

## Knowledge of Emergency Contraception Among Married Women Attending Antenatal Clinics, Makkah Saudi Arabia 2022

Abdulaziz Abdulrahman Saleh AlKhalawi<sup>1</sup>, Amani Saleh Ali Almowaizah<sup>2</sup>, Afaf Ali Hamed Alsulimani<sup>3</sup>, Hamdah Ghareeb Mohammed Alruwaili<sup>4</sup>, Ohoud khalif alanzi<sup>5</sup>, Dalal Fehaid Funaysan Alsubaie<sup>6</sup>, Reem Abeed Owaidh Alnafe<sup>7</sup>, Munirah Hail Marran Alanazi<sup>8</sup>, Nawal Ali Althubaiti<sup>9</sup>, Tahani saadi Alrashidi<sup>10</sup>, Reem Hassan Mohamed Somily<sup>11</sup>, Sarah Mohammed suliman alshuyfani<sup>12</sup>, Ahmad talal khiyami<sup>13</sup>, Abdul Majeed Munif bin omayrah<sup>14</sup>, Essam Gharamah M Alghamdi<sup>15</sup>

<sup>1</sup>X-ray technician, Alhamra center, Saudi Arabia.

<sup>2</sup>Radiological Technology- Alhamra center, Saudi Arabia.

<sup>3</sup>Nursing technician, Alhamra center, Saudi Arabia.

<sup>4</sup>Psychology, Alhamra center, Saudi Arabia.

<sup>5</sup>Nursing technician- alhamra center, Saudi Arabia.

<sup>6</sup>Specialist -clinical nutrition, Alhamra center, Saudi Arabia.

<sup>7</sup>Dental assistant, Alhamra centre, Saudi Arabia.

<sup>8</sup>Technician Nursing- Alhamra center, Saudi Arabia.

<sup>9</sup>Techanic nurse- King Faisal center, Saudi Arabia.

<sup>10</sup>Techanic nurse-King Faisal center, Saudi Arabia.

<sup>11</sup>Nursing -Alhamra center, Saudi Arabia.

<sup>12</sup>Nursing specialist, Alhamra center, Saudi Arabia.

<sup>13</sup>Senior specialist of sport physical therapy, King Abdulaziz Hospital Makkah, Saudi Arabia.

<sup>14</sup>XRay technician, Office of the Ministry, Saudi Arabia.

<sup>15</sup>Nursing, Human resources, community health, Saudi Arabia.

### Abstract

**Background:** Contraception is an effective mean of Family Planning (FP) and fertility control, promotes maternal and child health. It is interesting to explore the perception and use of contraceptives among Saudi women. The usage of contraceptive has a significant part in reducing fertility and control of population, which in turn is important for the development of the nation. Despite the advancements in current methods of contraception, unintended pregnancies are still widespread in the Kingdom of Saudi Arabia which adversely impacts the well-being and health of women and their families. Unintended pregnancies pose a major challenge to the reproductive health of young adults in developing countries. students are an important high-risk group in any society and emergency contraceptives can prevent unintended pregnancies and its consequences in this high risk group, contraception is unique among medical interventions in the breadth of its positive outcomes. An effective means of Family Planning (FP) and fertility control promotes maternal and child health. **Aim of the study:** The study aimed to assessment the level of knowledge of emergency contraception among married women attending antenatal clinics, Makkah (2022). **Methods:** cross sectional descriptive study has be conducted using Saudi women who fulfilling the inclusion criteria, used to randomly select women from Primary Health Care Centers (PHCCs) in Makkah in Saudi Arabia . using a well-structured pretested questionnaire composed of four main parts to collect the data. Our total participants were (200). **Results:** the majority of the participants answer the correct timing of emergency contraceptive pill (Within 5 days) were (86.0%) while IUD (Within 5 days) were (77.0%) while Total Knowledge regarding emergency contraceptive the majority of participants answer yes

were (88.0%), regarding the ever using emergency contraception the majority of participants answer no were (75.0%). Conclusion: In the light of the above results, there is an urgent need to improve the knowledge of Saudi women in age of fertility towards the use of modern contraceptives, low utilization was noticed mainly due to religious concerns. Awareness programmes should be organized by the management on emergency contraception and other modern contraceptive methods.

