

Knowledge, Attitude and Practice of Emergency Contraception among Married Women Attending Antenatal Clinics, Makkah (2018)

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Abstract Background: Despite the advancements in current methods of contraception, unintended pregnancies are still widespread in the Kingdom of Saudi Arabia which adversely impact the well-being and health of women and their families. **Objectives:** To determine the level of knowledge, attitude and utilization of emergency contraception among women attending ante-natal clinics at primary health care centers in Makkah, 2018. **Subjects and methods:** A cross-sectional study was conducted at antenatal care clinics, Ministry of Health (MOH) PHC centers in Makkah city. A multi-stage random sample of married Saudi women in the childbearing age who were attending those clinics was recruited. Data were collected using a self-administered questionnaire composed of three main sections; socio-demographic data of the participants, questions regarding knowledge of EC use and statements assessed attitude and barriers to use EC. **Results:** The study included 191 women with a response rate of 100% their age ranged between 18 and 49 year old's with a mean of 31.7 and standard deviation (SD) of ± 5.3 years. 78.5% of the participants knew that there is a way to prevent pregnancy in case of having unprotected sex. Internet was the commonest EC source of knowledge (45.4%), followed by doctor or family planning provider (33.4%). Majority of the participants who were aware of the existence of a method to prevent pregnancy in case of an unprotected sex (n=150) knew correctly the time of using emergency contraceptive pills or IUD (99.3% and 92.7%, respectively) though only 16.2% of the studied women reported ever using emergency contraception to prevent pregnancy. Primary school educated women had the highest percentage of the EC attitude score, rank was 128.04 while postgraduate women had the lowest percentage of the score, rank of 24.07, p=0.001. **Conclusion:** The present study's results reveal high level of awareness knowledge regarding emergency contraception. However, low utilization was noticed mainly due to religious concerns.

Keywords: emergency contraception, knowledge, attitude, utilization, Makkah

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1. Introduction

1.1. Background

Despite the advancements in current methods of contraception, unintended pregnancies are still widespread in the Middle East countries including the Kingdom of Saudi Arabia, which adversely impact the well-being and health of women and their families. [1,2] Also, a considerable percentage of women with unplanned pregnancies experienced unsafe abortion, and obstetric complications [3,4]. The World Health Organization (WHO) reported that in developing countries, one woman dies every 8 minutes as a result of unsafe abortion. [5] Also; they represent a burden on the health system and socioeconomic development. And these unplanned

pregnancies exert an unnecessary load on countries' health systems and socioeconomic development. [1]

Emergency contraception (EC) can have an essential role in preventing unintended pregnancies. Over the past several years, contraceptive tools are available in the Arab region, including KSA. [6] Unfortunately, EC is underused worldwide. [7,8,9]

Despite the availability of emergency contraception tools, they are suboptimal utilized. Majority of studies carried out in developed countries [10,11,12] and developing countries [13-19] reported lack of knowledge about EC and its proper utilization.

Few studies have been carried out in Islamic countries, including KSA. [13,20,21,22] Many factors can impact women's attitude, and beliefs regarding EC, particularly in Islamic countries. [13] Therefore, a better understanding of these, mostly cultural-related factors affecting the use of EC.

1.2. Research Questions

- What is the level of knowledge regarding emergency contraception among married women attending antenatal care clinics, primary health care (PHC) centers, Makkah, 2018?

- What is the level of attitude towards emergency contraception among married women attending antenatal care clinics, primary health care (PHC) centers, Makkah, 2018?

- What is the rate of EC utilization among married women attending antenatal care clinics, (PHC) centers, Makkah, 2018?

1.3. Rationale

- Despite the availability of EC methods in the Kingdom of Saudi Arabia, they are still relatively unknown by most women.
- The importance of EC in preventing unintended pregnancies, which may lead adverse effects.
- Very little known about awareness and utilization of EC among Saudi women as only one study was cited, in addition to few studies from Islamic countries.

1.4. Aim of the Study

To determine the level of knowledge, attitude and utilization of emergency contraception among women attending ante-natal clinics at primary health care centers in Makkah, 2018.

