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# Knowledge, Attitudes, and Practices of Family Planning Among Women Attending Primary Health Care Centers in Aden Governorate, Yemen

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## ABSTRACT

**Background:** Family planning (FP) is vital for reducing maternal and child mortality, yet Yemen faces high fertility, low contraceptive use, and persistent cultural barriers.

**Objective:** This study was aimed to assess knowledge, attitudes, and practices (KAP) regarding FP among women attending primary health care facilities in Aden Governorate, Yemen.

**Methods:** A cross-sectional study was conducted using a pre-tested interview questionnaire among women of reproductive age and those over 46. Data were analyzed for sociodemographic associations with FP KAP.

**Results:** According to knowledge among women, 91.9% of participants had heard about family planning (FP), mainly from health services (29.1%) and friends/family (26.3%). Most knew about pills (86.9%), IUDs (79.4%), and condoms (67.2%), but 47.8% believed FP had negative effects (e.g., bleeding, anxiety). The attitudes of respondents were that 89.7% agreed that FP was important for health, but 62.2% feared long-term fertility effects, and 32.8% perceived religious influences. Ninety-three-point eight percent supported male involvement in FP decisions. Regarding the practices, 76.3% had used contraception (pills: 26.3%, natural methods: 24.4%), but only 42.2% were currently using FP. The main reasons for discontinuation were desire for pregnancy (41.6%) and side effects (29.7%). Higher education and income correlated with better FP knowledge ( $p=0.0001$ ). In contrast, rural and low-income groups had lower KAP scores.

**Conclusion:** High-grade education predicts better FP knowledge and practices. Low-income and rural populations need tailored FP programs. The study reveals strong foundational knowledge and attitudes, but it also highlights significant gaps in method-specific awareness and practice. Family planning utilization and maternal and child health outcomes may be enhanced by interventions.

**Keywords:** Family planning, KAP, reproductive health, sociodemographic factors, contraception.

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## INTRODUCTION

Primary Health Care (PHC) centers play a crucial role in delivering essential and comprehensive health services to the community. Beneficiary satisfaction is a key indicator of the quality of these services. PHC centers offer continuous and comprehensive health services, including preventive and curative care, which are vital for community health improvement (1). They coordinate various health services, such as women's health, mental health, and child healthcare, ensuring a holistic approach to health management (2).

Family planning programs emerged in response to rapid population growth concerns in the 1960s and 1970s, particularly in developing countries. Initial efforts focused on providing access to contraception and information, allowing individuals to control their reproductive choices (3). Family planning within health services empowers individuals and couples to decide on the number, spacing, and timing of their pregnancies, ultimately leading to improved maternal and child health outcomes. This includes access to contraception, infertility treatment, and education about reproductive health, all of which contribute to reproductive rights and better overall health. Successful family planning programs often involve collaboration with local health services, integrating education on birth control and women's rights. Programs that engage both men and women and address cultural sensitivities tend to have higher success rates (4).

Training local health workers and utilizing community resources have proven effective in reaching underserved populations, as seen in the Akha community in Thailand (5). Health education significantly influences knowledge and acceptance of contraceptive methods, particularly in areas where misconceptions exist (6). Yemen has one of the highest fertility rates in the region, which poses serious health issues for mothers and children. A high population growth rate (3% annually), a lack of resources, and insufficient healthcare capacity are all caused by this high fertility rate. Many Yemeni women marry young, with early marriage (ages 10-19) identified as a predictor of high fertility (7). Illiteracy further limits women's understanding of reproductive health, leading to higher birth rates.

In Yemen, maternal death rates are still unacceptably high at 43.3 per 1,000 live births in 2021, meaning

that a woman will die during childbirth every two hours. Most of these fatalities result from entirely avoidable causes (8, 9). The Yemen Multiple Indicator Cluster Survey 2022–2023 found that among girls aged 15–19, pregnancy-related problems constitute the primary cause of death (10, 11). The higher rates of infant mortality among babies whose mothers give birth early are evidence that early childbirth is linked to poor neonatal health outcomes. With 54 deaths for every 1,000 live births, mothers under the age of 20 have the highest child mortality rates for children under five (8).

Most maternal deaths occur among young women, primarily those with no regular antenatal care and from rural areas. Severe bleeding and eclampsia are leading causes, with many deaths occurring during the intrapartum period (12). Seventy-three-point eight percent of participants in Saudi Arabia said they had previously heard of family planning, and 81% said they would be prepared to adopt methods.

