# Effect of Pre-Marital Care Educational Program on Knowledge and Attitude of Female University Students

Hala A. Ali[1], Amany M. Ahmed[2], Heba K. Ghazy[3]

[1]Assistant professor of Women's health and Midwifery, Faculty of Nursing, Kafrelsheikh University, Egypt.
e-mail: dr.halafttah@yahoo.com
[2]Lecturer of Woman's Health and Midwifery, Faculty of Nursing, Kafrelsheikh University, Egypt.
e-mail: monymosad@yahoo.com
[3]Lecturer of Community Health Nursing, Faculty of Nursing, Kafrelsheikh University, Egypt.
e-mail: hebaghazy_84@yahoo.com

## ABSTRACT

**Context**: Health and well-being before marriage help to maintain the health of future children. Therefore, healthcare should begin before marriage through premarital care as it can recognize and modify health risk factors well-known to have adverse effects on pregnancy outcomes.

**Aim:** The current research carried out to examine the effect of pre-marital care educational program on the knowledge and attitude of female university students.

**Methods:** A quasi-experimental design (Pre-test/Post-test) was adopted to achieve the stated aim. A stratified sample of one thousand female students was recruited. The research was conducted at the Nursing and Commerce Faculties at Kafrelsheikh University, Egypt. Two tools constructed by the researchers: self-administered questionnaire and Pre-marital care attitude assessment scale.

**Results:** The research findings revealed that 32.30% of nursing students have a high level of knowledge pre-program compared to 54.00% post-program, while 21.00% of commerce students have a high level of knowledge pre-program compared to 41.00% post-program. Moreover, there was a statistically significant difference between mean knowledge score pre and post-program (p< 0.001). Concerning students' attitudes, it was observed that positive attitude expanded from 54.700% to 66.00 % among nursing students and from 49.00% to 57.500% among commerce students.  As well, there was a statistically significant difference between pre-program and post-program attitude levels (p< 0.001).

**Conclusion:**  the research hypotheses were accepted as the knowledge and attitude of students were improved after receiving the program suggesting its effectiveness. The study recommended that university students should be equipped with adequate in-depth health information related to pre-marital care to expand the general population mindfulness and impact their attitude toward pre-marital care.

**Keywords:**  Knowledge, attitude, pre-marital care, female university students, educational program

### 1. Introduction

A healthy child and a healthy mother are valued hopes and dreams of families and cultural heritages across the world *(Moodi, Miri, & Sharifirad, 2013; Farahat, Shaheen, Mohamed, & Mohaseb, 2014)*.  Facts showed that couples with good health and well-being before marriage help to maintain the health of their future children. Therefore, complete healthcare should begin for them before marriage *(Farahat et al., 2014)*. Premarital healthcare can be achieved through Premarital care (PMC) as it can recognize and modify medical, behavioral, and other health risk factors well-known to have adverse effect on pregnancy outcomes through prevention and management *(Abd Al Azeem, Elsayed, Elsherbiny, & Ahmed, 2011; Farahat et al., 2014).*

PMC is a worldwide activity aiming to detect and treat unrecognized disorders, as well as to reduce transmission of diseases between couples. It is the promotion of the health and well-being of the woman and her partner before conception. Therefore, it is considered the primary preventive approach for couples planning for pregnancy *(Alghamdi, Alqadheb, Alzahrani, Aldhahri, & Alsharif, 2016; Fawzy, Abd-Allah, & Ibrahim, 2018).*

Components of the premarital care package, according to the Egyptian Ministry of Health and Population, are premarital counseling, premarital history taking and examination, premarital investigations, and premarital immunization *(Ministry of Health and Population, 2005)*. Premarital examination (PME) and history taking provide a baseline assessment of future married couples. It has proved to be a helpful and effective measure for early detection and therefore decreases the burden of reproductive problems, communicable diseases, and heredity illness *(Ibrahim et al., 2013)*.

