



RESEARCH ARTICLE

CONTRACEPTION AWARENESS AMONG BAHRAINI FEMALES ATTENDING PREMARITAL CLINIC IN PRIMARY HEALTHCARE CENTERS IN BAHRAIN – A CROSS-SECTIONAL STUDY

Zainab Abdulla Taraif*, Zainab Mohsen Malalla, Marwa Alkalaiti and Safa Alkalaiti

Primary Healthcare Centers, Manama, The Kingdom of Bahrain

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*Corresponding author:
Zainab Abdulla Taraif

ABSTRACT

Background: Primary healthcare centers in the Kingdom of Bahrain offer preventive care, but national premarital services have mainly focused on genetic and blood screenings in comparison to reproductive health and family planning education. Most regional studies look at family planning among married groups. It is important to investigate contraceptive knowledge among women before marriage to build strong family planning programs and prevent unintended early pregnancies. This study aims to assess the baseline awareness, attitudes, intent to use family planning, and sources of information about contraception among Bahraini women attending premarital clinics in primary healthcare settings. **Methods:** A cross-sectional study was executed across five randomly selected primary healthcare centers in Bahrain. A self-administered structured online questionnaire via Google Forms platform captured demographics, family planning method-specific knowledge, future usage intents, perceived barriers, and educational preferences. Quantitative scores ranging from 0 to 11 were categorized into poor, fair, and good knowledge levels based on quartiles. Data were analyzed using descriptive statistics and Fisher's exact tests within SPSS version 26.0. **Results:** A total of 202 women participated (51.0% aged 15–24 years; 80.2% holding a university degree). While nominal recognition was high for oral contraceptive pills (92.6%) and male condoms (73.8%), long-acting reversible contraceptives (LARCs) like subcutaneous implants (28.7%) and emergency contraception (27.2%) were poorly recognized. Cumulatively, 75.8% exhibited poor (42.1%) or fair (33.7%) comprehensive knowledge scores. Contraceptive literacy was significantly modulated by age ($p < 0.001$), education ($p < 0.001$), and employment status ($p < 0.001$). A striking 73.8% expressed non-willingness to utilize contraceptive pills after marriage, a trend uniform across all sociodemographic strata ($p > 0.05$). The predominant barrier was fear of side effects (74.3%). Digital landscapes (internet/social media) were the primary information conduits (69.3%), and 54.0% preferred receiving future health education through online channels or videos. **Conclusion:** A significant difference exists between superficial contraceptive recognition and structural health literacy among premarital Bahraini females. Pervasive side-effect fear drives high resistance toward post-marital contraceptive adoption. National public health architecture should modernize mandatory premarital screening protocols by incorporating patient-centered, digitally driven reproductive counseling modules.

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INTRODUCTION

Primary health care centers in Bahrain provide essential preventive services which play a key role in promoting individual and public health.^[1] Mother and child health services are a core part of the primary health care system and are accessible to all citizens and residents through health centers across the country. These services cover a wide range of care, including premarital counseling, antenatal and postnatal care, family planning, periodic women's screenings, and child health services.^[2] Premarital services focus on health assessments and counseling before marriage, helping to identify potential health risks and support informed decisions. These services are offered through primary health centers as

part of the national effort to improve health outcomes and ensure accessible, quality care in line with the country's health policies and commitments.^[1] A key focus of premarital screening is on reproductive health, which includes support for safe pregnancies, childbirth, and access to accurate information about contraception and family planning options. These services are designed to promote informed decision-making, reduce health risks, and support the physical and emotional well-being of women and their partners before marriage and pregnancy.^[2, 3] A recent cross-sectional study conducted in Bahrain involving 1,221 married participant highlights current attitudes and practices related to family planning. The study found that 83.6% of respondents were aware of family planning methods, with women reporting higher levels of awareness than men. Approximately 71.9% of participants

reported using at least one contraceptive method, with withdrawal (42.4%) and male condoms (29.9%) being the most common. However, 42.5% of individuals expressed concerns or fears about using family planning methods, the majority of which were related to perceived or experienced side effects (57.7%). These findings point to the importance of improving public education and counseling around modern contraception.