Families in Sana'a city are still characterized by low rates of FP use compared to other Arab countries, where a number of barriers prevent Yemeni women from using FP properly. However, the current study shows that Yemeni women seeking healthcare have good knowledge and positive attitudes toward FP as a means of spacing children and achieving a smaller family size. Men's participation in FP matters is essential since the husband is largely in charge of making FP decisions (13). In Saudi Arabia, 73.8% of participants reported prior awareness of family planning, with 81% expressing a willingness to use methods (14). However, the actual use of contraceptives is still low, despite high levels of understanding. For example, just 29.6% of Saudi participants reported adopting family planning techniques at the moment (12). A high degree of awareness was demonstrated by the fact that 89.7% of Yemeni women knew about family planning and 87.5% knew about at least four family planning techniques (15). Only 40% of women in Sudan actually used family planning, despite 87% of them knowing about it (16). Sixty-six percent of Nigerian women showed a good degree of knowledge regarding family planning techniques, and 36% of them utilize contraception (17). The knowledge, attitudes, and practices (KAP) of women in Aden with relation to family planning are not well documented. Current health services might not adequately address



the specific attitudes, cultural determinants, and informational gaps that affect the widespread use of contraceptive methods in this region.

In Yemen, child marriage is widespread. Pregnancy complications are the main cause of death for Yemeni girls' aged 15 to 19, and having teenage girls is linked to higher maternal mortality and morbidity from a health standpoint. According to a study conducted within Aden, Yemen, tradition was the primary reason given by participants for getting married young, and the majority of participants connected early marriage to high divorce rates. In order to encourage girls' independence and lower the rate of child marriage, the study highlights the necessity of initiatives, organizational adjustments, and awareness campaigns (18). Fertility is one of the important demographic factors that has significant impacts on population growth and socioeconomic development, especially in developing countries (19). The high fertility rate in Yemen correlates to the country's fast population increase, scarce resources, and overloaded healthcare facilities. Widespread female illiteracy and early marriage (ages 10–19) raise fertility and reduce knowledge of reproductive health. Additionally, the country's maternal death rate is quite high (1,000 per 100,000 live births), particularly for young, rural women who have little access to prenatal care. Eclampsia, which frequently happens during childbirth, and severe bleeding are common causes of maternal fatalities. This emphasizes how urgently Yemen's reproductive health issues must be addressed. The aims of this study were to assess the knowledge, attitudes, and practices (KAP) regarding family planning among women who visit primary health care facilities in Aden Governorate, Yemen.

## METHODS

### Study Design and Subjects

The subjects of the study were women of all ages who attended the selected PHC centers during the study period, including women of reproductive age (17–49 years). The study was conducted in public Primary Health Care (PHC) centers across various districts of Aden Governorate. The type of study was a cross-sectional descriptive and analytic study that was conducted to assess the knowledge, attitudes, and practices of women attending selected primary health care centers in Aden Governorate. The study

was conducted for 2 months, from 20 April up to 20 June 2025.

### Sample Size

The sample size was calculated based on a study conducted in Saudi Arabia by (14), in which the actual use of contraceptives was 29.6% of Saudi participants. By using the following equation, the sample size was:

$$n = \frac{Z^2 \times P\%(1 - P\%)}{e^2} \\ = \frac{(1.96)^2 \times 29.6\%(1 - 29.6\%)}{(0.05)^2} \\ = 320$$

Where:

- Z = 1.96 for 95% confidence.
- p = the actual use of contraceptives was 29.6% of Saudi participants.
- e = margin of accepted error (e.g., 0.05).

### Inclusion and Exclusion Criteria

The inclusion criteria were women of all ages who attended the selected PHC centers during the study period who have received services, including married women of reproductive age (18–49 years), who were willing and able to provide informed consent to participate in the study, and who were capable of understanding and answering the questionnaire orally. The exclusion criteria were individuals accompanying patients but who are not the direct beneficiaries of the PHC, children or adolescents below the minimum age for self-reporting or without a legal guardian present, and those who decline to take part in the research. The study tools were pretested structural questionnaires carried out by direct interviews.

### Ethical Considerations

Ethical approval with the code (MEC/AD092) was obtained from the university's research committee. Participation was entirely voluntary. All participants were informed of the study's purpose, procedures, potential risks, and benefits. Verbal informed consent was obtained from each participant before enrollment in the study. Confidentiality and anonymity of participant data were strictly maintained throughout the research process. No



identifying information was collected or disclosed. The collected data were used solely for research purposes.

### Statistical Analysis

The collected data was cleaned, entered, and analyzed using SPSS version 23 software. Descriptive statistics were applied to characterize the main KAP variables, such as sociodemographic characteristics and the frequency and percentages for categorical variables (e.g., age, age groups, education levels, marital status, and number of children). Means and standard deviations for continuous variables. Calculate the frequencies and percentages of responses to each KAP item. The knowledge scores, the attitude scales, and the practical scores were calculated by summing correct answers. A chi-square test ( $\chi^2$ ) for categorical variables, for example, the association between education level and knowledge of family planning (FP) methods, was conducted. The Kruskal-Wallis test was used to determine the association between variables, as the data is unlikely to be normally distributed. To assess relationships among knowledge, attitude, and practice scores, the Spearman's correlation was done. A p-value  $\leq 0.05$  was considered statistically significant.