Premarital immunization is a vital part of PMC to protect healthy women and to avoid difficulty and complications to their pregnancy. Because sexual contact is a significant route of transmission for hepatitis B virus, syphilis, gonorrhea, and acquired immunodeficiency virus, the prospective spouse should be protected by early immunization and counseling in case of the presence of a

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[2]*Corresponding author: Amany Mosad Ahmed*

carrier status during premarital testing (*Tosun, Yücetürk, Dönmez, & Gündüz, 2012).*

Premarital investigation (PMI) has a significant role in reducing morbidities caused by inherited and infectious diseases through early detection of unrecognized disorders and reduce the spread of such disorders to couples and children. Premarital counseling is one of the tools that make knowledge and skills available to individuals and therefore become motivated to make better and healthy lifestyle choices, especially when correctly targeted. It is also the most appropriate process, as it is generally acceptable from the religious and ethical point of view. Nowadays, premarital care became compulsory by law in many Arabian countries, including *Egypt (Al-Farsi et al., 2014; Fawzy et al., 2018).*

## 2. Significance of the Study

PMC is directed mainly at unmarried young adults as their beliefs and attitudes will affect their choices in life, including their choice of a partner *(Bozkurt, 2007; Abou Elyazid, Abd Elmonem, Hamad, & Abd Elghani, 2014).* Because the majority of marriages take place after graduation from university, university students are an ideal target group to assess their knowledge and attitudes towards PMC *(Gharaibeh & Mater, 2009).*

In this context, *Kabbash, Attalla, & Atlam (2019)* carried out a cross-sectional study at Tanta Faculty of Medicine to identify the knowledge and attitude of medical students towards PMC. They reported that 27.6% of participants did not have enough information about PMC, and only 18.8% expressed awareness of premarital investigations. Regarding sources of information, 31.8% and 30.0% of participants reported mass media and the internet as the primary sources of information, respectively. Therefore, the current research was carried out to shed light on the effect of an educational program on pre-marital care on the knowledge and attitude of university students in Kafrelshiekh city.

## 3. Aim of the study

This research aimed to examine the effect of pre-marital care educational program on knowledge and attitude of female university students

## 3.1. Research hypotheses

H.1. University students who receive pre-marital care educational program will have a higher mean knowledge score post-program than pre-program;
H.2. University students who receive pre-marital care educational program will have a positive attitude post-program than pre-program.

## 4.Subjects & Methods

### 4.1. Research design

A quasi-experimental (Pre-test/post-test) design was adopted in this research. It is a research design that involves the manipulation of independent variables similar to experimental research; however, there is no control group or

random selection. Pre-test/Post-test design is a type of Quasi-experimental research design in which the dependent variable is measured once before and once after the treatment is implemented *(Rajesh, 2016).*

### 4.2. Research Setting

The research was conducted at one medical faculty (Faculty of Nursing) and one non-medical faculty (Faculty of Commerce) at Kafrelsheikh University, Egypt.

### 4.3. Subjects

A Stratified random sample of 1000 female University students was recruited according to the following inclusion criteria: age ranged between 18-23 years old while married students were excluded.

The sample size was calculated using the following formula:
$n = [2[Z\alpha/2 + Z\beta]2 \times p [1-p]]/[\text{difference of proportions}] 2 = 997.1.$

The cumulative number of female students in the Faculty of Nursing, Kafrelsheikh University, was 1357 from which 400 students were selected. While at the Faculty of Commerce, Kafrelsheikh University, the cumulative number of female students was 2500, from which 600 students were selected.

### 4.4. Tools of the study

The researcher constructed two tools after reviewing related literature. They were self-administered questionnaire and Pre-marital care attitude assessment scale.

### 4.4.1 A structured Self-administered Questionnaire

It included two main sections:
- Personal background data: This section included data related to the university student's age, faculty, place of residence, and mother's education.
- Pre-post-test: It consisted of four questions about the definition, significance, components of a pre-marital care package, and suitable time for pre-marital care.

*Scoring system*

A score of 2 was given to the correct and complete answer. A score 1 for the correct but incomplete answer, and a score of 0 for the wrong or when the student answered: "she does not know." The total knowledge scores were classified into three levels: Poor knowledge (< 50%), acceptable (50% to <75%), and high (≥75%).

### 4.4.2. Pre-marital Care Attitude Assessment Scale

A three-point Likert-scale ranging from agree to neutral and disagree created by the researcher to assess the students' attitude towards pre-marital care. It consisted of fourteen statements to which the students were requested to react to one of the decisions.

*Scoring system*

A score of 3 was given to agree; a score of 2 for neutral; and a score of 1 for disagree. Each statement scored, and the aggregate attitude score classified into three levels: negative attitude (<35%), neutral attitude (35%-<60%), and positive attitude (≥ 60%).