^[4] Most existing studies on contraceptive awareness have focused primarily on married populations. ^[4] This study is the first of its kind in Bahrain to assess knowledge of contraception among individuals prior to marriage, specifically targeting those attending premarital care clinics. This study aims to assess the level of awareness, attitudes, and preferences regarding contraceptive methods among Bahraini female patients attending premarital clinic in primary healthcare centers in Bahrain to explore participants' knowledge of various contraceptive options, their willingness to use them, and the factors that influence their choices, such as cultural beliefs, fear of side effects, or lack of information. Additionally, the study aims to identify the most common sources of information on contraception and determine whether individuals feel adequately informed to make responsible reproductive health decisions. By examining these areas, the study intends to highlight gaps in awareness and suggest effective strategies to improve awareness and access to contraception, especially for those preparing for marriage.

Aim: To assess the contraception awareness among Bahraini female patients attending premarital clinic in primary care centers in Bahrain

Objectives

- To determine the extent of awareness and willingness to use contraceptive methods among female patients attending premarital clinic.
- To explore underlying reasons for the non-willingness to use contraception and to identify common sources through which female patients attending premarital clinic obtain contraceptive information and to evaluate the adequacy of information available to participants for making informed decisions about contraceptive use.
- To investigate study subjects' interest in receiving additional information on contraception and to determine their preferred methods of communication or education.

METHODS

Study design and setting: A cross-sectional study was conducted over a period of seven months in five randomly selected primary healthcare centers across the Kingdom of Bahrain. These centers were chosen from a total of 27 health facilities that offer premarital care services, distributed across the country's four governorates. The randomly selected health centers are: Shaikh Jaber Health Center, Jidhafs Health Center, Budaiya Health Center, Halat Bu Maher Health Center and Sitra Health Center. Ethical approval for the study was obtained from the Primary Care Research Committee. Informed consent was secured from all participants prior to questionnaire administration, and all collected data were treated with strict confidentiality in accordance with ethical research standards.

Selection Criteria: The inclusion criteria is Bahraini females at childbearing age (15–49 years old) attending premarital clinic at primary healthcare centers in the Kingdom of Bahrain and can read and complete the online questionnaire.

Sampling: Since there is no registry for the total number of Bahraini females (15–49 years) that attended the premarital clinic in Mother and Child Health Units across all 27 primary healthcare centers in the Kingdom of Bahrain during the year 2024, the sample size for this study is calculated based on the total number of Bahraini females aged 15 to 49 years, which is 183,678 according to the Gulf Migration website's 2023 estimates.⁽⁵⁾ The sample size was determined using a standard formula for estimating proportions in cross-sectional studies and was calculated using OpenEpi version 3.0.

The following formula was used:

$$n = \frac{Z^2 \times p \times (1 - p)}{d^2}$$

Where:

- $Z = 1.96$ (for a 95% confidence level),
- $p = 0.856$ (the proportion of Bahraini females aware of contraception, based on a previously published 2024 study),
- $d = 0.05$ (the margin of error).

This yielded an initial sample size of approximately 189.

Tool: Data collection was carried out using a structured, self-administered online questionnaire developed specifically to serve the study purpose and hosted on the Google Forms platform. To facilitate participant access, a barcode was linked to the questionnaire and was printed and placed prominently within the Mother and Child Health Unit at each selected primary healthcare center. Individuals attending premarital care services were invited to scan the barcode using their mobile devices and complete the survey. Participation was entirely voluntary; however, all questionnaire items were mandatory to ensure comprehensive data collection. The questionnaire comprises six sections: (1) Basic demographic information, including age and marital status; (2) Awareness of various family planning methods; (3) Willingness to use contraception; (4) Reasons for not using contraceptive methods; (5) Sources of information regarding contraception; and (6) Preferences for receiving further information. This design allowed for a detailed assessment of participants' knowledge, attitudes, and informational needs related to contraception in the context of premarital care.