### RESULTS

The total number of participants was 320; the mean age was 33.05 years  $\pm 10.7$  SD; and the minimum, the maximum, and the range were 17, 63, and 46 years, respectively. The age of such participants was grouped into two groups: those at reproductive age from 17 to 46 years and those over 46 years, as represented in Table (1).

### The Descriptive Statistics of the Sociodemographic Variables

The education level of the participants was high among secondary and high-grade schools (37.5% and 30%), respectively. The most common occupation of the participants was housewife; the least common occupation of the participants was unemployed, followed by students (72.2%, 3.8%, and 4.4%), respectively. Most of the family income was in the low socio-economic category, followed by the upper-middle and high socio-economic categories (41.6%, 29.1%, and 23.1%), respectively. All the remaining sociodemographic variables were shown in Table (1).



Table 1: Sociodemographic Characteristics of Participants (n=320).

| Variable                             | Category          | Frequency (n) | Percentage (%) |
|--------------------------------------|-------------------|---------------|----------------|
| <b>Age Group (Years)</b>             | Reproductive Age  | 279           | 87.2           |
|                                      | >46               | 41            | 12.8           |
| <b>Education Level</b>               | Illiterate        | 52            | 16.3           |
|                                      | Primary School    | 52            | 16.3           |
|                                      | Secondary School  | 120           | 37.5           |
|                                      | High-Grade School | 96            | 30.0           |
| <b>Occupation</b>                    | Employed          | 63            | 19.7           |
|                                      | Unemployed        | 12            | 3.8            |
|                                      | Student           | 14            | 4.4            |
|                                      | Housewife         | 231           | 72.2           |
| <b>Family Income</b>                 | LSE               | 133           | 41.6           |
|                                      | Lower-Middle      | 20            | 6.3            |
|                                      | Upper-Middle      | 93            | 29.1           |
|                                      | HSE               | 74            | 23.1           |
| <b>No. of Children</b>               | 0                 | 7             | 2.2            |
|                                      | 1-2               | 184           | 57.5           |
|                                      | 3-4               | 73            | 22.8           |
|                                      | ≥5                | 56            | 17.5           |
| <b>Residents</b>                     | Urban             | 299           | 93.4           |
|                                      | Rural             | 21            | 6.6            |
| <b>Habitation</b>                    | Owned             | 213           | 66.6           |
|                                      | Rented            | 107           | 33.4           |
| <b>Married life (Years)</b>          | 1 - 5             | 98            | 30.6           |
|                                      | 6 - 10            | 90            | 28.1           |
|                                      | 11 - 15           | 35            | 11             |
|                                      | 16 - 20           | 33            | 10.3           |
|                                      | ≥ 21              | 64            | 20.0           |
| <b>Age of 1st Birth</b>              | No Children       | 7             | 2.2            |
|                                      | 13 - 18 Year      | 86            | 26.9           |
|                                      | 19 - 24 Year      | 143           | 44.7           |
|                                      | 25 - 30 Year      | 64            | 20.0           |
|                                      | ≥ 30 Year         | 20            | 6.3            |
| <b>Marriage age</b>                  | 12 - 18 Years     | 140           | 43.8           |
|                                      | 19 - 24 Years     | 100           | 31.3           |
|                                      | 25 - 30 Years     | 68            | 21.3           |
|                                      | ≥ 31 Years        | 12            | 3.8            |
| <b>The Period Between Each Birth</b> | 0                 | 70            | 21.8           |
|                                      | 1                 | 59            | 18.4           |
|                                      | 2                 | 77            | 24.1           |
|                                      | 3                 | 51            | 15.9           |
|                                      | 4                 | 28            | 8.8            |
|                                      | 5                 | 15            | 4.7            |
|                                      | 6                 | 9             | 2.8            |
|                                      | 7                 | 5             | 1.6            |
|                                      | 8                 | 6             | 1.9            |



|                          |             |     |      |
|--------------------------|-------------|-----|------|
| <b>No. of Training</b>   | No Training | 218 | 68.1 |
|                          | 1 – 3 Times | 84  | 26.3 |
|                          | 4 – 5 Times | 9   | 2.8  |
|                          | > 5 Times   | 9   | 2.8  |
| <b>Training Attended</b> | No          | 214 | 66.9 |
|                          | Yes         | 106 | 33.1 |

LSE= Low Socio-Economic, HSE= High Socio-Economic.

