Association of knowledge and use of contraception to unplanned pregnancies of Filipino females aged 19-45 in an analytical cross-sectional study

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Abstract

Introduction Studies had shown that many women of childbearing age did not have sufficient knowledge of contraceptive methods and use; more so, there was paucity of epidemiological data that assessed reproductive health issues in the Philippine setting.

Methods This cross-sectional study determined the relationship of the level of knowledge and use of contraceptives of sexually active Filipino females aged 19 to 45 years with unplanned pregnancy. The prevalence odds ratio (POR) quantified the association between the level of knowledge and use of contraceptives with unplanned pregnancy, while the Fisher's exact test determined the p-value and the 95% confidence interval of the POR.

Results Among the respondents, the prevalence of unplanned pregnancies was 5.7%. The CKA established that only 37.8% of the total respondents had adequate knowledge, and in the past 12 months, only 28.57% used contraceptives. Among those with unintentional pregnancies, there was a negative association between those with an adequate level of knowledge (POR = 0.22; 95% CI: 0.0048-1.8) and surprisingly, the odds that they used contraceptives were three times higher (POR = 2.67; 95% CI: 0.47-15.0). In this study, both relationships were not statistically significant (p = 0.259 and p = 0.225, respectively).

Conclusion In line with previous epidemiologic studies, women with unintended pregnancies had inadequate level of knowledge of contraceptive use, which might consequently lead to improper use of natural and artificial means of contraception. In addition, women who had unplanned pregnancies had higher odds of using one or several means of contraception, but it could be assumed that there might have been inconsistent condom use or poor compliance with oral contraceptive pills.

Key words: contraceptive use, unplanned pregnancy, reproductive health

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Unplanned pregnancy is one of the issues that the Philippines has been facing for a long time. According to the United Nations Population Fund (UNFPA), the Philippines ranks 56th among 150 countries for the number of unintended pregnancies at 71 per 1,000 women annually.[1] Given the prevalence of unintentional pregnancy in this country, there are different problems that plague both the mothers and their children. According to the World Health

Organization (WHO), unplanned pregnancies may lead to a wide range of health risks for the mother and child, such as malnutrition, non-communicable disease, infections, abuse, neglect, and even death. Furthermore, it can also lead to cycles of high fertility, as well as lower educational and employment potential and worsening poverty which are challenges that can span through generations.[2] Unintended pregnancy can also contribute to an increased risk of maternal depression and parenting stress.[3] One of the ways to address unplanned pregnancy, from a public health perspective, would be through contraceptive use and proper family planning services.[4] Despite this, studies show that the knowledge of women of reproductive age on contraceptive methods remains inadequate, while the utilization of available reproductive health services continues to be problematic.

In several cross-sectional surveys done abroad of the reproductive contraceptive pills it was concluded that their knowledge regarding oral contraceptive pills (OCP) methods was insufficient.[5,6,7]

However, there is paucity of local research investigations that assess these reproductive health concerns in the Philippines setting. Thus, this study determined the association between the level of knowledge and use of the different methods of contraception with unplanned pregnancies of sexually active Filipino females aged 19-45 years old living in an urban barangay.

Methods

An analytical cross-sectional study was done that determined the relationship between (1) level of knowledge and (2) use of the different methods of contraception, and unplanned pregnancy. This study was duly approved by the Ethics Research Committee of the UERMMMCI Research Institute for Health Sciences.

Female study subjects were recruited via purposive sampling, and inclusion criteria were as follows: (1) aged 19-45 years; (2) resident of the barangay for at least one year; and (3) sexually active --- i.e., previously active or currently engaging in sexual activities with (a) male partner/s. Excluded were women with primary amenorrhea, with history of gynecologic malignancy, had undergone hysterectomy, who identify as lesbian / transgender, and with established psychiatric / neurocognitive condition that might prevent them from answering the self-administered questionnaires which were written in Filipino. The calculated minimum sample size was 126.

A self-administered questionnaire, the Contraceptive Knowledge Assessment (CKA), gauged the knowledge of the study participants regarding reproductive health and contraception, using an 11-item multiple choice questionnaire (MCQ)[8]. The CKA consisted of a myriad of topics in contraception, such as reproductive physiology, common misconceptions about contraception, and the proper usage and placement of different methods of contraception. This was then translated to Filipino by the *Komisyon ng Wikang Filipino* (KWF) and modified to fit the local setting; thus, the question regarding the vaginal ring (NuvaRing) and morning-after pills were deleted, since were generally not readily available in the Philippines.

The reproductive health questionnaire, a self-made dichotomous questionnaire with 14 items was used to collect information on use of any method of contraception within the past twelve (12) months, and whether or not they were natural or artificial methods. The reproductive health questionnaire was reviewed by a gynecologist / reproductive health and fertility expert for its theoretical content and face validity.

