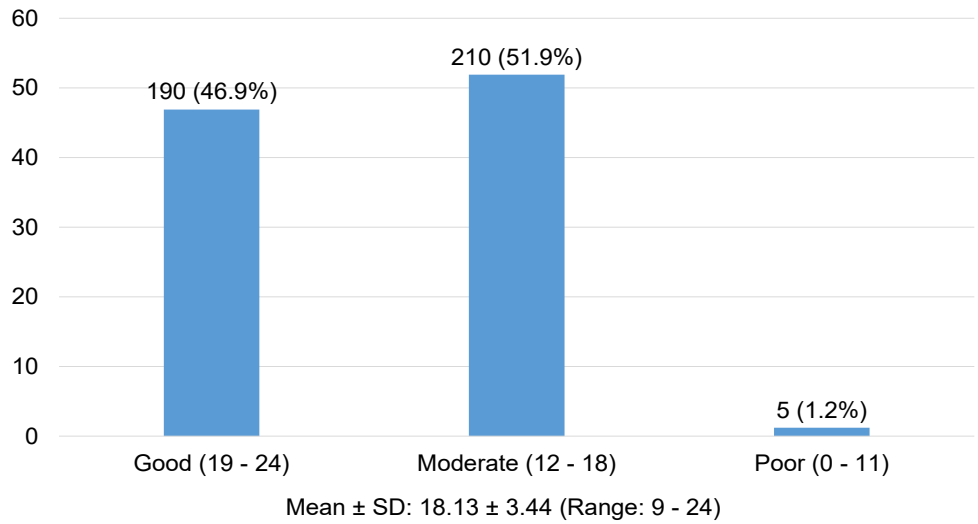

Chart 1. Levels of Family Planning Knowledge Among Women Aged 18 – 49

SD: Standard Deviation

Women with moderate knowledge of FP had the highest proportion at 51.9%, while those with poor knowledge had the lowest proportion at 1.2%.

3. Factors Associated with Knowledge of Family Planning Among Women Aged 18 – 49

Table 3. Association Between Knowledge and Demographic Characteristics of Women Aged 18 – 49

Factors		Knowledge of Family Planning			p
		Poor, n (%)	Moderate, n (%)	Good, n (%)	
Age	18-34 years	1 (0.7)	72 (47.4)	79 (52.0)	0.231
	35-49 years	4 (1.6)	138 (54.5)	111 (43.9)	
Religion	No religion	5 (1.8)	160 (56.1)	120 (42.1)	*0.006*
	With religion	0 (0)	50 (41.7)	70 (58.3)	
Ethnicity	Kinh	5 (1.3)	208 (52.5)	183 (46.2)	0.170
	Others	0 (0)	2 (22.2)	7 (77.8)	
Occupation	Housewife	4 (2.3)	98 (56.3)	72 (41.4)	0.051
	Others	1 (0.4)	112 (48.5)	118 (51.1)	
Education	≥ Secondary school	0 (0)	148 (50.0)	148 (50.0)	*< 0.001*
	< Secondary school	5 (4.6)	62 (56.9)	42 (38.5)	
Economic status	≥ 5 million VND	0 (0)	133 (46.7)	152 (53.3)	*< 0.001*
	< 5 million VND	5 (4.2)	77 (64.2)	38 (31.7)	

The results showed that women who were religious, had at least a lower secondary education, and had a monthly income of 5 million VND or more were more likely to have good knowledge of FP. These associations were statistically significant ($p < 0.05$ and $p < 0.001$). In contrast, no statistically significant association was found between knowledge and age, ethnicity, or occupation.