### Knowledges toward Family Planning (FP)

The frequencies and the percentages of all the 16 questions asked regarding knowledge about family planning (FP) to assess awareness and factual understanding of family planning methods are seen in Table (2).

Table (2): Knowledge of family planning and sources of information (n = 320).

| Variable  | Category             | Frequency (n) | Percentage (%) |
|---|----------------------|---------------|----------------|
| <b>Heard About FP</b>                           | Yes                  | 294           | 91.9           |
|   | No                   | 26            | 8.1            |
| <b>Source of Information</b>                    | Non-applicable       | 19            | 5.9            |
|   | TV                   | 41            | 12.8           |
|   | Health Services      | 93            | 29.1           |
|   | Friends & Family     | 84            | 26.3           |
|   | Social media         | 67            | 20.9           |
|   | Religious leader     | 16            | 5.0            |
| <b>Visited PHC for Family Planning</b>          | No                   | 110           | 34.4           |
|   | Yes                  | 210           | 65.6           |
| <b>Contraception Methodes Used</b>              | No                   | 5             | 1.6            |
|   | Yes                  | 315           | 98.4           |
| <b>Contraceptive Methods Known</b>              | Non-applicable       | 32            | 10.0           |
|   | Contraceptive pills  | 96            | 30.0           |
|   | Condoms              | 31            | 9.6            |
|   | IUDs                 | 46            | 14.4           |
|   | Injection            | 52            | 16.3           |
|   | Implants             | 56            | 17.5           |
|   | Natural methods      | 7             | 2.2            |
| <b>Knowing of Places to obtain FP services?</b> | No                   | 61            | 19.1           |
|   | Yes                  | 259           | 80.9           |
| <b>Side Effects Awareness</b>                   | Yes                  | 153           | 47.8           |
|   | No                   | 167           | 52.2           |
| <b>FP Improves Maternal-Child Health</b>        | No                   | 23            | 7.2            |
|   | Yes                  | 282           | 88.1           |
|   | Don't Know           | 15            | 4.7            |
| <b>Side Effects of FP</b>                       | Non-applicable       | 151           | 47.2           |
|   | Anxious & Nervous    | 41            | 12.8           |
|   | Bleeding             | 42            | 13.1           |
|   | Obesity              | 11            | 3.4            |
|   | Dangerous for health | 23            | 7.2            |
|   | Disturb menses       | 7             | 2.2            |



|                                 |                         |     |      |
|---------------------------------|-------------------------|-----|------|
|                                 | Pain (Chest, Abdominal) | 24  | 7.5  |
|                                 | Others                  | 21  | 6.5  |
| <b>FP Encourage Promiscuity</b> | Strongly agree          | 7   | 2.2  |
|                                 | Agree                   | 9   | 2.8  |
|                                 | Neutral                 | 23  | 7.2  |
|                                 | Disagree                | 75  | 23.4 |
|                                 | Strongly disagree       | 206 | 64.4 |

### Attitudes toward Family Planning (FP)

The frequencies and percentages of the questions to explore beliefs, cultural values, and opinions regarding family planning was shown in Table (3).

Table 3: Attitudes of women toward family planning (n = 320).

| Variable  | Category          | Frequency (n) | Percentage (%) |
|---|-------------------|---------------|----------------|
| <b>FP Importance for Health</b>                               | Yes               | 289           | 90.3           |
|   | No                | 10            | 3.1            |
|   | Don't know        | 21            | 6.6            |
| <b>Importance of FP</b>                                       | Strongly agree    | 217           | 67.8           |
|   | Agree             | 70            | 21.9           |
|   | Neutral           | 18            | 5.6            |
|   | Disagree          | 4             | 1.3            |
|   | Strongly disagree | 11            | 3.4            |
| <b>Using Contraception Affects Fertility in the Long Term</b> | Yes               | 47            | 14.7           |
|   | No                | 199           | 62.2           |
|   | Don't know        | 74            | 23.1           |
| <b>Acceptable to Use Contraception before the 1st Child</b>   | No                | 124           | 38.8           |
|   | Yes               | 151           | 47.2           |
|   | Not sure          | 45            | 14.1           |
| <b>Men's Involvement in FP Decisions</b>                      | No                | 20            | 6.3            |
|   | Yes               | 300           | 93.8           |
| <b>Subtle Religious influences on FP</b>                      | No                | 215           | 67.2           |
|   | Yes               | 105           | 32.8           |

### Practices toward Family Planning (FP)

The frequencies and percentages of the questions to examine actual behaviors and use of family planning services are seen in Table (4).