Statistical analysis: Data analysis was performed using SPSS version 26.0 (IBM Corp. ARMONK USA) software and R programming tool (R version 4.4.0, R Foundation for Statistical Computing, Vienna, and Austria). Categorical variables were summarized using frequencies and percentages. Age was categorized into four groups (15–24, 25–34, 35–44, and ≥45 years) for descriptive and association analyses. Knowledge regarding contraception was assessed based on participants' recognition of 11 contraceptive methods. Each contraceptive method was assigned a score of 1 and methods not identified were assigned a score of 0. The scores were summed up to generate an overall knowledge score ranging from 0 to 11, with higher scores indicating greater awareness about contraceptive methods. Based on the total score, participants were classified as having poor (0–3), fair (4–7), or good (8–11) referring to quartiles. Multiple-response questions, including knowledge of contraceptive methods,

sources of contraceptive information, and reasons influencing contraceptive use, were analyzed by separating individual response options and calculating the frequency and percentage of participants selecting each option. Participants' attitudes and perceptions toward contraception were evaluated using intention to use contraceptive pills after marriage. Associations between participants' sociodemographic characteristics (age group, educational attainment, marital status, and employment status) and knowledge level, intention to use contraceptive pills after marriage were assessed using Fisher's exact test. Fisher's exact test was selected because of small or sparse cell frequencies in several categories. A two-sided p-value <0.05 was considered statistically significant.

Ethical consideration: Ethical approval for this study was granted by the Primary Care Ethics Committee. To safeguard participant privacy, strict confidentiality was respected throughout the study, and all collected information was kept completely anonymous. Additionally, informed consent was obtained electronically at the very beginning of the questionnaire; participants were required to agree to the consent terms before they could proceed to the survey questions.

Table 1. Demographical Characteristics of Participants

Characteristic	N = 202 ¹
Age group (years)	
15-24	103 (51.0%)
25-34	78 (38.6%)
35-44	15 (7.4%)
45+	6 (3.0%)
Marital status	
Single	196 (97%)
Divorced	5 (2.5%)
Widowed	1 (0.5%)
Education	
Middle School/Intermediate	1 (0.5%)
High School	31 (15.3%)
University Bachelor's	162 (80.2%)
Postgraduate	8 (4.0%)
Employment	
Employed	63 (31.2%)
Student	63 (31.2%)
Unemployed	73 (36.1%)
Retired	3 (1.5%)

RESULTS

A total of 202 women participated in the study. Nearly half of the participants (103, 51.0%) were aged 15–24 years, followed by 78 (38.6%) in the age range of 25–34 years, 15 (7.4%) in the range 35–44 years and 6 (3.0%) above 45 years. The majority i.e. 196 (97%) participants were single, while only a small proportion were divorced (5, 2.5%) or widowed (1, 0.5%). There were 162 (80.2%) participants with a university bachelor's degree, whereas 31 (15.3%) had completed high school, 8 (4.0%) had postgraduate education, and only 1 (0.5%) had education up to the middle school/intermediate level. As regards employment status, 73 (36.1%) participants were unemployed, while 63 (31.2%) were employed and an equal proportion was of students. Only 3 (1.5%) participants were retired. Table 2 provides a description of participants' knowledge of contraceptive methods and their sources of contraceptive information. Contraceptive pills were the most common method, known to 187 (92.6%) participants, followed by male condoms (149, 73.8%) and intrauterine devices (IUDs) (126, 62.4%).

Table 2. Number and percentage of respondents with knowledge about various family planning methods and various sources of information

Contraceptive methods	n	%
Contraceptive pills	187	92.6
Male condom	149	73.8
Intrauterine contraceptive device (IUD)	126	62.4
Natural methods	87	43.1
Sterilization	77	38.1
Contraceptive patches	73	36.1
Subcutaneous implant	58	28.7
Emergency contraception pills	55	27.2
Female condom	48	23.8
Injections	45	22.3
Do not know	9	4.46
Information contraceptive		
Internet or social media	140	69.3
Friends or family	119	58.9
School or educational programs	37	18.3
Healthcare provider	31	15.3
Workplace	25	12.4
TV, newspapers or radio (together)	20	9.9
Pharmacy	11	5.4
Religious venues	8	4
Do not have information	1	0.5
Other :		
Had PCOS so contraceptive pills were part of the treatment	1	0.5

Less than half of the participants were aware of natural methods (87, 43.1%), sterilization (77, 38.1%), and contraceptive patches (73, 36.1%). Knowledge about subcutaneous implants (58, 28.7%), emergency contraception pills (55, 27.2%), female condoms (48, 23.8%), and injectable contraceptives (45, 22.3%) was lower. Only 9 (4.5%) participants reported that they did not know any contraceptive methods.