The natural methods of contraception included the calendar method, body temperature method, withdrawal method, cervical mucus test, and breastfeeding after giving birth. On the other hand, artificial methods of contraception included the use of condoms (by the male partner), intake of oral contraceptive pills, having an intrauterine device (IUD), undergoing bilateral tubal ligation, using the Yuzpe method, administering an injectable contraceptive, having a hormonal subdermal implant, and having a partner who underwent vasectomy.[9]

Pilot testing of the questionnaires was conducted on ten (10) volunteers. Cronbach alpha of the questionnaire to test for its internal consistency was computed to be 0.85, suggesting good reliability of the questionnaire. All statistical tests were performed in R version 4.2.1, under a 5% level of significance.

Results

A total of 140 female volunteers participated in the study, with a mean age of 32.8 years (SD = 7.2), were married or with a partner (n = 92; 65.7%). In addition, majority had at least high school education. Only 15 (10.7%) respondents had been pregnant already, and 8 (5.7%) of them were unplanned pregnancies, but the majority (89.3%) had never been gravid all their lives (Table 1).

Table 1. Descriptive statistics on the sociodemographic background of the study participants (n = 140).

Demographics	n (%)
Age:	
40 to 45 years	34 (24.3)
33 to 39 years	36 (25.7)
26 to 32 years	44 (31.4)
19 to 25 years	26 (18.6)
Civil Status:	
Separated / Annulled	3 (2.1)
Married	45 (32.1)
With Male Live-in Partner	47 (33.6)
Single	45 (32.1)
Educational Attainment:	
Post-Graduate Level	1 (0.7)
College Graduate / Level	55 (39.3)
High School Graduate / Level	64 (45.7)
Elementary Graduate / Level	8 (5.7)
Vocational Course	12 (8.6)
Pregnancy Status:	
Had planned pregnancy/ies	7 (5.0)
Had unplanned pregnancy/ies	8 (5.7)
Never pregnant	125 (89.3)

Only 53 (37.8%) respondents had knowledge adequacy, while 87 (62.2%) respondents had knowledge inadequacy (Table 2).

The item that most respondents were familiar with was the proper placement of birth control subdermal implants (i.e., Implanon), followed by intrauterine device (IUD) as the best birth control that could be reversed, if one wanted to become pregnant. Moreover, the majority of the respondents were also familiar with oral contraceptive pills (OCPs) being a type of hormonal birth control that was available in the Philippines, and that two pills can be taken at once when intake of the birth control pill was inadvertently forgotten and was consequently remembered only the following day (Table 3).

Table 2. Proportion of respondents on their level of knowledge on contraceptives.

Level of Knowledge	n	%
Adequate (i.e., CKA score > 6)	53	37.8
Inadequate (i.e., CKA score < 5)	87	62.2

Table 3. Results on contraceptive knowledge assessment (CKA).

	Correct Answers n (%)	Incorrect Answers n (%)
1. woman's fertile period	43 (30.7)	97 (69.3)
2. sperm's lifespan inside woman's body	43 (30.7)	97 (69.3)
3. withdrawal or the "pull-out" method	46 (32.9)	94 (67.1)
4. forms of hormonal birth control available in the Philippines	72 (51.4)	68 (48.6)
5. benefits of hormonal birth control	38 (27.1)	102 (72.9)
6. primary effect of birth control	62 (44.3)	78 (55.7)
7. ingredients of birth control pills	58 (41.4)	82 (58.6)
8. best action if a birth control pill is forgotten and remembered the next day	71 (50.7)	69 (49.3)
9. best birth control methods that may be reversed if pregnant is wanted	79 (56.4)	61 (43.6)
10. proper placement of intrauterine device (IUD)	28 (20.0)	112 (80.0)
11. proper placement of birth control subdermal implant (i.e., Implanon)	108 (77.1)	32 (22.9)
Total Score (Mean ± SD)	4.60 ± 2.57	

The respondents were least familiar with the uterus as the proper placement of the intrauterine device (IUD), with only 20.0% correct responses. This was followed by the benefits of birth control (e.g., fewer pimples, lowers risk of heavy menstrual bleeding, iron deficiency, ovarian and uterine cancer) with only 27.1% respondents who answered correctly. Other items that the minority answered correctly included woman's fertile period, sperm's lifespan inside the woman's body, knowledge regarding withdrawal or the "pull-out" method, primary effect of birth control, and the ingredients of birth control pills. Overall, the respondents obtained a mean score of 4.60 (SD = 2.57), which meant that most respondents had inadequate knowledge of the different methods of contraception.

Table 4 shows that out of 140 respondents, 40 (28.57%) reported that they were using contraception in the past 12 months. It also showed that from 40 respondents who alleged that they were practicing contraception, 24 (60%) of them were advocating for natural methods, and 35 (87.5%) were employing artificial methods. A total of 19 (47.5%) respondents were using both (i.e., natural and artificial contraceptives), while 5 (12.5%) of them were engaging in natural methods only, and 16 (40%) of them utilized artificial methods only.

