

# Knowledge, Attitude and Practices of Emergency Contraceptive Methods in Female Patients Attending Gynae OPD at Arif Memorial Teaching Hospital: A Cross Sectional Survey

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## ABSTRACT

**Aim:** To assess the knowledge, attitude and practices of emergency contraceptive methods in female population of child bearing age at Arif Memorial Hospital.

**Study Design:** Hospital based descriptive cross sectional survey

**Settings and duration of study:** Department of Obstetrics and Gynecology Unit 1, Arif Memorial Hospital, Mustafabad from November 2018 to April 2019 for a duration of 6 months.

**Methodology:** All married females of age 18 years to >41 years, presenting to our OPD were enrolled in the study after taking their consent. All the information was collected on a questionnaire which included information about demographic features along with questions to assess the knowledge, attitude and practices of emergency contraceptive methods. Non probability convenience sampling technique was used and data was analyzed using SPSS 23.

**Results:** Out of 377 women included in the study, 323 respondents responded positively showing a response rate of 72%. 38% respondents belonged to the age group of 26-33. 80% of our study population belonged to rural area, 95% being Muslims and 35.3% having an educational status between Primary-Matric. In this study, only 20% females had heard about EC while 80% were unaware about it. Finally 70% females who had heard about emergency contraceptive methods mentioned pills as their method of EC.

**Conclusion:** The findings of study showed that majority of respondents were having poor knowledge of EC and this area still needs a lot of improvement in Pakistan in order to give better awareness about EC. The attitude of respondents was positive towards EC. Even then people need further education/counseling in order to deal with different myths and misconceptions about EC to have better practice of EC methods, as according to the findings of present study females rarely practice any method of EC because of poor knowledge and those who are aware of emergency contraceptive methods, they were using pills for EC.

**Keywords:** Emergency Contraception, Knowledge, Attitude, Practice, Pakistan,

## INTRODUCTION

EC is a form of contraceptive drug or device that is used shortly after unprotected sex, following sexual maltreatment, non- utilization of regular contraception. EC plays an imperative role in preventing unintended pregnancies, thereby reducing the risk of unsafe miscarriages, which constitute a major threat to the life of a woman. Emergency contraceptive methods are found to be effective when utilized shortly after unprotected coitus, primarily within 72-120 hours of unprotected sex<sup>1</sup>.

Undesirable pregnancies are a major health concern for both the developing and developed countries worldwide. Unwanted conceptions usually result from ineffective utilization of regular contraceptive methods and result in induced abortions<sup>2</sup>. Each year 250 million pregnancies occur worldwide out of which 40% pregnancies are unintended and 20% of these undergo induced miscarriages<sup>3,4,2</sup>. In Asia, the average rate of induced miscarriages due to unwanted conception is 36/1000 women<sup>5</sup>.

According to population reference bureau 2017, Pakistan is the 6<sup>th</sup> largest nation of the world with a population of 199 million and this population is expected to increase by 311 million by the year 2050. It is very difficult

for a developing country like Pakistan to keep pace between fast growing population and its limited resources<sup>6</sup>. Also total fertility rate of Pakistan is 3.6 children/women that is unacceptably high and it shows a failure to achieve our family planning strategies.[7][8] As a result, Pakistani women have undergone an estimated 2.25 million unsafe abortions in the year 2012[9]. These unsafe abortions constitute a major threat to the life of a women<sup>10</sup>. So meeting the need of the voluntary family planning for these women would not only fulfill a human right but it would also decrease the number of maternal deaths by 1/3<sup>rd</sup>. This is highly cost effective public health strategy<sup>11</sup>.

Contraception is one of the major health determinants of fertility levels. Contraception or family planning basically refers to the practices that help couples to avoid unwanted pregnancies thereby regulate the spacing between pregnancies<sup>12</sup>. The contraceptive prevalence rate in Pakistan is 39.3% for the year 2016-17<sup>13</sup>. This is the non usage of proper contraception which leaves the couples with the only choice of induced abortion to deal with unwanted pregnancies<sup>14</sup>.

The socioeconomic burden of unintended pregnancies is significant and preventable at the same time. In case of unprotected sex or method failure, the knowledge regarding the back up support and the use of emergency contraceptive methods is the most important factor to prevent unwanted pregnancies. Emergency contraceptive methods help to control population by

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reducing the number of unwanted child births and also reduces maternal mortality occurring as a result of unsafe abortions<sup>3</sup>. There are two forms of emergency contraception.

- Pills
- IUCD
- Pills are of 3 types.
- Combined yuzpe taken as 1 tablet 12 hours apart 2 doses with efficacy of 75%<sup>15</sup>.
- Progesterone only pill, 2 doses of 0.75mg levonorgesterel taken within 72 hours of unprotected intercourse with an efficacy of 85%<sup>2</sup>.
- Mefepristone 10-25mg is another hormonal method that can be used upto 120 hours pf unprotected sex<sup>16</sup>.
- IUCD can be used upto 5 days after unprotected sex with an efficacy of 99% and can be used as regular contraceptive for upto 12 years<sup>17</sup>.