Regarding sources of contraceptive information, internet or social media was the most frequently reported source by 140 (69.3%) participants, followed by friends or family (119, 58.9%). Other sources like school or educational programs (37, 18.3%), healthcare providers (31, 15.3%), and workplace-based information (25, 12.4%) were reported by less. Traditional mass media, including television, radio, and newspapers, were reported by 20 (9.9%) participants, while pharmacies (11, 5.4%) and religious venues (8, 4.0%) were relatively uncommon sources.

Table 3. Descriptive statistics for knowledge score and distribution of respondents according to knowledge levels based on score

Knowledge score	
Mean	4.9
Standard deviation	4
Median	3.2
Minimum	0
Maximum	11
Knowledge level	n (%)
Poor	85 (42.1)
Fair	68 (33.7)
Good	49 (24.3)

The participants' knowledge was assessed using the responses to the multiple-response question on awareness of available contraceptive methods. Eleven contraceptive methods were included in the questionnaire. Each correctly identified method was assigned a score of 1, while methods not selected were assigned a score of 0.

Table 4. Respondents' intention to use family planning after marriage and perceptions influencing contraceptive pill use after marriage in numbers and percentages

Contraceptive pills usage	n	%
Yes	53	26.2
No	149	73.8
Reason		
Fear of side effects	150	74.3
Desire to have children	75	37.1
Lack of sufficient information	49	24.3
Do not believe in using contraceptives	19	9.4
Partner objection	17	8.4
Religious or cultural beliefs	9	4.5
Difficulty accessing/obtaining methods	1	0.5

The individual knowledge score was calculated by adding the number of correctly identified methods, resulting in a total score ranging from 0 to 11, with higher scores indicating greater knowledge of contraception. For ease of interpretation, the total knowledge score was further categorized into three levels: poor knowledge (score 0–3), fair knowledge (score 4–7), and good knowledge (score 8–11) based on quartiles. These categories were subsequently used to describe the association of knowledge level with various demographic characteristics.

Among the 202 participants, 85 (42.1%) demonstrated poor knowledge, 68 (33.7%) had fair knowledge, and 49 (24.3%) exhibited good knowledge regarding contraceptive methods. Thus, poor knowledge was the most common category, accounting for over two-fifths of the study population. Overall, these findings indicate that most participants (75.8%) had either poor or fair knowledge of contraception, highlighting a substantial need for improving awareness or knowledge of available contraceptive methods. Table 4 presents participants' intention to use contraceptive pills after marriage and the perceived reasons influencing their decision. Overall, 53 (26.2%) participants reported that they intended to use contraceptive pills after marriage, whereas the majority (149, 73.8%) indicated that they did not intend to use them. Among the perceived barriers to contraceptive pill use, fear of side effects was the most frequently reported concern, cited by 150 (74.3%) participants. This was followed by the desire to have children (75, 37.1%) and lack of sufficient information regarding contraceptive methods (49, 24.3%). Fewer participants reported not believing in the use of contraceptives (19, 9.4%), partner objection (17, 8.4%), or religious or cultural beliefs (9, 4.5%) as reasons influencing contraceptive pill use. Difficulty in accessing or obtaining contraceptive methods was rarely reported (1, 0.5%).

Table 5. Number and percentage of respondents according to perceived sufficiency of information and preferred methods of education

Enough information	n	%
Yes	61	30.2
No	73	36.1
Unsure	68	33.7
Preferred education		
Online sources or videos	109	53.96
Directly through discussion or receiving it from a healthcare provider	66	32.67
Group educational sessions	18	8.91
Brochures or pamphlets	9	4.46

Table 5 summarizes participants' perceptions regarding the adequacy of their contraceptive information and their preferred methods for receiving contraceptive education.