### 4.5. Procedures

Tools were submitted to five scholastic nursing specialists in the field of Maternity Nursing and Community Health Nursing to test content validity. Modifications were carried out according to the recommendations of the specialists. Tools validate for clarity, appropriateness, and completeness of the content. The reliability of the proposed tools was tested utilizing Cronbach's alpha. For the Pre-post-test, Cronbach's alpha of 0.82 showed a strong significant positive correlation between the items of the tool. While for the attitude assessment scale, it was 0.85, which indicates accepted tools reliability

Official permission was taken from Kafrelsheikh University administration as well as from the selected faculties. After that, each female student informed about the purpose of the research and its importance. The researchers emphasized that participation in the research is entirely voluntary, and all students informed that they could withdraw from the research at any time. Anonymity and confidentiality were assured through coding the data. Informed consent took from a female student who accepts to be included in the research.

A pilot study was conducted on 10% of the sample (100 female university students) who met the criteria of selection in order to assess the feasibility of the study process and clarity of the tools and to determine the needed time to complete the tools. The needed modifications performed, and those subjects were excluded from the mainstream sample.

Data was collected through a period of 3 months from the beginning of December 2018 to the end of February 2019. The research was conducted through five phases: preparation, recruitment, assessment, implementation, and evaluation phase.

Preparation phase: During this phase, the up-dated review of related literature has been done for the construction of data collection tools and developing the educational program. It also included preparation of teaching materials, i.e., handout and power-point presentation.

Recruitment phase: The University faculties were stratified into two strata, medical and non-medical faculties. From each stratum, a simple random sample was drawn through tossing to select one faculty from which the sample was taken. From the selected faculties (Faculty of Nursing and Commerce), a list of students' names of the four levels was obtained from the students' affairs department. A systematic sample was obtained after the calculation of k interval. K= population size (N) ÷ desired sample size (n). For Faculty of Nursing K= (1357 ÷ 400 = 3), so each third female student in the list was selected. While for Faculty of Commerce K= (2500 ÷ 600 = 4) so each forth female student was selected until the desired sample size was obtained.

Assessment phase: After enrollment, the researchers divide the students into twenty groups of fifty students each as indicated by their level. Researchers hold a meeting with each group in their faculty during one of their free classes to explain and clarify the tools. After that, the self-administered questionnaire and attitude assessment scale were distributed to every student to assess their knowledge and attitude toward pre-marital care. The time taken to complete the tools was about twenty to twenty- five minutes, and the needed time to complete this phase was ten days.

Implementation phase: During this phase, the total sample was divided into twenty groups, each group containing about 50 students. Each group was attending one session of the total twenty sessions until it covered the entire sample. During this session, the researchers covered knowledge related to the definition and significance of pre-marital care, components of the pre-marital care package, which include physical examination, investigations, vaccination, and counseling, a suitable time for pre-marital care, providers and seats that provide pre-marital care.

PowerPoint presentation using a data show was used as a visual aid to help in clarifying the presented knowledge. During and after the presentation, the researchers encouraged the active participation of the students by asking questions and receiving feedback. This session was carried out in an assigned classroom in the selected faculty. The researchers carried out two sessions per day for ten days, and each session took about 90 minutes. After the completion of each session, handouts containing brief information given during that session were distributed to each student.

Evaluation phase: The evaluation phase took place one month after the implementation phase to examine the student's knowledge and attitude using a pre-post- test and attitude assessment scale. Each student filled the pre/posttest and attitude assessment scale, and the scores of students documented by the researchers.

### 4. 5. Data analysis

Statistical Package for Social Science (SPSS), version 20 was used for the statistical analysis of the data. Collected data were organized, coded, and entered into a computer. The arithmetic mean was used to describe the central tendency of observations for some variables, standard deviation as a measure of the dispersion of results around the mean, and frequency distribution was used for each variable. Comparison of categorical variables was made using the chi-square $[X^2]$ test. Within-group comparison of numerical variables was made using a paired $t$-test. $P$ values less than 0.05 were considered statistically significant.

### 5. Results

Findings of the current research will be presented in three main parts: Section I: Description of the sample; Section II: knowledge of female students pre and post educational program; Section III: the attitude of female students pre and post educational program.