Table 4. Association Between Knowledge and Obstetric and Gynecological Characteristics of Women Aged 18 – 49

Factors		Knowledge of Family Planning			p*
		Poor n (%)	Moderate n (%)	Good n (%)	
Number of children	0 – 1 child	2 (1.3)	76 (50.0)	74 (48.7)	0.864
	≥ 2 children	3 (1.2)	134 (53.0)	116 (45.8)	
History of abortion	Yes	2 (3.1)	34 (53.1)	28 (43.8)	0.255
	No	3 (0.9)	176 (51.6)	162 (47.5)	
History of gynecological infections	Yes	2 (3.2)	35 (55.6)	26 (41.3)	0.169
	No	3 (0.9)	175 (51.2)	164 (48.0)	
Current or previous chronic disease	Yes	1 (2.7)	22 (59.5)	14 (37.8)	0.213
	No	4 (1.1)	188 (51.1)	176 (47.8)	
Current or previous contraceptive use	Yes	3 (1.0)	152 (52.8)	133 (46.2)	0.689
	No	2 (1.7)	58 (49.6)	57 (48.7)	

(*): Fisher's exact test

There was no statistically significant association between knowledge and current number of children, history of abortion, history of gynecological infections, chronic diseases, or current use of contraceptive methods ($p > 0.05$).

IV. DISCUSSION

The mean age of the study population was 37.10 ± 7.74 years old, with the 35 – 49 age group comprising the highest proportion at 62.5%. This group, being of reproductive age, requires comprehensive knowledge of FP and contraceptive methods. This finding is higher than reported in Jay Lincoln's study (2021) in Suva, Fiji, which noted 34.8%, suggesting differences possibly attributable to the study context, timing of the survey, and characteristics of the target population.[4] Regarding religion, the majority of women in our study reported having no religious affiliation (70.4%), which contrasts with Lincoln's study, in which 100% of participants were religiously affiliated.[4] Additionally, 73.1% of women had completed at least lower secondary education, and 70.4% had a monthly income of 5 million VND or more. Moreover, 71.1% of women had current or previous use of contraceptive methods, indicating a relatively high level of access to and acceptance of FP measures in the local

setting. This finding is considerably higher than that reported by Beletu Kinfe (2024) in Kenya (43.1%), suggesting that differences may stem from demographic characteristics, educational attainment, access to healthcare services, and national FP policies.[9]

Our study found that the majority of women had a moderate level of knowledge (51.9%), followed by those with good knowledge (46.9%), while only 1.2% had poor knowledge. These results are consistent with the findings of Jay Lincoln et al. (2021) in Suva, Fiji, who reported that approximately half of the participants (45.6%) had a high level of knowledge, 53.5% had a moderate level, and only 0.9% had poor knowledge.[4] Similarly, the study by Fawad Latif et al. (2024) in Peshawar, Pakistan showed that 66% of participants had good knowledge, 33% had moderate knowledge, and 1% had poor knowledge.[10] However, the findings contrast with those of Margret Beaula Alocious Sukumar et al. (2021) in Rural Vellore, Tamil Nadu, in which only 9% of participants demonstrated good knowledge, while 91% had poor knowledge of contraceptive methods. This highlights a significant disparity in awareness levels between the two study populations,which could be attributed to differences in educational attainment, access to health information, and the effectiveness of local health communication and education programs.[6]

The analysis revealed a statistically significant difference between religion and knowledge of FP ($p = 0.006$). Women who identified with a religion had a significantly higher rate of good knowledge regarding FP (58.3%) compared to those with no religious affiliation (42.1%). According to the Social Ecological Model (SEM), religious organizations are considered part of the community level and can influence health behaviors by facilitating behavior change and serving as a trusted source of health information.[11] Therefore, religion may play a supportive role in enhancing women's awareness of FP through community engagement, health communication, and access to reliable information from religious institutions. These findings are consistent with the study by Abibata Barro et al. (2021) in Dori, Burkina Faso, which found that individuals with religious affiliations tend to have better knowledge of FP, possibly due to exposure to information through religious channels or participation in community education activities supported by religious organizations. However, factors such as religious doctrines, personal beliefs, and cultural norms may influence how reproductive health information is accessed and received, potentially limiting or shaping women's understanding of FP methods.[12]