ECP is not abortifacient and works by impairing ovulatory process. Copper T works by inhibiting implantation of fertilized ovum<sup>18</sup>. No serious complications of ECP have been reported with no conditions identified where the risks of using ECP outweigh the benefits<sup>19</sup>. However minor side effects have been reported like nausea, vomiting, irregular per vaginal bleeding[20]. EC is an alternative to regular contraception as the failure rate associated with its use is 0.2-3%<sup>21</sup>. WHO recommends that all females at the risk of unintended pregnancies have a right to access to emergency contraception. These emergency contraceptive methods should be routinely included in all national family planning programmes. Emergency contraception should be integrated into the health care services for population at the risk of exposure to unprotected sex<sup>22</sup>.

Emergency contraceptive methods are available in our country for many years but female population is still unfamiliar about the availability and use of these methods. Those who have knowledge about EC are reluctant to use because of myths associated with its use. Most of the previous researches conducted in our country have addressed with contraception usage in general but the studies on emergency contraceptive methods are scant so we have carried out this study in our hospital to assess the knowledge, attitude and practice of emergency contraceptive methods amongst married female population attending gynae outpatient department. Any deficiencies found in these aspects will help us to put forward the recommendations to improve the strategies for effective control and its utilization to decrease maternal morbidity and mortality because of unsafe abortions.

#### **OPERATIONAL DEFINITIONS**

**Emergency contraception:** The type of contraception taken after unprotected coitus to avoid unwanted conception.

**Knowledge:** Awareness about the existence, types, importance and effectiveness of emergency contraception.

**Attitude:** The way in which the patient is thinking or behaving towards emergency contraception.

**Practice:** Any previous history of emergency contraceptive method usage, either pill or IUCD.

## **MATERIAL & METHODS**

This data of the present study was cross sectional in nature and for the sake of data collection we designed our own questionnaire. The items of questionnaire were divided into two parts; the first part was consisting demographic information of respondents for example age, education, income and religion etc. The second portion of questionnaire was consisted of study variables like knowledge, attitude and practice about emergency contraception (EC). The three variables of study were having 21 items. All pregnant/non pregnant married women having one or more kids irrespective of child gender and child bearing age from 18 to >41 years of age are included while suffering from subfertility and with history of hysterectomy or any other procedure leading to subfertility were excluded from the study.

Data was collected from female respondents who were married and belong to child bearing age between 18-41 years having one or more kids irrespective of child gender who visited the gynae department of Arif Memorial Teaching Hospital of Lahore. All participants were participated in survey willingly after giving written consent. All those females suffering from subfertility or any procedure leading to subfertility e.g hysterectomy were excluded from study.

**Variables and items:** There were three variables of study that were knowledge, attitude and practice of emergency contraception. The items of the variables were adapted and modified in order to fit the local context. There were 22 items in each questionnaire among which 10 items were related to the variable knowledge and 8 items were related for the variable attitude. Similarly to measure the variable practice of emergency contraception we used 3 items. All the response was collected on a category scale that was consisting three categories like Yes, No and Not Sure. In order to validate the validity and reliability of questionnaire, we used exploratory factor analysis in a sample of 100 females that were not the part of our sample. We used principal axes factoring method and chooses promax rotation in order to validate the questionnaire items. All items showed the values greater than 0.5 which means that there is no issue of validity in our questionnaire. Similarly the reliability is maintained by using the value of cronbach alpha. We observed that all values were above the level of 0.7 meaning that there is no issue of reliability in our questionnaire.

**Sample size and technique:** We used convenience sampling technique for data collection that is non-probability sampling technique and the reason for using this technique was non availability to sampling frame so for that reason we used non probability sampling technique. The sample size was calculated by using online calculator available on [www.raosoft.com](http://www.raosoft.com) website and the sample size was 377 in this regard. We distributed 450 questionnaires among different respondents in order to get a response rate close to 377. We received 323 fully filled questionnaires that were used for data analysis.

**Analysis procedure:** SPSS version 23 was used for data analysis and all the data was inserted in SPSS and then

codes were defined for each item of the questionnaire. Before data insertion all the data was checked for completeness and then we made it for guaranty that there was no missing information. Results were generated by running descriptive statistics like frequency distribution as our study was descriptive in nature.

**RESULTS**

Table 1 presents the results of age group of respondents. According to the table given below the age group between 18-25 contributed to 23.8 % and their number is 77. Similarly the participants from age group of 26-33 were 143 and their percentage is 44.3%. Participants of age group 34-41 were 67 in number and 20.7% in term of percentage. Finally the age group of above 41 represents 11.5% of total of 323 respondents as their contribution is 36 respondents. The largest contributing group in this regard is the age group of 26-33 and least is the group of above 41.