Table 4: Practices and behaviors related to family planning use (n = 320).

| Variable   | Category              | Frequency (n) | Percentage (%) |
|--|-----------------------|---------------|----------------|
| <b>Ever Used Contraception</b>                           | Yes                   | 244           | 76.3           |
|  | No                    | 76            | 23.7           |
| <b>Current Contraceptive Use</b>                         | Yes                   | 135           | 42.2           |
|  | No                    | 185           | 57.8           |
| <b>Contraceptive Methods and Discontinuation Reasons</b> |                       |               |                |
| <b>Method Used</b>                                       | Oral contraceptives   | 84            | 26.3           |
|  | Natural methods       | 78            | 24.4           |
|  | Injections            | 62            | 19.4           |
|  | IUDs                  | 56            | 17.5           |
|  | Implants              | 37            | 11.5           |
|  | Condoms               | 3             | 0.9            |
| <b>Decision-Making and Service Utilization</b>           |                       |               |                |
| <b>FP decision-maker</b>                                 | Self                  | 38            | 11.9           |
|  | Husband               | 25            | 7.8            |
|  | Joint (both partners) | 251           | 78.4           |
|  | Other                 | 6             | 1.9            |
| <b>Discussion with partner about FP</b>                  | Yes                   | 300           | 93.8           |
|  | No                    | 20            | 6.3            |
| <b>Frequency of Health Center Visits</b>                 | Monthly               | 44            | 13.7           |
|  | Every 3 months        | 49            | 15.3           |
|  | Occasionally          | 119           | 37.2           |
|  | Never                 | 108           | 33.8           |

### Study of Associations Chi-Square Analysis of Associations between Sociodemographic and KAP in Family Planning

The association between awareness about FP with education levels and occupation was evaluated by the Chi-Square Test ( $\chi^2$ ). There is no statistically significant association (p-value=0.1 for each). Data of association between awareness about FP and

occupation was not shown. The data of association between awareness about FP with residents showed no statistical significance (p-value=0.2), respectively (the data not shown). The association between awareness about FP with family income and the grouped number of children and the habitation was highly statistically significant (p-value=0.000, 0.02, and 0.05), respectively, as seen in Table (5).



Table 5: Association between awareness and sociodemographic variables (n = 320).

| Heard About FP | Education Level |           |            |                  | Total     | p-Value |
|----------------|-----------------|-----------|------------|------------------|-----------|---------|
|                | Illiterate      | Primary   | Secondary  | High-Grade Level |           |         |
|                | No. (%)         | No. (%)   | No. (%)    | No. (%)          |           |         |
| No             | 7(26.9%)        | 5(19.2%)  | 11(42.3%)  | 3(11.5%)         | 26(100%)  | 0.1     |
| Yes            | 45(15.3%)       | 47(16.0%) | 109(37.1%) | 93(31.6%)        | 294(100%) |         |
| Total          | 52(16.3%)       | 52(16.3%) | 120(37.5%) | 96(30.0%)        | 320(100%) |         |

**Spearman Correlation=0.13**

| Heard About FP | Family Income Based on Socio-Economic Category |              |              |           | Total     | p-Value |
|----------------|--|--------------|--------------|-----------|-----------|---------|
|                | Low  | Lower-Middle | Upper-Middle | High      |           |         |
|                | No. (%)  | No. (%)      | No. (%)      | No. (%)   |           |         |
| No             | 21(80.8%)                                      | 0(0.0%)      | 4(15.4%)     | 1(3.8%)   | 26(100%)  | 0.000   |
| Yes            | 112(38.1%)                                     | 20(6.8%)     | 89(30.3%)    | 73(24.8%) | 294(100%) |         |
| Total          | 133(41.6%)                                     | 20(6.3%)     | 93(29.1%)    | 74(23.1%) | 320(100%) |         |

**Spearman Correlation=0.22**

| Heard About FP | Grouped the Number of Children |            |           |           | Total     | p-Value |
|----------------|--------------------------------|------------|-----------|-----------|-----------|---------|
|                | No Children                    | 1 - 2      | 3 - 4     | ≥ 5       |           |         |
|                | No. (%)                        | No. (%)    | No. (%)   | No. (%)   |           |         |
| No             | 2(7.7%)                        | 9(34.6%)   | 7(26.9%)  | 8(30.8%)  | 26(100%)  | 0.02    |
| Yes            | 5(1.7%)                        | 175(59.5%) | 66(22.4%) | 48(16.3%) | 294(100%) |         |
| Total          | 7(2.2%)                        | 184(57.5%) | 73(22.8%) | 56(17.5%) | 320(100%) |         |

**Spearman Correlation= -0.09**

| Heard About FP | Habitation |            | Total     | p-Value |
|----------------|------------|------------|-----------|---------|
|                | Owned      | Rented     |           |         |
|                | No. (%)    | No. (%)    |           |         |
| No             | 13(50%)    | 13(50%)    | 26(100%)  | 0.052   |
| Yes            | 200(68%)   | 94(32%)    | 294(100%) |         |
| Total          | 213(66.6%) | 107(33.4%) | 320(100%) |         |

**Spearman Correlation= -0.11**

Regarding ANOVA and Kruskal-Wallis H tests, there were significant associations between education level and KAP as seen in Tables (6 and 7).