**Keywords:** *Assessment, Emergency, contraception, knowledge, PHC, Makkah.*

## 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]. The World Health Organization (WHO) reported that in developing countries, one woman dies every 8 minutes as a result of unsafe abortion.5Also; 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.[4]

Despite unplanned and unwanted these pregnancies carry a higher risk of morbidity and mortality, often due to unsafe abortion. Throughout the world, unplanned pregnancies are a considerable social and public health issue, many of these unplanned pregnancies can be avoided using Emergency Contraception [5] Emergency Contraception refers to a group of birth control contraceptive modalities, which is indicated after unprotected sexual intercourse, misuse of regular contraception or non-use of contraception, concerns about possible contraceptive failure, incorrect use of contraceptives, and sexual assault if without contraception coverage.[6] Emergency Contraception plays a vital role in preventing unintended pregnancy, which in turn helps to reduce unintended childbirth and unsafe abortion, which are major problems affecting maternal health.[7] Emergency contraception

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

Despite the availability of emergency contraception tools, they are suboptimal utilized. Majority of studies carried out in developed countries.[10]

and developing countries.[11], reported lack of knowledge about EC and its proper utilization.

Few studies have been carried out in Islamic countries, including KSA. [12,13] Many factors can impact women's attitude, and beliefs regarding emergency contraception, particularly in Islamic countries. [14] Therefore, a better understanding of these, mostly cultural-related factors affecting the use of emergency contraception.

Among the Saudi population, condom use is the second most commonly used method after pills, which matches the trend of developed countries, where Condoms and male sterilization are among the least used contraceptive methods [15]. The reverse is true in developing countries, where four modern contraceptive methods, oral contraceptives, IUDs, injectable and female sterilization are the most widely used methods among married women [16]. The use of contraceptives influenced by many factors, such as, health care workers support, spouses, males' support, views of other women, marital status, desire for more children, myths and misconceptions on modern methods, socio-economic status of the women and accessibility [17,18]. Although current contraceptive methods are efficacious, safe and

cost-effective [19], but most countries still have high contraceptive failure rates. So counseling and increased use of long-term reversible and irreversible methods have been effective in reducing failure rates [20].

## 1.2 Literature Review

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. Possible health effects were the most common barriers to use EC. Religious belief as a major hindrance to its use reported by 13.3% of the respondents[1].

In Egypt (2013), El-Sabaa et al. implemented a descriptive cross-sectional study to identify the awareness and use of emergency contraception 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 emergency contraception could be used after unprotected intercourse and in case of failed usual methods respectively. Only one-fifth of them (21.5%) ever used emergency contraception. [21]

In Kuwait (2007), Marafie et al. carried out a cross-sectional study aimed to explore awareness and attitude of hormonal emergency contraception among women. Only 6.1% of the respondents had heard of hormonal emergency contraception, 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%) or that it was abortifacient (21.2%). On the other hand, the majority of them (90.9%) wanted hormonal emergency contraception to be available.[22]

In Ethiopia (2015), a cross-sectional study was carried by Haile Mariam 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 emergency contraception, respectively. Moreover, 44.4% of sexually active Students used EC at least once after unprotected sexual intercourse. Logistic regression analysis revealed that age, previous and current residence, marital status, religion, parent's educational status, knowledge about emergency contraception has a significant association with emergency contraception use [23]

In Karachi, Pakistan (2009), Irfan and his research team conducted a study to assess knowledge and attitudes about emergency contraception among women of childbearing age. Majority of them (88%) were not aware of emergency contraception. Only 11.5% ever used EC to prevent pregnancy, out of those, the correct timing of effectiveness of post-coital oral contraception was known to 40% of women while none of these women were aware of the existence of Intra Uterine Contraceptive Device (IUCD) insertion as an option for emergency contraception. The primary source of information about emergency contraception was the family physician or general practitioner. Only 36% of women were uncomfortable to use emergency contraception because of religious reasons.[24]