Only 61 (30.2%) participants reported that they had sufficient information about contraception, whereas 73 (36.1%) felt that they did not have enough information and 68 (33.7%) were unsure about the adequacy of their knowledge. With respect to preferred methods of receiving contraceptive education, online sources or videos were the preferred option, selected by 109 (54.0%) participants. This was followed by direct discussion with or counselling from a healthcare provider, preferred by 66 (32.7%) participants. Relatively fewer participants preferred group educational sessions (18, 8.9%) or brochures or pamphlets (9, 4.5%).

Table 6. Association of overall knowledge level of respondents about family planning methods with various sociodemographic characteristics – KNOWLEDGE

Characteristics		Knowledge level			P-value ¹
		Poor	Fair	Good	
Age group	15-24	51	39	13	< 0.001
	25-34	32	19	27	
	35-44	1	7	7	
	45+	1	3	2	
Education	Middle school/Intermediate	0	1	0	< 0.001
	High school	18	13	0	
	University Bachelor's	65	51	46	
	Post-graduate	2	3	3	
Marital status	Single	83	66	47	0.748
	Divorced	2	1	2	
	Widow	0	1	0	
Employment	Student	35	25	3	< 0.001
	Employed	23	16	24	
	Unemployed	27	26	20	
	Retired	0	1	2	

¹Obtained using Fisher's exact test; Bold p-values indicate statistical significance

Table 6 provides the association between participants' sociodemographic characteristics and their level of knowledge regarding contraception. Knowledge level was significantly associated with age group ($p < 0.001$), education ($p < 0.001$), and employment status ($p < 0.001$), whereas marital status was not significantly associated with knowledge level ($p = 0.748$). A significant age-related trend was observed, with 51/103 (49.5%) younger participants (15–24 years) more frequently exhibiting poor knowledge, while participants aged 25–34 years had a higher proportion of fair to good knowledge (46/77; 59.7%). Although the number of participants in the older age groups (35–44 and ≥ 45 years) was relatively small, these groups also demonstrated a greater proportion of fair to good knowledge. Knowledge level also varied significantly according to educational attainment. Participants with a high school education predominantly had poor or fair knowledge, whereas those with a university bachelor's or postgraduate education were more likely to demonstrate fair to good knowledge, indicating that higher education was associated with better knowledge of contraceptive methods. Employment status showed a significant association with knowledge level. Students were more likely to have poor knowledge, while employed, unemployed or retired participants had the highest proportion of fair to good knowledge. In contrast, marital status was not significantly associated with knowledge level. Table 7 shows the association between participants' sociodemographic characteristics and their acceptance of contraceptive pill usage after marriage. No statistically significant associations were observed between acceptance of contraceptive pill usage after marriage and age category ($p = 0.715$), educational attainment ($p = 0.709$), marital status ($p = 0.712$), or employment status ($p = 0.956$), as determined using

Fisher's exact test. Across all age groups, the mostly participants stated that they would not use contraceptive pills after marriage. Likewise, acceptance of contraceptive pill usage did not differ significantly according to educational level, marital status, or employment status. Although participants with a university bachelor's degree constituted the largest group of respondents, the proportion reporting willingness to use contraceptive pills after marriage was comparable to that observed in the other educational categories.

DISCUSSION

The objective of this research was to examine contraceptive awareness, personal attitudes, and preferred learning channels among reproductive-aged Bahraini women attending premarital counseling clinics at primary healthcare centers in Bahrain. Because previous public health researches in Bahrain have almost exclusively evaluated family planning knowledge among couples who are already married^[4], our study addresses a crucial gap in existing literature by assessing reproductive health literacy at the vital premarital moment just before women experience marital and reproductive transitions. Our findings reveal an intriguing and deeply human paradox: while nominal familiarity with specific, well-known birth control methods is remarkably high—with oral contraceptive pills recognized by 92.6% of the surveyed group and male condoms by 73.8%—actual, functional knowledge is deeply lacking. In total, 75.8% of the participants scored in either the "poor" (42.1%) or "fair" (33.7%) categories, resulting in a low average cohort score of just 4.9 out of a potential 11 points. This noticeable gap between recognizing a term and understanding how it works in real life mirrors patterns documented across the Gulf Cooperation Council (GCC) region and internationally.