1.5. Objectives

1. To assess the level of knowledge and attitude regarding emergency contraception among married women attending antenatal care clinics, primary health care (PHC) centers, Makkah, 2018.
2. To estimate the rate of EC utilization among married women attending antenatal care clinics, PHC centers, Makkah, 2018.

2. Literature Review

Online searching resulted in several studies carried out. Most of them were conducted in non-Islamic countries. Only one study was carried out recently in Saudi Arabia.

Studies carried out in Islamic countries

-**In Saudi Arabia** (2015), Karim et al. carried out a cross-sectional survey to evaluate knowledge, attitude, and barriers regarding EC among married women of reproductive age attended family practice clinics of King Khalid University Hospital, Riyadh. A minority of women (6.2%) had some knowledge of EC and of these only two women had ever used it. Regarding the source of their information about EC, health care professionals were the least reported source one (6.6%), Majority (73.3%) had a negative attitude toward EC being available over-the-counter without a prescription. [13]

-**In Kuwait** (2007), Marafie et al. carried out a cross-sectional study aimed to explore awareness and attitude of hormonal EC among women. Only 6.1% of the

respondents had heard of hormonal EC, 1.5% had used it. Almost two thirds (65.2%) of women would not use or inform a friend about hormonal EC. Main barriers were risks to their health (83.3%) or the baby's health (54.5%) [20]

- **In Egypt** (2013), El-Sabaa et al. implemented a descriptive cross-sectional study to identify the awareness and use of EC tools among women of reproductive age at the family health care centers in Alexandria. Majority of the women (75.5-79.4%) did not know EC, reported that EC could be used after unprotected intercourse and in case of failed usual methods respectively. [21]

- **In Karachi**, Pakistan (2009), Irfan and his research team conducted a study to assess knowledge and attitudes about EC among women of childbearing age. Majority of them (88%) were not aware of EC. [22]

Studies carried out in non-Islamic developing countries

- **In Ethiopia** (2015), a cross-sectional study was carried by Hailemariam et al. to assess emergency contraception knowledge and use among sexually active female students at Wachamo University. Almost one-third of the students (31.4%) were sexually active. Among them, 49.8% and 47.6% had good knowledge and positive attitude towards EC, respectively. [14]

- **Another cross-sectional** study was carried out in Ethiopia (2015) by Shiferaw et al. Less than half of the respondents (46.3 %) have used EC following unprotect. [15]

- **Earlier in Ethiopia** (2009), Kebede carried out a cross-sectional study to assess the knowledge and practice of EC among Gondar University students. The result was (24.0%) knew the existence of EC. [16]

- **In Nigeria** (2013), Ezebialu and Eke carried out a cross-sectional study to evaluate the knowledge and practice of EC among female non-medical undergraduates. Slightly more than half of the students (51.6%) reported the awareness of EC. Less than half of the students (45.7%) knew the correct methods. More than one-third of them (37.9%) practice a different way of protection with about half of them using the proper protection. [17]

- **Earlier in Nigeria** (2006), Ebuhi et al. implemented an across-sectional study to assess the level of knowledge and practice of EC and their associated factors among female undergraduates of Lagos University. The results revealed that 67.8% of the students reported knowing about EC. More than half (56.1%) were sexually active, and out of them, 96.8% had ever practiced contraception with only 33.9% having ever practiced EC. Knowledge and practice of EC were associated significantly with age, study level, medical education, previous history of use of contraceptives and history of induced abortion. [18]

- **In India** (2013), Rahman et al. assessed knowledge, attitudes, and barriers associated with the practice of EC among women from the state of Sikkim, India. Only 40.6% of the respondents had ever heard of EC. The most common sources of EC information were electronic media (77.1%), friends and relatives (33.8%), and health personnel (30.4%). [19]

Studies carried out in non-Islamic developed countries

-**In California, USA** (2008), Baldwin, et al. carried out an interview survey to assess awareness, knowledge, and utilization of EC among women aged between 15 and 44 years. [10]

- **In Canada (2007)**, Shoveller et al. carried out an interview-based study to identify barriers to utilize EC among a sample of women. They perceived EC as an abortifacient, and it has long-term adverse effects on health and fertility. [11]

In USA (2004), Abbott et al. carried out a prospective survey to explore knowledge, attitudes, practices and perceived needs about EC among women aged 18 to 45 years. Among them, 77% had heard of emergency contraception as a way of preventing pregnancy after unprotected intercourse. [12]

3. Methodology

3.1. Study Design

A cross-sectional study was adopted.