Among those with unplanned pregnancies, there was a negative association between those with adequate level of knowledge (POR = 0.22; 95% CI: 0.0048-1.8), but surprisingly a positive relationship with actual contraceptive use. The odds that they used contraceptives were three times higher (POR = 2.67; 95% CI: 0.47-15.0) in women with no intention of being impregnated. However, both relationships were not statistically significant (p = 0.259 and p = 0.225, respectively) (Table 5)

Table 4. Use of contraceptive methods results.

	Yes n (%)	No n (%)
From 140 respondents, those that used any method of contraception in the past 12 months	40 (28.57)	100 (71.43)
From 40 contraception users, use of natural methods	Yes n (%)	No n (%)
1. calendar method	7 (17.5)	33 (82.5)
2. body temperature methods	1 (2.5)	39 (97.5)
3. withdrawal method	17 (42.5)	23 (57.5)
4. cervical mucus test	4 (10.0)	36 (90.0)
5. breastfeeding / lactation amenorrhea	12 (32.5)	28 (67.5)
Total Natural Methods Users	24 (60)	
From 40 contraception users, use of artificial methods	Yes n (%)	No n (%)
1. male condom	12 (30.0)	28 (70)
2. oral contraceptive pills	21 (52.5)	19 (47.5)
3. intrauterine device (IUD)	4 (10.0)	36 (90.0)
4. bilateral tubal ligation (BTL)	0 (0)	40 (100)
5. Yuzpe method	1 (2.5)	39 (97.5)
6. injectable	7 (17.5)	33 (82.5)
7. hormonal subdermal implant	3 (7.5)	37 (92.5)
8. vasectomy	1 (2.5)	39 (97.5)
Total Artificial Methods Users	35 (87.5)	

Table 5. Prevalence odds ratio for level of knowledge and actual contraceptive use versus unplanned pregnancies.

	With Unplanned Pregnancy	Without Unplanned Pregnancy	Total	POR (95% CI)	p-value
Knowledge on Contraception					
• adequate	1	52	53		
• inadequate	7	80	87	0.22 (0.0048-1.8)	0.259
	8	132	140		
Actual Use or Practice of Contraceptive Methods					
• used contraception	4	36	40		
• did not use contraception	4	96	100	2.67 (0.47-15.0)	0.225
	8	132	140		

Discussion

Proportion of Unplanned Pregnancy

The percentage of unplanned pregnancy in this current study was lower than that found in another study conducted in Gambia (West Africa).[10] The higher rates of unplanned pregnancy (25.3%) in that study, however, could be attributed to a bigger sample size, with a wider age range of females included in the study (i.e., 19 to 45 years). A similar epidemiologic investigation in Ethiopia likewise found a higher rate of unintentional pregnancy at 36.5%.[11] In these epidemiologic investigations, the observed rates were due to two reasons: (1) the respondents were unaware that they were fertile or (2) their contraceptive methods did not work. Though the latter study still had a bigger sample size, the findings were consistent with the results that inadequate knowledge of contraceptive methods contributed to higher rates of unplanned pregnancies.

Knowledge of Contraceptive Use

The CKA included questions on general knowledge of reproductive physiology, contraceptive methods, their benefits, effects, proper usage and placement. Majority of the respondents were familiar with the proper placement of birth control subdermal implants, IUD as a type of reversible contraception, pills as a type of hormonal birth control, and the best action to take after failing to take one birth control pill.

On the other hand, majority of the respondents were not familiar with the uterus as the proper placement for IUDs, a woman's fertile period, sperm's lifespan inside woman's body, knowledge regarding withdrawal or the "pull-out" method, benefits of birth control (e.g., fewer pimples, lower risk of heavy menstrual bleeding, iron deficiency, ovarian or uterine cancer), primary effect of birth control, and the ingredients of birth control pills.

The majority of the respondents had poor knowledge regarding contraceptive methods, which was consistent with previous literature documenting poor understanding of contraception among women of reproductive age in Gambia, Ethiopia, Vietnam, and the Kingdom of Saudi Arabia.[10-13]

Public health experts consider knowledge about contraceptive methods, as well as access to them, as a basic requirement for effective contraceptive use. Knowledge, on its own, may not be sufficient to ensure consistent use of contraception; it is a necessary component but it may not always be enough to prevent unintended pregnancy. On a different light, it will be irrational to expect cautious use of contraceptives without the basic knowledge and access to these, but this also does not assure that adequate level knowledge will translate to good contraceptive use.[14] Based on a local study, Filipino women have a positive attitude toward hormonal contraceptives, both for gynecologic and contraceptive purposes even with their limited knowledge.[15]