Table 6: Descriptive statistics and ANOVA of education levels vs. KAP scores (n = 320).

| Descriptive Statistics |            |             |              |              |                 |             |
|------------------------|------------|-------------|--------------|--------------|-----------------|-------------|
| Education Levels       |            |             |              |              |                 |             |
| KAP Scores             | N          | Mean        | SD           | SE           | 95% CI for Mean |             |
|                        |            |             |              |              | Lower Bound     | Upper Bound |
| High                   | 150        | 1.53        | 1.085        | 0.089        | 1.36            | 1.71        |
| Moderate               | 120        | 2.13        | 0.916        | 0.084        | 1.97            | 2.30        |
| Low                    | 50         | 1.88        | 0.961        | 0.136        | 1.61            | 2.15        |
| <b>Total</b>           | <b>320</b> | <b>1.81</b> | <b>1.040</b> | <b>0.058</b> | 1.70            | 1.93        |

*CI= Confidence Interval, SD= Std. Deviation, SE= Std. Error.*

| Test of Homogeneity of Variances |     |     |       |  |
|----------------------------------|-----|-----|-------|--|
| Education Levels                 |     |     |       |  |
| Levene Statistic                 | df1 | df2 | Sig.  |  |
| 8.655                            | 2   | 317 | 0.000 |  |

| ANOVA            |                |            |             |        |       |
|------------------|----------------|------------|-------------|--------|-------|
| Education Levels |                |            |             |        |       |
|                  | Sum of Squares | df         | Mean Square | F      | Sig.  |
| Between Groups   | 24.270         | 2          | 12.135      | 12.003 | 0.000 |
| Within Groups    | 320.480        | 318        | 1.011       |        |       |
| <b>Total</b>     | <b>344.750</b> | <b>320</b> |             |        |       |

Table 7: Kruskal–Wallis test of education levels vs. KAP scores (n = 320).

| Ranks     |                  |     |           |
|-----------|------------------|-----|-----------|
| KAP Score | Education Levels | N   | Mean Rank |
|           | Illiterate       | 52  | 133.67    |
|           | Primary          | 52  | 122.62    |
|           | Secondary        | 120 | 178.71    |
|           | High-Grade       | 96  | 172.79    |
|           | Total            | 320 |           |

| Test Statistics Kruskal Wallis Test and the Grouping Variable: Education Levels |           |
|---|-----------|
|   | KAP Score |
| Chi-Square  | 23.122    |
| df  | 3         |
| Asymp. Sig.   | 0.000     |

*Asymp. Sig.=Asymptotic Significance. df=Degree of freedom.*



## DISCUSSION

The mean age  $\pm$  SD of the participants was 33.05  $\pm$  10.7 years, and the majority (87.2%) was at a reproductive age (17–46 years); this suggests that women in their main reproductive years provided the majority of the study's viewpoints, while a smaller percentage (12.8%) of participants were older (>46 years), which indicated that menopause or fertility had affected their experiences with family planning (FP).

Specialized FP training was necessary for illiterate women, as the education level was 16.25%. However, 67.5% of the population was classified as both secondary and high-grade school. One study in Yemen reported that 42% of the 15–25-year-olds are enrolled in school or university, with 35% having dropped out before receiving a secondary degree. Often the youths that are taken out of school are expected to contribute to their families' finances. Additionally, economic hardship forces many families to rely on children for income generation, leading to school dropouts. The lack of resources also impacts access to quality education and essential supplies (20). According to various sources, illiteracy rates among Yemeni women were higher; estimates vary from 65% to 70%. Illiterate girls are more likely to marry young, have children early, and become entangled in a vicious cycle of poverty, high fertility, and low education. Yemen's biggest problems include illiteracy and a lack of education, especially in terms of finishing primary school. An estimated 29.2% of people 10 years of age and older are thought to be illiterate. Additionally, almost 75% of young individuals in employment only have a primary school diploma or no schooling at all (21, 22).