*Section I: Description of Sample*

As shown in table 1, 79.50% of the nursing students' age ranged between 20-23 years compared to 61.70% of commerce students. Concerning residence, the majority of nursing students 96.00% lived in an urban area compared with 91.70% of commerce students. Concerning mothers' education, 44.00% of nursing students' mothers completed their university education compared to 18.70% of commerce students' mothers.

*Section II: Knowledge of female students pre- and post-program*

Table 2 reveals that pre-program the mean knowledge score of nursing students was 3.8 ±1.46 compared to 2.8 ±1.12 for commerce students. While post-program, the mean knowledge score of nursing students was 5.3 ±2.10 compared to 4.8 ±1.93 for commerce students.

Regarding levels of knowledge, table 3 shows that 32.30% of nursing students have a high level of knowledge pre-program compared to 54.00% post-program, while 21.00% of commerce students have a high level of knowledge pre-program contrasted to 41.00% post-program. It is evident from table 4 that, there is a statistically significant difference between mean knowledge score of nursing students pre-program and post-program, commerce students pre-program and post-program, nursing students

pre-program and commerce students pre-program, nursing students' post-program and commerce students' post-program and of the total sample pre-program and post-program (p<0.0001).

*Section III: The attitude of female students pre- and post-program*

Concerning attitude toward pre-marital care, it could be observed from table 5 that there is an improvement of attitude level from pre to post-program among the two groups. The positive attitude is expanded from 54.70% to 66.00 % among nursing students and from 49.00% to 57.500% among commerce students. Moreover, there is a highly statistically significant difference between preprogram and post-program attitude levels (p<0.001) (Table 6).

**Table (1): Frequency and percentage distribution of students according to their personal characteristics.**

| Items | Nursing students [n=400] | | Commerce students [n=600] | |
|---|---|---|---|---|
| | Freq. | % | Freq. | % |
| **Age category in years** | | | | |
| <20 years | 82 | 20.50 | 230 | 38.30 |
| 20 – 23 years | 159 | 79.50 | 370 | 61.70 |
| **Place of residence** | | | | |
| Urban area | 384 | 96.00 | 550 | 91.70 |
| Rural area | 16 | 4.00 | 50 | 8.30 |
| **Mothers' education** | | | | |
| Read and write | 20 | 5 | 120 | 20 |
| Preparatory level | 96 | 24 | 282 | 47 |
| Secondary level | 108 | 27 | 86 | 14.30 |
| University level | 176 | 44 | 112 | 18.70 |

**Table (2): Frequency and percentage distribution of female students according to their knowledge.**

| Items | Pre educational program | | | | Post educational program | | | |
|---|---|---|---|---|---|---|---|---|
| | Nursing [n=400] | | Commerce [n=600] | | Nursing [n=400] | | Commerce [n=600] | |
| | Freq. | % | Freq. | % | Freq. | % | Freq. | % |
| **Definition of Pre-marital care** | | | | | | | | |
| Correct and complete | 120 | 30.00 | 142 | 23.70 | 242 | 60.50 | 324 | 54.00 |
| Correct but incomplete | 136 | 34.00 | 212 | 35.30 | 150 | 37.50 | 224 | 37.30 |
| Incorrect or do not know | 144 | 36.00 | 246 | 41.00 | 8 | 2.00 | 52 | 8.70 |
| **Importance of Pre-marital care** | | | | | | | | |
| Correct and complete | 164 | 41.00 | 82 | 13.70 | 228 | 57.00 | 218 | 36.30 |
| Correct but incomplete | 142 | 35.50 | 162 | 27.00 | 126 | 31.50 | 320 | 53.30 |
| Incorrect or do not know | 94 | 23.50 | 356 | 59.30 | 46 | 11.50 | 62 | 10.30 |
| **Components of Pre-marital care** | | | | | | | | |
| Correct and complete | 34 | 8.50 | 44 | 7.30 | 92 | 23.00 | 118 | 19.70 |
| Correct but incomplete | 170 | 42.50 | 196 | 32.70 | 182 | 45.50 | 276 | 46.00 |
| Incorrect or do not know | 196 | 49.00 | 360 | 60.00 | 126 | 31.50 | 206 | 34.30 |
| **Appropriate time of Pre-marital care** | | | | | | | | |
| Correct and complete | 136 | 34.00 | 176 | 29.30 | 188 | 47.00 | 208 | 34.70 |
| Correct but incomplete | 154 | 38.50 | 196 | 32.70 | 176 | 44.00 | 310 | 51.70 |
| Incorrect or do not know | 110 | 27.50 | 228 | 38.00 | 36 | 9.00 | 82 | 13.60 |
| **Mean+SD** | 3.8±1.46 | | 2.8±1.12 | | 5.3±2.10 | | 4.8±1.93 | |
| **Total** | 3.30±1.29 | | | | 5.05±2.01 | | | |