Another cross-sectional study was carried out in Ethiopia (2015) by Shiferaw et al. aimed to identify factors associated with using of emergency contraception among female students in Mizan-Tepi University, south west Ethiopia. A mixed quantitative and qualitative (focus group discussion) design was adopted. Less than half of the respondents (46.3 %) have used emergency contraception following unprotected. The results of the focused group showed that lack of knowledge about emergency contraception and fear of being seen by others reported as the primary factors for not using.[2]

In Nigeria (2013), Ezebialu and Eke carried out a cross-sectional study to evaluate the knowledge and practice of emergency contraception among female non-medical undergraduates. Slightly more than half of the students (51.6%) reported the awareness of emergency contraception. Use of regular family planning methods, being sexually active and having an extra risk for unintended pregnancy were factors that significantly affected knowledge. 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. [25]

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.[26]

### 1.3 Rationale

Despite the availability of emergency contraception methods in the Kingdom of Saudi Arabia, they are still relatively unknown by most women. The importance of emergency contraception in preventing unintended pregnancies, which may lead adverse effects. Very little known about awareness and utilization of emergency contraception among Saudi women

### 1.4 Aim of the study

The study aimed to assessment the level of knowledge of emergency contraception among married women attending antenatal clinics, Makkah (2022)

### 1.5 objectives

To assessment the level of knowledge of emergency contraception among married women attending antenatal clinics, Makkah (2022).

## 2 Methodology

### 2.1 Study Design:

A cross-sectional study.

### 2.2 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.

### 2.3 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.

### 2.4 Inclusion criteria

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

### 2.5 Exclusion criteria

- Single females
- Non-Saudi female

### 2.6 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 200, and the minimum recommended size is 191.

### 2.7 Sampling technique

Multistage sampling technique was adopted. In the first stage, two health sectors out of the seven in Makkah were select 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).

## 2.8 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?"

## 2.9 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 consent for participation.

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

## 2.10 Variables

### 2.10.1 Dependent variables

- Knowledge regarding EC

### 2.10.2 Independent variables

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

## 2.11 Pilot study

A pilot study was conducted on (10%) of the sample (25 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.

## 2.12 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.

### 2.13 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.

### 2.14 Budget

Self- funded.

## 3. Results

The study included 200 women with a response rate of 100%.

Table 1 Descriptive of socio demographic characteristics of the participants (n=200)

	N	%
<b>Age</b>		
<25	48	24
25-35	66	33

>35	86	43
Range	19-47	
Mean±SD	32.158±6.31	
<b>Marital status</b>		
Currently married	178	89
Ever married	22	11
<b>Number of children</b>		
One	64	32
Two	110	55
More than two	26	13
<b>Occupation</b>		
House wife	98	49
Teacher	96	48
Other	6	3
<b>Educational level</b>		
Primary school	12	6
High school	44	22
Graduated	114	57
Postgraduate	30	15
<b>Income (Saudi Riyals/month)</b>		
<5000	78	39
5000-10000	80	40
>10000	42	21
<b>Source of knowledge of the participants about the existence of a method to prevent pregnancy in case of un-protected sex</b>		
Magazines	10	5
Friends	22	11
Family member	12	6
TV	18	9
Internet	70	35
Doctor/family planning provider	68	34

In our study showed that the only (43.00%)of the participated were >35 years while (33.00%)were(25-35)years were Range 19-47 and Mean ±SD(32.158±6.31) ,regarding the marital status Majority of them (89.0%) were currently married. Almost one-thirds of them (55%) had more than two children. The majority of (49.0%) were house wife's. Nearly two-thirds of the participants (57.0%) were graduated. The monthly income of 40.0% of them was 5000-10000SR/month, regarding the Source of knowledge of the participants about the existence of a method to prevent pregnancy

in case of un-protected sex the majority were from internet were 35.0%.