3.2. The Study Area

Makkah AL-Mukarramah is the holy capital city of Islam, which is the most blessed and religious city and it has the home of AL KAABA the direction of Muslims prayer.

This study was conducted at antenatal care clinics at Ministry of Health (MOH) PHC centers in Makkah city. There are 84 PHC centers in Makkah distributed over seven health sectors, belonging to MOH. The PHCC offers several services including antenatal clinics.

3.3. Study Population Eligibility

Married Saudi women in the childbearing age who are attending antenatal care clinics at PHC centers, MOH in Makkah throughout the study period constituted the target population for the study.

3.4. Inclusion Criteria

- All married Saudi female childbearing age who are attending antenatal care clinics at PHC in Makkah.

3.5. Exclusion Criteria

- Single females, Non-Saudi female.

3.6. Sample Size

The calculation of the sample size was done by using the Raosoft sample size calculator with assuming a 95% confidence level, 5% sampling error, and 50% probability of prevalence. The total was 377, and the minimum recommended size is 191.

3.7. Sampling Technique

Multistage sampling technique was adopted. In the first stage, two health sectors out of the seven in Makkah were selected by simple random method (Aladel, Alzaher sector) as selected. In the second step, two PHC centers were chosen by simple random technique from each health sectors. Thus, a total of 4 PHC centers were picked

(Alnawareah PHC, Alzaher PHC, Western Azizia PHC, and Aladel PHC). Then from each PHC we tacked according to the recorded number of patients attending antenatal care. As in Alnawareah, there were 264 patients, and the sample was 70% which mean 134 patients. Then there were 50 patients in Alzaher recorded in antenatal care that indicate 13% (25 patients). Aladel PHC had 38 patients, and the sample was 10% (19 patients) and finally, in the western azizia, there were 25 patients and 7% (14 patients) were taken from there. In the last stage, the researcher had randomly chosen from each center by sampling technique versus convenience selection (sampling interval depended on the total number of women attending each one of the four selected centers).

3.8. Data Collection Tool

Data were collected using a self-administered questionnaire composed of three main sections.

- The first part consists of socio-demographic data of the participants such as age, family income, education, current marital status, job and the number of children.
- The second part includes questions regarding knowledge of EC use. Had been determined according to the woman's response to the question: "if a woman has unprotected sex, is there anything she can do in the first three days after intercourse that will prevent pregnancy?" Those who answered "yes" were considered to know about EC, while those who answered "no" were considered uninformed about EC. For those who reported that they "didn't know" or gave unclear answers were also considered uninformed about EC. Those who identified EC were asked "what can she do to prevent pregnancy and what is the correct timing for the use of that method? Had they ever used it previously? What is the risk of pregnancy at present in case of either using or not using contraception?"
- Finally, attitude and barriers to use EC were assessed by an ABC model of attitudes. It covered the domains of affective (feelings), behavioral (behavior) and cognitive (beliefs) about reasons for using EC. Likert-scale questions were utilized to explore whether women agreed, disagreed or were unsure with five statements regarding their attitudes and beliefs towards EC.

-The questionnaire with its three sections previously applied. In a study carried out in Riyadh. [13] Permission to utilize it and to have a copy ask from the corresponding author.

3.9. Data Collection Technique

- The researcher distributed the questionnaire by herself while women were waiting for their appointments and care was taken not to disturb the work in the clinics.
- Three weeks were needed for data collection.
- The primary tool of the study was a self-administered questionnaire with a short covering message clarifying the goal of the research without mentioning names to guarantee confidentiality, and it included a consent for participation.