**Table (3): Frequency and percentage distribution of students according to their level of total knowledge.**

| Levels of knowledge | Pre-program | | | | Post-program | | | |
|---|---|---|---|---|---|---|---|---|
| | Nursing [n=400] | | Commerce [n=600] | | Nursing [n=400] | | Commerce [n=600] | |
| | Freq. | % | Freq. | % | Freq. | % | Freq. | % |
| High | 129 | 32.30 | 126 | 21.00 | 216 | 54.00 | 246 | 41.00 |
| Acceptable | 137 | 34.30 | 270 | 45.00 | 136 | 34.00 | 255 | 42.50 |
| Poor | 134 | 33.40 | 204 | 34.00 | 48 | 12.00 | 99 | 16.50 |

**Table (4): Comparison of mean difference of knowledge scores pre-program and post-program for the studied students.**

| Comparison | Difference | Paired t-test | |
|---|---|---|---|
| | Mean±SD | t | P-value |
| Nursing students Pre-program & post-program | -1.50±1.39 | -11.886 | 0.0001 |
| Commerce students Pre-program & post-program | -2.00±1.26 | -22.314 | 0.0001 |
| Nursing students Pre-program & Commerce students pre-program | 1.00±1.43 | 12.6078 | 0.0001 |
| Nursing students' post-program & Commerce students post program | 0.50±1.98 | 3.9074 | 0.0001 |
| Total sample Pre-program & post-program | -1.75±1.21 | -17.050 | 0.0001 |

**Table (5): Frequency and percentage distribution of studied students according to their attitude**

| Levels of attitude | Pre-program | | | | Post-program | | | |
|---|---|---|---|---|---|---|---|---|
| | Nursing [n=400] | | Commerce [n=600] | | Nursing [n=400] | | Commerce [n=600] | |
| | Freq. | % | Freq. | % | Freq. | % | Freq. | % |
| Positive | 219 | 54.70 | 294 | 49.00 | 264 | 66.00 | 345 | 57.50 |
| Neutral | 91 | 22.70 | 195 | 32.50 | 87 | 21.70 | 135 | 22.50 |
| Negative | 90 | 22.60 | 111 | 18.50 | 49 | 12.30 | 120 | 20.00 |

**Table (6): Comparison of students' attitude pre and post program among nursing and commerce students.**

| Comparison | Chi-Square | |
|---|---|---|
| | $X^2$ | P |
| Nursing students Pre-program & post-program | 16.376 | <0.001 |
| Commerce students Pre-program & post-program | 25.060 | <0.001 |
| Nursing students Pre-program & Commerce students' pre- program | 11.435 | 0.003 |
| Nursing students' post-program & Commerce students' post-program | 11.438 | 0.003 |
| Total sample Pre-program & post-program | 31.706 | <0.001 |

## 6. Discussion

Premarital care is one of the crucial strategies for the prevention of genetic disorders, congenital anomalies, and common medical and psychosocial marital problems. This study aimed to examine the effect of pre-marital care educational program on the knowledge and attitude of university students. The following research hypotheses were formulated and tested to achieve this aim: H.1. University students who receive pre-marital care educational program will have a higher mean knowledge score post-program than pre-program; H.2. University students who receive pre-marital care educational program will have a positive attitude post-program than pre-program. So, the discussion of the findings will be presented in order to scrutinize these hypotheses.

Generally, the research hypotheses were accepted as the result of the study showed a significant change and improvement in their total knowledge and attitude scores regarding premarital care were observed post-program implementation among the two groups.