Association of Knowledge on Contraceptive Use and Unplanned Pregnancy

There was a negative association between adequate level of knowledge and unplanned pregnancy; nonetheless, it was not statistically significant ($p = 0.259$). This was in line with previous studies wherein inadequate knowledge of contraceptives was a significant factor for unplanned pregnancies.[11,16-17] Previous studies also explained that women with less knowledge regarding modern contraceptives were less likely to know about the available and accessible contraceptive methods thus they had lower chances of utilizing the different contraceptive methods correctly and consistently and it could also lead to method discontinuation which could increase the chances of unintended pregnancy.[11,18-19] Additionally, it was documented in a local study conducted that better knowledge of contraceptives was associated with increased usage of long-acting reversible contraceptives (LARCs), such as IUDs and implants, and had extremely low failure rates which could prevent unplanned pregnancy.[20]

Use of Contraceptive Methods

Only less than a third of the participants claimed using contraception in the previous twelve (12) months. There are more respondents (87.5%) who employed artificial methods, particularly regular intake of OCPs (52.5%) than users of natural techniques (60%). Comparable findings from a local study showed that OCPs and natural methods (e.g., withdrawal and the calendar / rhythm approach were also the two most popular means of contraception.[20] According to the 2020 Annual Report of the Responsible Parenthood and Reproductive Health Act, at least

8.1 million Filipinos had used some form of modern family planning method, which was an increase of 6% or 460,000 users from the 7.64 million reported in 2019.[21] A recent study among young Filipinos aged 15–24 years, there were few current users of contraceptive methods.[22] This low contraceptive use among young Filipinos could potentially increase the risk of unintended pregnancies, unsafe abortions, and maternal deaths. Hence, it is imperative to raise awareness of the benefits of utilizing contraception and to provide access to affordable and reliable methods.

Modern reproductive health services and resources (i.e., especially OCPs) are the most often used type of contraception because they are perceived to be more dependable, convenient, and have a lower failure rate than traditional (artificial) methods. Furthermore, modern contraception methods provide people more control over their reproductive health and allow heterosexual couples to plan their families around their preferences and needs.[23]

Association Between Use of Contraceptive Methods and Unplanned Pregnancy

Among the contraceptive users, only 10% had unplanned pregnancy. Although the use of contraceptives could theoretically prevent unintended pregnancies, the results of this study could be explained by the improper use of the different contraceptive methods, such as wrong or inconsistent condom use or poor compliance with OCPs.[23,24] Some epidemiologic investigations showed that reasons for inconsistent condom use included unavailability of condoms, dislike of condoms, the perception that it reduced sexual pleasure, and the perception that the risk for sexually transmitted diseases was low.[25-26] Furthermore, women relied on traditional or less effective contraceptive methods than modern or more effective contraceptives due to fears of modern contraceptive side effects.[26]

Conclusion

The prevalence of unplanned pregnancies in this study was found to be low (5.7%) in the last twelve (12) months. Only 37.8% showed adequate knowledge of contraceptive methods, and only 28.57% actually used contraceptives, whether natural or artificial. Additionally, this study also revealed that among women with unplanned pregnancies, there was a negative association between those with adequate level of knowledge (POR = 0.22; 95% CI: 0.0048-1.8) and the odds that they used contraceptives were three times higher (POR = 2.67; 95% CI: 0.47-15.0). However, both relationships were not statistically significant in this study.

Limitations and Recommendations

This study did not evaluate the proper usage of the different contraceptive methods of the target population. Future studies can assess whether their accessible population will practice the proper usage of the different contraceptives and even try to correlate it with their knowledge of contraceptives.

The study did not compare the effectiveness between artificial and natural contraceptive methods in preventing unplanned pregnancies. Subsequent research initiatives may be directed towards investigating this aspect, aiming to ascertain and contrast the efficacy of artificial and natural contraceptive approaches in mitigating the occurrence of unintended pregnancies. Such endeavors will contribute significantly to understanding the relative effectiveness and implications of employing different contraceptive modalities in averting unplanned pregnancies among the studied population.

Moreover, the study's reliance on self-reported data could have introduced recall bias, as participants might not have accurately remember details regarding their contraception usage or pregnancy history. The questionnaires could still be refined by simplifying medical jargon.

Our recommendation was to increase the contraceptive knowledge and use among women of reproductive age, especially those who are at risk of unplanned pregnancies, by providing them with accurate and comprehensive information about the benefits, risks, and effectiveness of different contraceptive methods, both natural and artificial techniques by implementation of health education initiatives, such as community-based fora, seminars, peer-led learning, or counseling services, facilitated by healthcare experts. It is strongly recommended that local authorities, healthcare facilities, and non-governmental organizations collaborate to enhance community access to a broader range of reproductive health services and resources.

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