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

	N	%
<b>What is the correct timing of EC?</b>		
Pill (Within 5 days) (correct answer)	172	86
IUD (Within 5 days) (correct answer)	154	77
<b>Total Knowledge regarding EC</b>		
Yes	176	88
No	24	12
<b>Ever using emergency contraception</b>		
Yes	50	25
No	150	75

Table 2 show the majority of the participants answer the correct timing of emergency contraceptive pill (Within 5 days) were (86.0%) while IUD (Within 5 days) were (77.0%) while Total Knowledge regarding emergency contraceptive the majority of participants answer yes were (88.0%), regarding the ever using emergency contraception the majority of participants answer no were (75.0%).

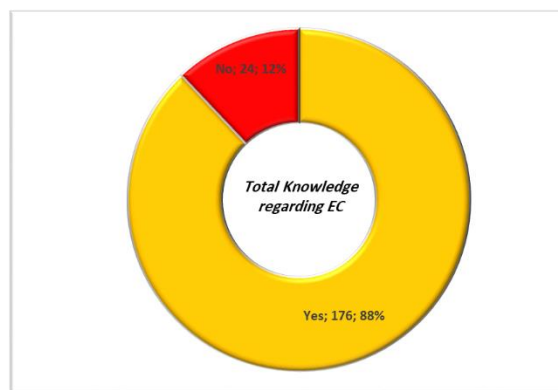


Figure 1 Descriptive of total knowledge of the participants about the correct timing of emergency contraception regarding emergency contraception utilization

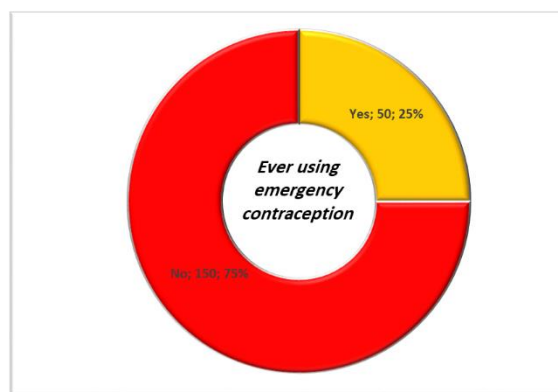


Figure 2 Descriptive of ever using emergency contraception of the participants regarding emergency contraception utilization

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

		Knowledge regarding EC				Total		Chi-square	
		Yes		No		N	%	X <sup>2</sup>	P-value
		N	%	N	%				
Age	<25	40	22.73	8	33.33	48	24	5.467	0.065
	25-35	55	31.25	11	45.83	66	33		
	>35	81	46.02	5	20.83	86	43		
Marital status	Currently married	160	90.91	18	75.00	178	89	5.460	0.019*
	Ever married	16	9.09	6	25.00	22	11		
Number of children	One	53	30.11	11	45.83	64	32	3.432	0.180
	Two	101	57.39	9	37.50	110	55		
	More than two	22	12.50	4	16.67	26	13		
Occupation	House wife	92	52.27	6	25.00	98	49	20.792	<0.001*
	Teacher	82	46.59	14	58.33	96	48		
	Other	2	1.14	4	16.67	6	3		
Educational level	Primary school	3	1.70	9	37.50	12	6	51.447	<0.001*
	High school	37	21.02	7	29.17	44	22		
	Graduated	108	61.36	6	25.00	114	57		

	<b>Postgraduate</b>	28	15.91	2	8.33	30	15		
<b>Income</b>	<b>&lt;5000</b>	67	38.07	11	45.83	78	39	0.613	0.736
	<b>5000-10000</b>	71	40.34	9	37.50	80	40		
	<b>&gt;10000</b>	38	21.59	4	16.67	42	21		

In the our studied was significantly associated with knowledge about EC among the participants in the marital status increased in currently married in yes were (90.91%) P-value=0.019 , X<sup>2</sup> 5.460 also in occupation increased in the teacher in no were(58.33%) P-value=0.001 X<sup>2</sup> 20.792, also in educational level increased in Graduated in yes were 61.36 , P-value= 0.001 and X<sup>2</sup> 51.447

None of the other demographic factors in the studied was no significantly associated with knowledge about EC among the participants in (number of children, age and income) respectively were P-value=0.065, 0.180, 0.736 and X<sup>2</sup> 5.467, 3.432, 0.613.