Findings of the current study revealed that less than one-third of the university students in both groups reported complete, correct answers about the definition of premarital care pre-program compared to more than one-half post-program. A minority (less than one-tenth) of them know components of pre-marital care package pre-program compared to around one-fifth post-program. These results are in line with a study of *Abedel-Azim, Mansour, & Mohamed (2015)*, who reported that less than one-third of their sample correctly define premarital screening and counseling, and only a small percentage of them know its components. As well, *Ibrahim et al. (2011)* conducted a study at King Abdul-Aziz University, Jeddah, and found that university students had inadequate knowledge about the national PMS program and less than one-third from the students knowledgeable about disorders tested by the PMS.

Regarding the suitable time of PMC, pre-program about one-third or less from both groups knew the appropriate time to perform pre-marital care. This result is contradicted with the results of a study done by *Al-Kindi, Al-Rujaibi, & Al-Kendi (2012)*, who reported that the majority of the participants preferred to do it just before marriage. This

finding may illustrate that PMC is considered as an accessory to complete the process of marriage preparation and not as an essential step.

Concerning the level of knowledge, the present study revealed that a small percent of nursing and commerce students had a high level of knowledge about PMC in the pretest. This lack of knowledge may be attributed to insufficient basic information obtained during their formal education concerning this specific area of knowledge. This result agrees with *Abd El-Ghany, Gad, & Al-Haddad (2010),* who mentioned that a few numbers of non-medical and medical groups had a good level of knowledge score about premarital counseling. It is also in line with the study done by *Ibrahim et al. (2011),* who reported that students' knowledge about premarital screening (PMS) was low in the pre-test. As well, *Abedel-Azim et al. (2015)* reported that a minority from both groups had a high level of knowledge score about premarital screening and counseling.

Moreover, concerning the mean knowledge score of university students, there was a statistically significant difference between mean knowledge scores of the total sample pre-program and post-program. This finding indicated that the health education intervention applied in the current study succeeded in improving the knowledge of students significantly. These results are in agreement with different studies conducted by *Abedel-Azim et al. (2015); Abd Al Azeem et al. (2011); Mevsim, Guldal, Gunvar, Saygin, & Kuruoglu (2009); Elsinga et al. (2008); Rao, Lena, Nair, Kamath, & Kama (2008).*

Analysis of current study results showed that there was a statistically significant difference between mean knowledge scores of nursing and commerce students pre-program and also between the two groups post-program. While pre-program about one-third of nursing students had a high level of knowledge, only one-fifth of commerce students had a high level of knowledge. In the same direction, post-program more than one-half of nursing students had a high level of knowledge, compared to two-fifths of commerce students. These results may be explained by knowledge gained by nursing students through their formal educational courses that are not available to commerce students. It also may be due to the level of mothers' education, where nearly one-half of the nursing students' mothers had a university education compared to less than one-fifth of the commerce students' mothers. These findings are in the same line as the study conducted by *Abedel-Azim et al. (2015),* who reported a statistically significant difference between medical and non-medical students regarding their knowledge.

Regarding students' attitudes toward premarital care, the results of the present study showed a significant improvement of attitude level from pre to post-program among the two groups. While two-thirds of the nursing students expressed a positive attitude toward premarital care post-program, on the other hand, more than one-half of the commerce students expressed a positive attitude toward premarital care. In fact, among factors that influence the attitude of humans is knowledge. This fact may explain the finding of the current study that nursing students had a high level of knowledge than commerce students, so they express a more positive attitude toward PMC.

These results agree with the results of many other studies as the study done by *Ibrahim et al. (2011),* who reported that there is an overall positive attitude towards PMC; 99% of female students either strongly agreed or agreed on the importance of PMC. Besides, an educational program conducted among female students at King Saud University, Riyadh, found that more students express a positive attitude after receiving the program. As well, *Abedel-Azim et al. (2015)* reported that a significant improvement in most items of attitudinal scale among studied groups of students was detected during the post-test.

## 7. Conclusion

After receiving the educational program, medical and non-medical female students have a high level of knowledge and exhibit a more positive attitude toward PMC, suggesting the positive effect and the need for such programs to improve health literacy among the population.

## 8. Recommendations

Based on the findings of this study, the following are recommended:
- College students should be equipped with health information related to PMC.
- Attention to the overall population has to be raised about the advantages of PMC through conducting a health education program.
- Further studies are necessary to explore factors affecting compliance with PMC.
- Replication of the current study on a larger probability sample and in other settings is necessary.

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