- The researcher was available to explain all the issue, and the questionnaires were collected at the same time.

3.10. Variables

3.10.1. Dependent Variables

Knowledge and attitude regarding EC

3.10.2. Independent Variables

Age, Current marital status, Educational level, Number of children, Job status, Income, Sources of information about EC.

3.11. Pilot Study

A pilot study was conducted on (10%) of the sample (19 women) in none of the selected PHC centers to test the questionnaire applicability and the methodology of the environment. The data from the pilot study were not included in the research.

3.12. Data Entry and Statistical Analysis

Collected data entered into an own computer and analyzed using the SPSS version 25 with a significance of p -value < 0.05 . Data were presented in the form of frequency and percentage and standard deviation showed continuous variables. Pearson's likelihood ratio chi-square test was used to test for the association between independent and dependent variables. Fischer exact test was applied in case of small frequencies. Student t-test was used to compare means of continuous variables (age) in two different groups (knowledgeable and not knowledgeable/ ever using and never using EC). Since the percentage of the attitude towards EC score was abnormally distributed (p -value of Shapiro-Wilk test < 0.001), non-parametric tests were used for comparisons; Mann-Whitney to compare between two groups and Kruskal-Wallis to compare between more than two groups. Spearman's correlation test was applied to test for correlation between two continuous variables.

3.13. Ethical Considerations

Permission from the Joint Program of Family Medicine in Makkah Al-Mukarramah was obtained, Approval from the research committee, public health and target center in Makkah Al-Mukarramah will obtain, A written consent (on the front page of the questionnaire) was obtained from each woman, All collected data were kept confidential and not used except for the scientific research, Ethical considerations were observed throughout the study.

4. Results

The study included 191 women with a response rate of 100%. Their socio-demographic characteristics are summarized in Table 1. Majority of them (92.1%) were currently married. Almost one-thirds of them (33%) had more than two children. More than half (53.9%) were

house wives. Nearly two-thirds of the participants (63.4%) were university graduated. Their age ranged between 18 and 49 years with a mean of 31.7 and standard deviation (SD) of ± 5.3 years. The monthly income of 44.5% of them was less than 5000 SR/month.

Table 1. Socio-demographic characteristics of the participants (n=191)

	Frequency	Percentage
Marital status		
Currently married	176	92.1
Ever married	15	7.9
Number of children		
One	48	25.1
Two	80	41.9
More than two	63	33.0
Occupation		
House wife	103	53.9
Teacher	72	37.7
Other	16	8.4
Educational level		
Primary school	6	3.1
High school	57	29.8
Graduated	121	63.4
Postgraduate	7	3.7
Age in years		
Range	18-49	
Mean \pm SD	31.7 \pm 5.3	
Income (Saudi Riyals/month)		
<5000	85	44.5
5000-10000	71	37.2
>10000	35	18.3

4.1. Emergency Contraception Utilization

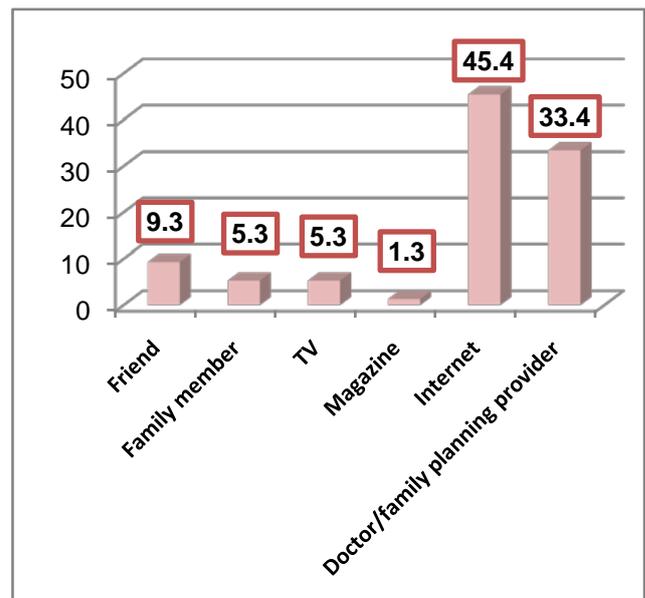


Figure 1. Source of knowledge of the participants about the existence of a method to prevent pregnancy in case of un-protected sex

Regarding the source of knowledge of the participants about the existence of a method to prevent pregnancy in

case of an unprotected sex, internet was the commonest reported (45.4%) followed by doctor or family planning provider (33.4%).