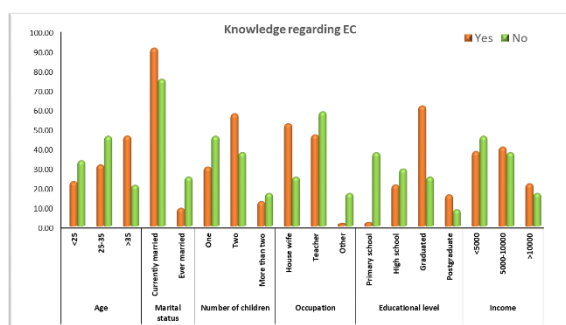


Figure 3 Descriptive of Demographic factors associated with knowledge regarding emergency contraception among the participants

#### 4. Discussion

Information regarding the women ` 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%.[27] So, unplanned pregnancy not uncommon problem in Saudi Arabia. Therefore, the aim of this study was to assessment the level of knowledge of emergency contraception among married women attending antenatal clinics in Makkah (2019). If properly applied, emergency

contraception could high prevalence prevent up to of unintended pregnancies and consequently reduce the rate of unsafe abortion and improve the overall women`s health.[28] 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 emergency contraception successfully, there should be accurate knowledge of and positive attitude towards its methods.[23]

In the present study, most of the participants in accordance with other studies carried out in Egypt [21] and USA [29] 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 emergency contraception.[1] 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 emergency contraception awareness were reported internationally. In a study carried out in Pakistan, majority of women were not aware of emergency contraception.[24] Moreover, among those aware of emergency contraception, the correct timing of effectiveness of post-coital oral contraception was known only while none of these women were aware of the existence of Intra Uterine Contraceptive Device (IUCD) insertion as an option. In Nigeria, among non-medical



undergraduates, slightly more than half of the students (51.6%) reported the awareness of emergency contraception. In India, Only 40.6% of the women had ever heard of emergency contraception and most of those (71.9%) who had heard of emergency contraception did not know the timeframe to use it.[30] We cannot compare the rate of emergency contraception 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 unprotected sex, internet was the commonest reported, followed by doctor or family planning provider. In another Saudi study carried out in Riyadh,[1] health care professionals were the least reported source of information regarding emergency contraception (6.6%). In Pakistan, the primary source of information about emergency contraception was the family physician or general practitioner.[24] In India, the most common sources of emergency contraception information were electronic media, friends and relatives, and health personnel.[30] Therefore, encouraging healthcare professionals, particularly physicians to have a role in educating women regarding emergency contraception is recommended in our community.

However, in another Saudi study carried out in Riyadh, possible health effects were the most common barriers to use emergency contraception, followed by religious concern.[1] 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.[22] In non-Islamic countries, medical concern was the main barrier for utilizing emergency contraception. For example, in Canada, women perceived emergency contraception as an abortifacient,

and they think that on long-term it will have adverse effects on health and fertility.[26] In India, the most common barrier for using emergency contraception was inadequate knowledge of it, its perceived non-availability, considering it an abortion facing, and religious beliefs.[30] the results could be useful for health authorities to expand the reproductive health services and improving the contraception delivery systems in Makkah.

## 5. Conclusion

The purpose of this study assessment of the Knowledge of Emergency Contraception among Married Women Attending Antenatal Clinics, Makkah, and the study demonstrated a limited knowledge of the variety of contraceptive methods and positive attitude regarding contraceptive. The participants showed high intention to use contraceptives. However, low utilization was noticed mainly due to religious concerns. Positive attitude towards emergency contraception was apparent among women in this study in some aspects. However, a considerable proportion of them believed that emergency contraception should not be available without prescription and would feel shy to ask for emergency contraception 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.