Educational attainment also showed a clear impact on knowledge of FP. Among women with at least lower secondary education, 50% had good knowledge, compared to only 38.5% among those with less than lower secondary education. This finding underscores the critical role of education in enhancing access to information and the effective application of contraceptive methods. These results are consistent with the study by Margret Beaula Alocious Sukumar (2021) in Rural Vellore, Tamil Nadu, which found that individuals with eight or fewer years of education were four times more likely to have poor knowledge ($p = 0.022$).[6] Similarly, Singh Yadav R (2023) in Rural Jaipur, Rajasthan reported a significant association between knowledge of contraceptive methods and educational level, with higher education correlating with greater knowledge ($p < 0.001$).[13] Income was also found to be a significant factor. Women with a monthly income of 5 million VND or more had a good knowledge rate of 53.3%,

while those earning less than 5 million VND had a significantly lower rate at 31.7% ($p < 0.001$). These findings align with the study by Delayehu Bekele et al. (2020) in Emerging Regions of Ethiopia, which highlighted that women with higher income levels had better access to information from various sources such as the Internet, radio, and television, thereby increasing their awareness of FP methods.[14] The disparities observed in educational and income groups can be further explained using the SEM model, which emphasizes that individual-level factors such as education, income, and living environment directly influence one's ability to access and absorb health information.[11] Moreover, according to the Health Belief Model (HBM), individuals with higher education and better economic status are more likely to perceive the benefits and importance of FP, making them more proactive in seeking and processing relevant information.[15]

Notably, our study identified significant knowledge gaps regarding the side effects and cancer-related risks of contraceptive use, with only 23.0 - 27.9% of women providing correct responses. These gaps were more pronounced among women with lower education and income. Consistent with our findings, Salem et al. (2024) in Saudi Arabia reported that only 13.6% of women demonstrated excellent knowledge of oral contraceptives, highlighting the global relevance of this issue. Targeted health communication is therefore essential.[16] Local health centers in Phong Dien District could organize community workshops and counseling sessions using clear, accessible language to explain contraceptive safety and side effects. Collaborations with religious and community leaders may further enhance outreach to less-educated and lower-income women, while tailored mass media campaigns could help correct misconceptions and improve awareness. Moreover, a systematic review by Jahanfar S et al. (2024) confirmed that hormonal contraceptive use reduces the risks of ovarian and endometrial cancers, while slightly increasing the risk of cervical cancer with long-term oral use.[17] Communicating such evidence-based information may help correct misconceptions and support informed decision-making. The absence of significant associations between FP knowledge and obstetric or gynecological history, such as abortion ($p = 0.255$) or infection ($p = 0.169$), was unexpected. One explanation may be the relatively low prevalence of these conditions in the study population (15.8% with abortion history, 15.6% with infection history), which reduced the power to detect associations. Future studies with larger and more diverse samples are needed to explore these potential relationships more comprehensively.

This highlights that income is a crucial determinant of access to and comprehension of FP information, as women with better financial means are often able to reach more reliable and diverse information sources. This study's cross-sectional design limits the ability to infer causality between factors such as income, education, religion, and FP knowledge. Although a robust multistage sampling approach across four communes/townships was used to ensure local representativeness, the focus on Phong Dien District restricts generalizability to other regions of Vietnam with different socioeconomic or cultural contexts. The sample size of 405 participants, while sufficient for the district, may not fully represent broader populations. The use of self-administered questionnaires may also have introduced recall or social desirability bias. Finally, the lack of observed associations between obstetric or gynecological

characteristics and FP knowledge may reflect limited variability within the sample, warranting further investigation.

V. CONCLUSION

The majority of women aged 18 – 49 years old in Phong Dien District demonstrated moderate to good FP knowledge (51.9% and 46.9%, respectively), with significant associations observed with education, income, and religion, but not with obstetric or gynecological characteristics. Persistent knowledge gaps regarding contraceptive side effects and cancer risks, particularly among less-educated and lower-income women, underscore the need for targeted interventions. Health communication programs should prioritize community workshops, personalized counseling, and tailored media campaigns to address these gaps and strengthen FP practices.

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