The majority of participants (72.2%) were housewives, which could have an impact on the complexities of FP decision-making (e.g., dependency on husband or community guidance). Many women's ability to make their own FP decisions may be limited by the emotional and financial support they receive from their husbands (23). The family income was categorized based on the index of household and how to face the financial challenges (24). Low-income families dominated (41.6%), followed by upper-middle (29.1%) and high-income (23.1%) groups. Lower-income groups may face barriers to accessing FP services due to cost or limited healthcare access. The socio-economic

categories are as follows: Low Socio-Economic Category: Households with an index between 0 and 0.25, often struggling to meet basic needs. Lower Middle Socio-Economic Category: Households with an index from 0.25 to 0.50, experiencing moderate financial challenges. Upper Middle Socio-Economic Category: Households with an index from 0.50 to 0.75, generally more stable but still vulnerable. High Socio-Economic Category: Households with an index from 0.75 to 1, typically enjoying financial security and access to resources (24).

The percentage of the knowledge level was 46.9%, indicating good awareness of FP methods and benefits, while 15.6% had low knowledge, often linked to illiteracy (16.25%). In a study in Uganda, 73.9% of mothers showed excellent knowledge levels, while 26.1% had low understanding (25). The majority of women (91.9%) had heard of FP. The major source of information was health services (29.1%), followed by those who heard about FP from friends and relatives (26.3%), and television and social media together (33.7%). Religious leaders accounted for only 5% of citations, suggesting that their institutional influence was negligible. For FP, 65.6% of women went to a PHC, suggesting a moderate level of healthcare engagement.

A study conducted in Kashmir, India, reported that all of the participants (among 94 participants) had ever heard about family planning methods. The major sources of information were trainers (78.8%) and self-study (9.8%) (26). Ten percent of the 320 participants did not use any FP techniques. However, the most common methods known by the participants were contraceptive pills, followed by implants, injections, and IUDs (30%, 17.5%, 16.3%, and 14.4%), respectively. Notably, the condom and the natural methods were the least known and used methods by the participants (9.6% and 2.2%), respectively. A study conducted in rural Uganda by (25) reported that 62.3% of mothers were not utilizing any family planning methods, despite 37.7% reporting usage, with injectable contraceptives being the most common (42.3%).

From current results, 47.8% believed FP has side effects (e.g., bleeding, anxiety). Women lacking condom knowledge was 32.8%, which endangered sexual transmitted disease (STD) prevention. Only 14.4% knew about IUDs, a highly effective long-term method. A similar study was conducted by (27);



a large percentage of women (47.8%) think that family planning techniques cause negative side effects like anxiety and bleeding. In the study conducted by (28), a sizable percentage of women (32.8%) said they knew too little about condoms, which are essential for preventing sexually transmitted diseases (STIs). Out of 320 respondents, 89.7% who strongly agreed or agreed that FP was essential for health expressed positive feelings. One study agreed with our finding conducted by (29), as they reported that 89.7% of participants viewed FP as essential for health, reflecting a growing awareness of its benefits.

In terms of shared responsibility, 93.8% of our respondents supported male participation in FP decisions. Many studies agreed with our finding regarding the men's roles as decision-makers in family planning contexts, which was highlighted by the vast majority of respondents (93.8%) who acknowledged the significance of male involvement in FP decisions (30, 31). About accessibility and availability of family planning services, 19.1% didn't know where to obtain FP services, and 80.9% did. According to a study conducted in Lira City, northern Uganda (32), 64.6% of respondents reported feeling that FP methods were available, and 31.7% of respondents felt that family planning services were generally accessible. With a focus on the asked question, "Do you believe FP is important for your health?" 90.3% believed that FP is important for health. Positive attitudes were demonstrated by 89.7% (i.e., both strongly agree/agree) who thought FP was vital for health. As a study in Sana'a City shows, 86.1% had a positive attitude towards the idea of FP (12). This means there is a desire to improve the health of mothers and children and reduce the incidence of unwanted pregnancies. Family planning can also lead to healthier families and communities and assist broader development goals (33).

The belief of women about the long-term use of contraceptives affecting fertility was only 14.7%, while 62.2% did not believe that. This indirectly lowers the rate of mother and child mortality by reducing the fertility. Out of 320, 93.8% supported male engagement in FP decisions, emphasizing shared responsibility. Out of 320, 32.8% of respondents saw conflicts, indicating subtle religious influences, whereas 67.2% disregarded FP-religious conflicts. The same conclusion was also observed by

(34), suggesting that religious and cultural circumstances can impede FP acceptance. The practices toward FP: the study found that just 42.2% were current contraceptive users, compared to 76.3% who had ever used it. The main reasons for the high rate of discontinuation (57.8%) were adverse effects (29.7%) and desire for pregnancy (41.6%). Condom use was uncommon (0.9%), perhaps as a result of cultural preferences or male partner resistance; the most common techniques were pills (26.3%) and natural methods (24.4%). Joint FP decisions with partners were reported by 78.4% of respondents, which is consistent with strong support for male participation. 93.8% of respondents talked openly with their spouses about contraception. There may be gaps in regular care access since just 13.7% of people visited health centers monthly for FP services, and 33.8% never went.