Majority of the participants who were aware of the existence of a method to prevent pregnancy in case of an unprotected sex (n=150) knew correctly the time of using emergency contraceptive pills or IUD (99.3% and 92.7%, respectively). (Table 2) None of the studied demographic factors (current marital status, number of children, occupation, educational level, age and income) was significantly associated with knowledge about EC among the participants. (Table 3) Also, the source of information about EC was not significantly associated with knowledge about it as evident from Table 4.

Table 2. Knowledge of the participants about the correct timing of emergency contraception

Questions	Right answers	
	Number	Percentage
What is the correct timing of EC?		
Pill (Within 5 days)	149	99.3
IUD (Within 5 days)	139	92.7

Table 3. Demographic factors associated with knowledge regarding emergency contraception among the participants.

	Knowledge regarding EC		p-value
	Yes N=150 N (%)	No N=41 N (%)	
Marital status			0.196**
Currently married (n=176)	140 (79.5)	36 (20.5)	
Ever married (n=15)	10 (66.7)	5 (33.3)	
Number of children			0.735*
One (n=48)	37 (77.1)	11 (22.9)	
Two (n=80)	65 (81.2)	15 (18.8)	
More than two (n=63)	48 (76.2)	15 (23.8)	
Occupation			0.436*
House wife (n=103)	84 (81.6)	19 (18.4)	
Teacher (n=72)	55 (76.4)	17 (23.6)	
Other (n=16)	11 (68.8)	5 (31.2)	
Educational level			0.848*
Primary school (n=6)	5 (83.3)	1 (16.7)	
High school (n=57)	43 (75.4)	14 (24.6)	
Graduated (n=121)	97 (80.2)	24 (19.8)	
Postgraduate (n=7)	5 (71.4)	2 (28.6)	
Age in years			0.212‡
Mean±SD	31.5±5.1	32.6±6.2	
Income (Saudi Riyals/month)			0.290
<5000 (n=85)	71 (83.5)	14 (16.5)	
5000-10000 (n=71)	52 (73.2)	19 (26.8)	
>10000 (n=35)	27 (77.1)	8 (22.9)	

* Chi-square test, ** Fischer Exact test, ‡Student`s t-test.

Table 4. Association between the main source of information about emergency contraception and knowledge regarding it among the participants

	Knowledge regarding EC		p-value*
	Yes N=150 N (%)	No N=41 N (%)	
Magazines (n=2)	2 (100)	0 (0.0)	0.837
Friends (n=17)	14 (82.4)	3 (17.6)	
Family member (n=11)	8 (72.7)	3 (27.3)	
TV (n=12)	8 (66.7)	4 (33.3)	
Internet (n=87)	68 (78.2)	19 (21.8)	
Doctor/family planning provider (n=62)	50 (80.6)	12 (19.4)	

* Chi-square test.

4.2. The rate of EC utilization

Only 16.2% of the studied women reported ever using emergency contraception to prevent pregnancy as illustrated in Figure 2.

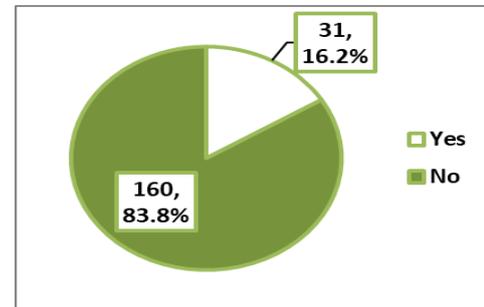


Figure 2. History of ever using emergency contraception to prevent pregnancy among the participants

From Table 5, none of the studied factors (current marital status, number of children, occupation, educational level, age and income) was significantly associated with history of ever using EC among the participated women.