## Reference

- [1] Yeboah, D. S., Appiah, M. A., & Kampitib, G. B. (2022). Factors influencing the use of emergency contraceptives among reproductive age women in the Kwadaso Municipality, Ghana. *Plos one*, 17(3), e0264619.
- [2] Tenaw, L. A. (2022). Practice and determinants of emergency contraceptive utilization among women seeking termination of pregnancy in Northwest Ethiopia—A mixed quantitative and

- qualitative study. *Plos one*, 17(2), e0263776.
- [3] Albarnawi, R. T. A., Fallatah, R. O. B., Mattaen, Y. M. Y., Zakaria, Z. O. S., Hawsawi, T. H., Qusti, M. A., ... & Garawi, H. M. (2022). Effect of the Knowledge of Emergency Contraception among Married Female attending in primary health care Makkah Al-Mokarramah at Saudi Arabia 2022. *Annals of the Romanian Society for Cell Biology*, 26(01), 4136-4149.
- [4] Bishwajit, G., Tang, S., Yaya, S., & Feng, Z. (2017). Unmet need for contraception and its association with unintended pregnancy in Bangladesh. *BMC pregnancy and childbirth*, 17(1), 1-9.
- [5] Tesfa, A., Bizuneh, D. A., Tesfaye, T., Gebru, A. A., Ayene, Y. Y., & Tamene, A. B. (2015). Assessment of knowledge, attitude and practice towards emergency contraceptive methods among female students in Seto Semero high school, Jimma town, south west Ethiopia. *Science Journal of Public Health*, 3(4), 478-486.
- [6] Mahfuzur, M. R., Alam, M. R., & Billah, M. A. (2022). Determinants of emergency contraceptive pill use in Bangladesh: An analysis of national survey data. *Asian Pacific Journal of Reproduction*, 11(2), 62-69.
- [7] Iftikhar, R., & Al Khail, B. A. A. (2015). Knowledge about missed contraceptive pills among married women at King Abdulaziz University Hospital. *Patient preference and adherence*, 9, 401.
- [8] Ahmed, M. S., & Yunus, F. M. (2021). Factors associated with knowledge and use of the emergency contraceptive pill among ever-married women of reproductive age in Bangladesh: findings from a nationwide cross-sectional survey. *The European Journal of Contraception & Reproductive Health Care*, 26(3), 195-201.
- [9] Abera, L., Sema, A., Guta, A., & Belay, Y. (2021). Emergency contraceptive utilization and associated factors among college students in Dire Dawa City, Eastern Ethiopia: A cross-sectional study. *European Journal of Midwifery*, 5.
- [10] Alhusain, F., Alkaabba, F., Alhassan, N., Alotaibi, S., Breakeit, S., Musaudi, E., & Alhasan, A. (2018). Patterns and knowledge of contraceptive methods use among women living in Jeddah, Saudi Arabia. *Saudi Journal for Health Sciences*, 7(2), 121.
- [11] Tenaw, L. A. (2022). Practice and determinants of emergency contraceptive utilization among women seeking termination of pregnancy in Northwest Ethiopia—A mixed quantitative and qualitative study. *Plos one*, 17(2), e0263776.
- [12] Quereishi, M. J., Mathew, A. K., & Sinha, A. (2017). Knowledge, attitude and practice of family planning methods among the rural females of Bagbahara block Mahasamund district in Chhattishgarh State, India. *Glob J Med Public Heal*, 6(2), 1-7.
- [13] Albezrah, N. A. (2015). Use of modern family planning methods among Saudi women in Taif, KSA. *Int J Reprod Contracept Obstet Gynecol*, 4(4), 990-994.
- [14] Bankole, A., Adewole, I. F., Hussain, R., Awolude, O., Singh, S., & Akinyemi, J. O. (2015). The incidence of abortion in Nigeria. *International perspectives on sexual and reproductive health*, 41(4), 170.
- [15] Mahfuzur, M. R., Alam, M. R., & Billah, M. A. (2022). Determinants of emergency contraceptive pill use in Bangladesh: An analysis of national survey data. *Asian Pacific Journal of Reproduction*, 11(2), 62-69.
- [16] Jamal-Hariri, E. A. (2015). Gender and cultural influences on reproductive decision-making and fertility trends in Jeddah, Saudi Arabia (Doctoral dissertation, Cardiff Metropolitan University).
- [17] Gupta, R. K., Singh, P., Gupta, C., Kumari, R., Langer, B., & Gupta, R. (2017). Emergency contraception: knowledge, attitude and practices among recently married females in a rural area of North India. *Int J Res Med Sci*, 5(10), 4450.
- [18] Farheen, A. (2013). Ever use of contraceptives among women attending