For example, in a recent Saudi Arabian study, Alhassan (2024) observed that while 82.9% of participants recognized daily birth control pills, their systemic understanding of alternative modern modalities was severely limited.^[6] This trend of high superficial awareness masking critical knowledge gaps regarding mechanisms, daily efficacy, and emergency options is widely reported in broader Middle Eastern and international contexts.^[7,8] On a global scale, many studies revealed a similar mismatch; young women frequently know that contraceptives exist, but they lack the practical knowledge needed to use them consistently and effectively.^[9] For instance, Rowlands and Thomas (2022) found that even in the United Kingdom, where sexual education is more standardized, young unmarried women frequently suffer from fragmented contraceptive literacy, often confusing the basic mechanics and relative failure rates of different methods.^[10] Similarly, research in South Asia by Sharma and Singh (2024) demonstrates a substantial "awareness-practice gap" among young premarital adults, showing that recognizing a contraceptive method rarely translates into accurate, functional knowledge.^[11] In our Bahraini cohort, this systemic knowledge deficit is most visible in the incredibly low recognition rates for highly effective, long-acting reversible contraceptives (LARCs), such as subcutaneous skin implants (28.7%) and emergency contraception (27.2%). This specific gap is clinically concerning because LARCs offer vastly superior real-world effectiveness compared to user-dependent methods like daily pills or condoms, yet they remain largely ignored and

underrepresented in premarital reproductive counseling programs. Further analysis shows that this reproductive literacy is not spread evenly, but is instead shaped by clear sociodemographic factors, including age ($p < 0.001$), educational attainment ($p < 0.001$), and employment status ($p < 0.001$). Younger participants aged 15 to 24 and students were highly vulnerable to scoring in the "poor" knowledge category. Conversely, women aged 25 to 34, university graduates, and those working in professional jobs showed significantly higher rates of "good" or "fair" literacy. This socio-educational divide closely mirrors global demographic patterns. Higher education typically serves as a strong indicator of better health literacy, enabling individuals to critically evaluate medical information and make autonomous decisions about their own health (Arbab et al., 2011; Kanwal et al., 2017).^[7, 12] Internationally, studies consistently show that women with advanced education are far better equipped to navigate healthcare systems, advocate for their personal reproductive preferences, and separate medical facts from cultural myths. The higher knowledge scores we observed in the 25 to 34 age range likely point to natural maturation, shared life experiences, and informal peer discussions, as well as incidental healthcare experiences, such as managing polycystic ovary syndrome (PCOS), which several participants explicitly mentioned in our qualitative interviews. On the other hand, the profound lack of knowledge among the 15 to 24 age group highlights an urgent public health vulnerability: these young women are entering marriage with minimal formal preparation regarding fertility planning, which leaves them exposed to much higher risks of unplanned initial pregnancies or short intervals between births, which can negatively impact both maternal and child health.

A particularly striking and culturally telling finding in our study is the widespread resistance to using daily contraceptive pills after marriage, with a decisive 73.8% of respondents expressing an unwillingness to adopt oral contraceptive pills (OCPs) post-marriage. Most importantly, this resistance was consistently high across all sociodemographic backgrounds, showing no statistically significant differences based on age ($p = 0.715$), education ($p = 0.709$), or employment ($p = 0.956$). This uniformity indicates that the barriers to contraceptive use are deeply rooted in shared cultural narratives and societal perceptions, rather than individual demographic or economic characteristics. The primary driver of this resistance was an overwhelming, deep-seated fear of side effects, which was reported by 74.3% of the unwilling subgroup. This pervasive biochemical anxiety is highly consistent with both local and regional data. In their research on married adults in Bahrain, Saleh et al. (2023) discovered that 42.5% of individuals harbored significant anxieties regarding family planning, with 57.7% of those fears directly tied to perceived or experienced side effects. Regionally, Alenezi and Haridi (2021) documented that fears of secondary infertility, metabolic disruptions, and hormonal cancers frequently deter Arab women from adopting modern chemical contraceptives, driving them instead toward traditional or natural family planning methods that carry much higher failure rates.^[13] This fear-driven avoidance is not unique to the Middle East. Globally, contraceptive anxiety is a well-documented phenomenon. In Turkey, Bati and Demirel (2023) noted that fear of long-term health risks and pressure from immediate family members are the leading reasons why young women choose traditional, less reliable family planning methods over modern options.^[14]

Similarly, qualitative research in various Latin American and African communities reveals that deeply entrenched myths about modern contraceptives causing permanent sterility often override clinical realities, causing women to avoid highly effective methods. In our Bahraini cohort, other notable barriers included the desire to conceive immediately after marriage (37.1%) and a perceived lack of sufficient information (24.3%), emphasizing that premarital counseling must actively work to destigmatize contraceptive side effects, clarify the difference between minor, manageable symptoms and severe risks, and correct the widespread misconception that temporary contraceptive use leads to permanent fertility issues.