Table 5. Factors associated with ever using emergency contraception among the participants

	Ever using EC		p-value
	Yes N=31 N (%)	No N=160 N (%)	
Marital status			0.210**
Currently married (n=176)	27 (15.3)	149 (84.7)	
Ever married (n=15)	4 (26.7)	11 (73.3)	
Number of children			0.515*
One (n=48)	10 (20.8)	38 (79.2)	
Two (n=80)	13 (16.3)	67 (83.8)	
More than two (n=63)	8 (12.7)	55 (87.3)	
Occupation			0.451*
House wife (n=103)	19 (18.4)	84 (81.6)	
Teacher (n=72)	11 (15.3)	61 (84.7)	
Other (n=16)	1 (6.3)	15 (93.7)	
Educational level			0.901*
Primary school (n=6)	1 (16.7)	5 (83.3)	
High school (n=57)	11 (19.3)	46 (80.7)	
Graduated (n=121)	18 (14.9)	103 (85.1)	
Postgraduate (n=7)	1 (14.3)	6 (85.7)	
Age in years			0.065‡
Mean±SD	31.1±5.3	32.0±5.3	
Income (Saudi Riyals/month)			0.828*
<5000 (n=85)	13 (15.3)	72 (84.7)	
5000-10000 (n=71)	13 (18.3)	58 (81.7)	
>10000 (n=35)	5 (14.3)	30 (85.7)	

* Chi-square test, ** Fischer exact test, ‡Student`s t-test.

4.3. Attitude towards Emergency Contraception

It is evident from Table 6 that most of the participants (75.9%) were likely to use emergency contraception if they know that EC reduces the chance of pregnancy by up to 75% and 59.2% of them reported that their current pregnancy will be at risk as a result of none using contraception. However, majority of them (85.3%) had no family planning visit in past year. Nearly three-quarters of the women (74.4%) believed that EC should be more widely advertised while 46.1% believed that EC should

be available without prescription. Seventy-nine women (41.3%) would feel shy to ask for EC.

Table 6. Attitude of the participants towards emergency contraception

	Frequency	Percentage
If you know that EC reduces the chance of pregnancy by up to 75%, would you use it to prevent pregnancy?		
-Likely	145	75.9
-Somewhat likely	38	19.9
-Not at all	8	4.2
What will be the risk to your current pregnancy with or without EC use?		
-At risk/not using contraception	113	59.2
-At risk using reversible methods	78	40.8
Access to family planning provider		
-No family planning visit in past year	163	85.3
-Family planning visit in past year	28	14.7
Should EC be more widely advertised?		
-Yes	142	74.4
-No	23	12.0
-Unsure	26	13.6
Should EC be available without prescription?		
-Yes	88	46.1
-No	81	42.4
-Unsure	22	11.5
Would you feel shy to ask for EC?		
-Yes	79	41.3
-No	84	44.0
-Unsure	28	14.7

Overall, the percentage of the total attitude towards emergency contraception ranged between 18.2 and 90.9% (57.8±14.0%) with a median (IQR) of 54.5% (45.5-72.7%).

Table 7. Factors associated with ever using emergency contraception among the participants

	Percentage of Emergency contraception attitude score			p-value
	Median	IQR	Mean rank	
Marital status				
Currently married	54.5	45.5-72.7	95.73	0.812 [‡]
Ever married	54.5	54.5-63.6	99.20	
Number of children				
One	63.6	54.5-72.7	99.40	0.554 [‡]
Two	54.5	54.5-72.7	98.74	
More than two	54.5	45.5-72.7	89.94	
Occupation				
House wife	54.5	54.5-72.7	100.33	0.478 [‡]
Teacher	54.5	45.5-63.6	90.33	
Other	59.1	45.5-72.7	93.69	
Educational level				
Primary school	72.7	50-75	124.08	0.001 [‡]
High school	54.5	50-63.6	87.50	
Graduated	63.3	54.5-72.7	102.77	
Postgraduate	36.4	36.4-45.5	24.07	
Income (Saudi Riyals/month)				
<5000	54.5	45.5-72.7	93.81	0.223 [‡]
5000-10000	63.6	54.5-72.7	106.89	
>10000	54.5	45.5-72.7	85.33	
Knowledge about EC				
Yes	59.1	54.5-72.7	98.42	0.238 [‡]
No	54.5	45.5-63.6	87.15	
Age (years)				
r*		-0.007		
p		0.926		

* Spearman's correlation coefficient.