A similar study reported access to regular family planning services is limited, with only 13.7% visiting health centers monthly. A significant number of women mentioned health-related concerns as the cause of their cessation of contraceptive use (35). Even among women who want to avoid getting pregnant, some studies show that the rate of stopping contraception is still high, despite these insights, pointing to the need for better access to healthcare and counseling services (36). Assign response-based scores (e.g., 1 point per correct knowledge answer, 5-point Likert scales for attitudes, and binary scores for practices) in order to measure KAP. The knowledge score was 12 out of 16 (75%); there are gaps in method-specific awareness but moderate-to-high knowledge. According to the Mekonnen et al. (37) survey, 46% of participants were aware of family planning methods. High levels of knowledge (75%) are in line with results from other research that showed that knowledge rates varied among populations, ranging from 81.7% to 100% (38). In the current study, the average attitude score of 83.19% among the participants indicates that they have a generally positive attitude toward family planning. In one survey, 81% of participants expressed support for the use of family planning, indicating positive sentiments toward it (38).

With a practice score of 70.38%, participants' family planning behaviors were deemed reasonably satisfactory; however, there is still opportunity for improvement, especially in the areas of regular usage,



decision-sharing, and follow-ups at health centers. In Enugu, Nigeria, for example, barely 20% of women used family planning techniques, despite high awareness and favorable attitudes (39). Sociocultural factors, such as husband approval, are obstacles that have a big impact on practice rates (13, 39). These procedures are burdensome and might keep women from having prompt access to the very successful contraceptive methods they want to use (26).

Knowledge about family planning is significantly associated with family income and number of children. Participants from higher-income groups were more likely to have heard of family planning ( $p = 0.000$ ), indicating that access to health information may be enhanced by financial standing. Those with fewer or no children were also more aware ( $p = 0.02$ ), possibly due to early exposure to family planning communications. Highest awareness among participants with secondary education (37.5%) and high-grade level (30.0%). However, there is no statistically significant association. Housing status (owned vs. rented) showed a borderline association ( $p = 0.052$ ), which may reflect broader socioeconomic differences. These results highlight the importance of focusing educational efforts on low-income and high-parity groups to improve family planning awareness. According to Onwuzurike and Uzochukwu (39), those with higher incomes are more likely to be familiar with family planning ( $p = 0.000$ ). Ninety-two percent of women in the upper socioeconomic category rely on modern forms of contraception, compared to 19.5% of women in the lower groups (40). Education is important; secondary education is associated with greater awareness (37.5%). (39). Based on the ANOVA test, there was a statistical test that compares the means of the four groups of education levels vs. the three KAP scores to show if at least one group's mean is significantly different from the others. It determines whether group differences are due to chance or to a real effect. Levene's Test: The  $p$ -value was  $\leq 0.05$ , which means reject the null hypothesis, suggesting that variances were significantly different. The ANOVA test ( $F = 12.003$ ,  $p = 0.000$ ) (i.e.,  $< 0.05$ ) showed a significant difference in KAP scores among the education levels. The significant ANOVA result suggested that education level influences KAP scores. Regarding Kruskal-Wallis's H test, this test was used to determine the association between variables, as the data is unlikely to be normally distributed. The H-

statistic is 9.03, and the  $p$ -value is 0.03. Since the  $p$ -value was less than the common significance level of 0.05, we reject the null hypothesis. This indicates that there are statistically significant differences in KAP scores among at least two of the education levels groups. Post-hoc analysis was needed: To identify which specific groups differ, a post-hoc Dunn's test with Bonferroni correction was conducted. This would provide pairwise comparisons between education levels (e.g., primary vs. secondary, high-grade vs. illiterate, etc.).

## CONCLUSION

Family initiatives should improve male involvement, remove socioeconomic barriers, and dispel misunderstandings with customized health campaigns. Qualitative factors that influence FP behaviors should be investigated in more detail. The study shows good fundamental knowledge and attitudes, despite the fact that it also reveals notable gaps in practice and method-specific information. Targeting socioeconomic, cultural, and educational barriers through tailored interventions may increase maternal-child health outcomes and FP utilization.

## Recommendations

During community workshops, emphasize IUDs, implants, and condoms to raise awareness and encourage the use of efficient family planning techniques. Launch myth-busting initiatives to clear up widespread misunderstandings, particularly on the adverse effects of birth control. To more effectively reach low-income and rural communities, increase outreach through Primary Health Care (PHC) facilities. Communicate with those who are illiterate by using visual aids and examples. Family planning should be given top priority by policymakers through funding education, family financial assistance, and gender-neutral initiatives.

## Conflict of Interest

The authors declare that there is no conflict of interest.



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