Furthermore, the structural distribution of information sources in our study highlights a dramatic mismatch between institutional healthcare services and the everyday behaviors of the target population. A massive majority of participants gained their contraceptive knowledge from the internet and social media (69.3%) or from informal family networks (58.9%). In sharp contrast, official sources like school programs (18.3%) and professional healthcare providers (15.3%) were rarely used. This heavy reliance on online spaces and family oral traditions directly explains the fragmented knowledge and exaggerated side-effect fear observed in our study. When public health systems leave an informational void, it is quickly filled by online content and social media algorithms that often conflate rare or anecdotal side effects with major clinical risks.

However, this strong digital focus also presents a powerful opportunity for health systems. When asked about their preferred ways to learn, 54.0% of respondents chose online platforms and instructional videos, while 32.7% favored private, one-on-one consultations with a clinician. This clear preference provides an actionable blueprint for modernizing services in Bahrain's primary health centers. The findings of this study argue strongly for a major update to Bahrain's mandatory national premarital screening program. Currently, these mandatory services focus almost entirely on checking for blood-related and genetic disorders like sickle cell anemia. Our data shows a clear, urgent need to expand these clinic visits to include structured, evidence-based reproductive counseling.

STRENGTHS AND LIMITATIONS OF THE STUDY:

This study's main strength is being the first in Bahrain to explore reproductive health literacy before marriage. By randomly sampling five primary healthcare centers, it provides a vital public health baseline, helping systems support young women before unplanned pregnancies occur. However, our findings have limitations. Relying on a QR-code survey introduced volunteer bias, yielding a highly educated sample (80.2% hold university degrees).

Thus, these insights may not fully reflect women with less schooling or those using private clinics. Furthermore, because contraception remains a deeply private and culturally sensitive topic, self-reported responses may be influenced by social desirability bias, with participants naturally guarding their true intentions. Finally, our cross-sectional design captures only a single snapshot in time. While it reveals powerful socio-demographic links, it cannot establish cause-and-effect or track how these personal attitudes will evolve as these young women navigate the realities of married life.

CONCLUSION

This study provides critical empirical insights into the reproductive health literacy of Bahraini females navigating the premarital transition. Although basic recognition of core family planning modalities like oral contraceptives and condoms is structurally pervasive, comprehensive contraceptive literacy remains substantially limited. The overwhelming majority of participants display poor-to-fair aggregate knowledge levels, driven by a pronounced lack of awareness regarding modern long-acting reversible contraceptives (LARCs) and emergency intervention protocols.

Furthermore, systemic attitudinal resistance governs post-marital family planning, with nearly three-quarters of the cohort rejecting the future use of oral contraceptive pills. This reluctance is profoundly shaped by a deep-seated fear of clinical side effects rather than demographic stratification, as evidenced by its uniformity across all age and educational backgrounds. Because participants rely heavily on internet and social media platforms for reproductive information rather than institutional healthcare providers, misconceptions and apprehensions regarding modern contraception are easily propagated.

RECOMMENDATIONS

- **Structural Integration into Premarital Screening:** The Ministry of Health should expand the current premarital clinic framework beyond mandatory genetic and hematological profiling to include standardized, evidence-based reproductive counseling.
- **Targeted Youth Interventions:** Public health strategies must explicitly target the 15–24 age demographic and student populations, who demonstrate the highest vulnerability to poor contraceptive literacy.
- **Hybrid Educational Models:** Primary healthcare systems should leverage the target population's digital preferences by deploying high-quality, culturally sensitive online videos and interactive modules. These digital tools can proactively destigmatize side effects and correct efficacy myths, supplemented by confidential, one-on-one clinician consultations.

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