‡ Mann-Whitney test, † Kruskal-Wallis test.

Primary school educated women had the highest percentage of the EC attitude score (mean rank was 128.04) while postgraduate women had the lowest percentage of the score (mean rank=24.07), p=0.001. Other studied factors (current marital status, number of children, occupation, age, income and knowledge level) were not significantly associated with percentage of the EC attitude score. (Table 7).

5. Discussion

Information regarding the women's reproductive behavior in Saudi Arabia is relatively rare. Recently, a study carried out in Riyadh revealed a prevalence of unplanned pregnancy among women attending obstetric clinics as 12.3%. [23] So, unplanned pregnancy not uncommon problem in Saudi Arabia.

If properly applied, emergency contraception could prevent up to 98% of unintended pregnancies and consequently reduce the rate of unsafe abortion and improve the overall women's health. [24] Therefore, this study was conducted to better understand the knowledge, attitude, and utilization of emergency contraception as well as identify factors affecting them among women attending ante-natal clinics at primary health care centers in Makkah

To apply EC successfully, there should be accurate knowledge of and positive attitude towards its methods. [14] In the present study, most of the participants (78.5%) in accordance with other studies carried out in Egypt [21] and USA [10] could recognize that there is a way to prevent pregnancy in case of having un-protected sex. Majority of them knew correctly the time of using emergency contraceptive pills or IUD. These findings reflect great improvement of women's awareness regarding reproductive health as since 4 years, a study carried out in Riyadh revealed that only 6.2% of women were aware of EC. [13] Also, the high rate of EC awareness reported in the current study could be partially attributed to the fact that the high level of education of the participants in this study as more than two-thirds of them were at least university graduated.

Different rates and patterns of EC awareness were reported internationally. In a study carried out in Pakistan, majority of women (88%) were not aware of EC. [22] Moreover, among those aware of EC, the correct timing of effectiveness of post-coital oral contraception was known by only 40% while none of these women were aware of the existence of Intra Uterine Contraceptive Device (IUCD) insertion as an option for EC. In Nigeria, among non-medical undergraduates, slightly more than half of the students (51.6%) reported the awareness of EC. In India, Only 40.6% of the women had ever heard of EC and most of those (71.9%) who had heard of EC did not know the timeframe to use it. [19] We cannot compare the rate of EC awareness in the aforementioned studies with our study due to two main factors. First, their conduction at different times and more importantly, the variation in the demographic characteristics of the participants, mainly age and educational level as well as variation in cultural background of the participants.

Regarding the source of knowledge of the participants in this study about the existence of a method to prevent pregnancy in case of un-protected sex, internet was the commonest reported, followed by doctor or family planning provider. In another Saudi study carried out in Riyadh, [13] health care professionals were the least reported source of information regarding EC (6.6%). In Pakistan, the primary source of information about EC was the family physician or general practitioner. [22] In India, the most common sources of EC information were electronic media, friends and relatives, and health personnel. [19] Therefore, encouraging healthcare professionals, particularly physicians to have a role in educating women regarding EC is recommended in our community.