- primary health care centers at Abha, Saudi Arabia. *International Journal of Current Research and Review*, 5(10), 26.
- [19] Kumar, N. (2016). Met and unmet needs for family planning: a global issue. *EC Gynaecol*, 3, 281-9.
- [20] Abraha, D., Welu, G., Berwo, M., Gebretsadik, M., Tsegay, T., Gebreheat, G., & Gebremariam, H. (2019). Knowledge of and Utilization of Emergency Contraceptive and Its Associated Factors among Women Seeking Induced Abortion in Public Hospitals, Eastern Tigray, Ethiopia, 2017: A Cross-Sectional Study. *BioMed research international*, 2019.
- [21] El-Sabaa, H. A., Ibrahim, A. F., & Hassan, W. A. (2013). Awareness and use of emergency contraception among women of childbearing age at the family health care centers in Alexandria, Egypt. *Journal of Taibah University Medical Sciences*, 8(3), 167-172.
- [22] Marafie, N., Ball, D. E., & Abahussain, E. (2007). Awareness of hormonal emergency contraception among married women in a Kuwaiti family social network. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 130(2), 216-222.
- [23] Hailemariam, T. G., Tesfaye, T., Melese, T., Alemayehu, W., Kenore, Y., Lelamo, Y., ... & Seifu, C. N. (2015). Sexual experiences and emergency contraceptive use among female university students: a cross-sectional study at Wachamo University, Ethiopia. *BMC research notes*, 8(1), 1-8.
- [24] Irfan, F., Karim, S. I., Hashmi, S., Ali, S., & Ali, S. A. (2009). Knowledge of emergency contraception among women of childbearing age at a teaching hospital of Karachi. *Journal of the Pakistan Medical Association*, 59(4), 235.
- [25] Ezebialu, I. U., & Eke, A. C. (2013). Knowledge and practice of emergency contraception among female undergraduates in south eastern Nigeria. *Annals of medical and health sciences research*, 3(3), 541-545.
- [26] Shoveller, J., Chabot, C., Soon, J. A., & Levine, M. (2007). Identifying barriers to emergency contraception use among young women from various sociocultural groups in British Columbia, Canada. *Perspectives on sexual and reproductive health*, 39(1), 13-20.
- [27] Abdulwahab, A., Almotairi, A., Alkhamis, W., & Almutiari, A. (2018). Prevalence of unplanned pregnancy and its psychological effect among pregnant patients in King Khalid University Hospitals. *The Egyptian Journal of Hospital Medicine*, 70(6), 943-947.
- [28] World Health Organization. (2015). Core competencies in adolescent health and development for primary care providers: including a tool to assess the adolescent health and development component in pre-service education of health-care providers. World Health Organization.
- [29] Baldwin, S. B., Solorio, R., Washington, D. L., Yu, H., Huang, Y. C., & Brown, E. R. (2008). Who is using emergency contraception?: Awareness and use of emergency contraception among California women and teens. *Women's Health Issues*, 18(5), 360-368.
- [30] Rahman, H., Khalda, E., Kar, S., Kharka, L., & Bhutia, G. P. (2013). Knowledge of, attitudes toward, and barriers to the practice of emergency contraception among women in Sikkim, India. *International Journal of Gynecology & Obstetrics*, 122(2), 99-103.