Regarding the attitude towards EC methods, almost one-third of the participated women (31.4%) were willing to use emergency contraception to prevent pregnancy in case of unprotected sex. Among those not willing to use emergency contraception, religious factors were the commonest reported reasons for that followed by medical reasons. In our society, religious beliefs and social traditions have a strong influence on women's behaviour as having an induced abortion is extremely prohibited as it is associated with tight regulation. [25] This religious concern regarding EC utilization was also reported in other studies carried out in Egypt [21] and Pakistan. [22] However, in another Saudi study carried out in Riyadh, possible health effects were the most common barriers to use EC, followed by religious concern. [13] They attributed this surprising finding to the rapid change in the Saudi community over the last decade, particularly women's education and alteration in fertility beliefs. In Kuwait, the main barriers were risks to their health or the baby's health or that it was abortifacient. [20] In non-Islamic countries, medical concern was the main barrier for utilizing EC. For example, in Canada, women perceived EC as an abortifacient, and they think that on long-term it will have adverse effects on health and fertility. [11] In India, the most common barrier for using EC was inadequate knowledge of it, its perceived non-availability, considering it an abortifacient, and religious beliefs. [19]

In the present study, only 16.2% of the studied women reported ever using emergency contraception to prevent unintended pregnancy. Quite close figure was reported in another Islamic country (Pakistan), as 11.5% of women ever used EC to prevent pregnancy. [22] In Egypt, one-fifth of women (21.5%) ever used EC. [21] In Kuwait, only 1.5% of women had used EC. [20] In another study carried out in Ethiopia (non-Islamic country) among university students, 44.4% of sexually active students used EC at least once after unprotected sexual intercourse. [14] In Nigeria, among none medical undergraduate students the rate of previous EC utilization was 37.9%. [17] However, very low rate (4%) has been reported in an American study carried out among women 15-44 years. [10] Also, in India, the rate of EC utilization was 6.1%. [19] Variation in the rate of EC utilization in different studies could be attributed primarily to cultural and religious background as well as the participants' characteristics as well as the time of study conduction.

Positive attitude towards EC was apparent among women in this study in some aspects as most of them were likely to use emergency contraception if they know that EC reduces the chance of pregnancy by up to 75%, believed that EC should be more widely advertised. On the other hand, 46.1% of women believed that EC should be available without prescription and 41.3% would feel shy to ask for EC. In another Saudi study carried out few years ago, [13] majority of women (73.3%) had a negative attitude toward EC being available over-the-counter without a prescription. The difference between the two figures could reflect the change in belief over the last few years among Saudi women. Further investigation is warranted to clarify this finding. However, majority of the women in this study had no family planning visit in past year

In the current study, 58.1% of the respondents believed that both partners should decide for EC use whereas 34% believed that the decision should come from the physician. In another Saudi study, [13] most women considered involving their partner in the decision to use EC as a natural process. These findings are in line with the literature on contraceptive decision makers. [26]

In this study, unexpectedly, lower educated women had more positive attitude towards EC compared to higher educated women. This could be attributed to the fact that more educated women could have more concern regarding the side effects of EC on their health. Further detailed investigation is warranted to clarify this finding in further studies.

This study has some few limitations. As a result of the sensitive nature of the subject, information bias is expected. Also, the study tool did not explore concerns regarding the use of EC in details. Finally, the inherited limitation of cross-sectional design in proving only association and not causality between studied variables. Nevertheless, the results could be useful for health authorities to expand the reproductive health services and improving the contraception delivery systems in Makkah.

6. Conclusion

The present study's results reveal high level of awareness and knowledge regarding emergency contraception. However, low utilization was noticed mainly due to religious concerns. Positive attitude towards EC was apparent among women in this study in some aspects. However, a considerable proportion of them believed that EC should not be available without prescription and would feel shy to ask for EC as well as majority of them had no family planning visits. Their main source of information about emergency contraception was the internet, followed by healthcare professionals.

7. Recommendations

In the light of the present study's results, the following are recommended:

1. Health care providers should be encouraged to provide correct information related to reproductive health in their patients, according to religious values and social norms.

2. Encourage women to discuss all issues related to reproductive health with their physicians in the clinic, including emergency contraception. Therefore, it would be better to recruit female physicians in this regard.
3. Misconceptions related to emergency contraception should be addressed and clarified through work shop and health awareness campaigns.
4. Health care professionals should be educated in the usage of emergency contraceptives.
5. Emergency contraceptives should be available in all pharmacies, and family planning clinics and given on physicians` prescription.
6. Further studies in the same subject are recommended.

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