Table 2 presents the descriptive statistics of the study population in terms of residence, income and religion. According to the table given below, most residents were belonging to rural community and it is because of the location of hospital as the hospital is situated to a place that is 35KM away from the main city of Lahore. So the percentage of rural participants is almost 80 percent whereas the respondent from urban areas were almost 20 percent. Similarly most females were having low income as they stated that their income is equal or less than 25000 PKR so majority of respondents were belonging to poor or lower- middle socioeconomic status. In terms of percentage these participants were almost 73 percent whereas the participants having income more than 25000 were 26.6 percent. Finally in terms of religion almost 94 percent of our sample constitutes to Muslim and only 6 percent were from other religions.

Table 3 shows the distribution of respondents in terms of their education as it can be seen from the table mentioned below that majority of respondents were having education less than matriculation level because their percentage is 35.5 %. Similarly the females having education level of less than primary were 27.5 %. The illiterate females were 14.5 % and females having education level of greater than matriculation were 22.6%.

According to table 4 given below , it is obvious that almost 80% respondents don't know about EC as they answered the question of " do you know about EC" in "No" or "Not sure". It means only 65 (20% ) respondents were knowing about EC that is very poor knowledge although it is a bit improved as compared to the study of Manzoor, Tazion & Anjum (2017) in which the knowledge of respondents about EC was reported to be 17%. So it is clear from above results about knowledge of EC that majority of respondent even did not know about EC.

Similarly question no. 2 results show that the knowledge of people about availability of EC at pharmacy is again poor as 209+65= 274 (85%) respondents responded in "No" or "Not Sure" whereas only 49(15%) respondent said "yes" they know about it. Similarly the knowledge of respondents about the availability of Copper T/ Multi load is again very poor as only 32 respondents responded positively about the easy availability of Copper T/Multi load. Similarly the knowledge of people about the

correct timings of EC pills is not good as 275 (85%) responded in no and 48(15%) responded positively in this regard.

Same is the case with knowledge question asking respondents about the efficacy of EC methods as only 46(14%) respondents responded positively whereas 277(86%) responded in negative or "Not sure". Regarding use of emergency contraception as abortifacient, 58.5% of the respondents believed that EC acts as abortifacient while 64.1% were unsure about it. Furthermore, the table shown below mentioning the results about the question regarding fetal anomalies due to usage of EC is shocking due to poor knowledge as 178+54=232(72%) respondents said EC is a reason of fetal anomalies. Similarly 14.9% Of the study population believed that Copper T/Multiload should be removed if a woman gets pregnant while 75.5% of the respondents were unsure about it. So all the results of the table given below are mentioning the fact that people are having very poor knowledge regarding Ec.

Table 1: Age of participants

Age Group	Frequency	Percentage
18-25	77	23.8
26-33	143	38.2
34-4	67	18.2
Above 41	36	9.3
Total	323	100.0

Table 2: Descriptive statistics of respondent about Residence, Income and Religion

Residence	Frequency	Percentage
Rural	259	80.1
Urban	64	19.9
Total	323	100
<b>Income</b>		
<=25000	237	73.4
>25000	86	26.6
Total	323	100
<b>Religion</b>		
Muslim	302	93.5
Non-Muslim	21	6.5
Total	323	100

Table 3: Educational Details of Respondents

Education	Frequency	Percentage
Illiterate	47	14.5
<Primary	89	27.5
Primary to Matric	114	35.3
>Matric	73	22.6
Total	323	100

The attitude of people toward EC who have knowledge of EC was positive as mostly respondents given positive response on attitude toward EC for example the results of question regarding the accessibility of EC shows that majority of people who have knowledge of EC feel that its accessibility is easy and inexpensive 65 (20%). Whereas the attitude of those people who were having poor knowledge regarding EC is negative because their knowledge level was poor. 45.5% of the females believed that EC will lead to promiscuity if available without prescription .39% females answered that EC should be available to rape victims only while 52% showed negative

attitude towards availability of EC only to rape victims while 9% being unsure. 34.7% respondents said that EC can affect a future pregnancy while 50.5% answered in NO to this question.30s.3% of the study population considered EC harmful to the body while 52.3% answered NO to such belief. Similarly 63(20%) females responded positively regarding the support of EC and 65(20%) females who

were having knowledge about EC reported that EC can be discussed with husband or mother in law etc.

Finally the females who had knowledge about EC, majority of them were using EC pills as 50(77%) females reported positively in this regard whereas 9(14%) females who had knowledge about EC were using Copper T/ Multiload as a method of EC whereas 6(9%) were practicing both the pills and Copper T/ Multiload.

Table 4: Detail of respondents for variables of study

Response	Yes	%age	No	%age	Not sure	%age
<b>Knowledge of EC</b>						
Have you ever heard about Emergency Contraceptive methods	65	20.12%	212	65.63%	46	14.24%
Emergency contraceptives can be obtained from pharmacy	49	15.17%	209	64.71%	65	20.12%
Emergency contraceptive pills are easily available	67	20.74%	237	73.37%	19	5.88%
Copper T /Multiload is easily available	32	9.91%	158	48.92%	133	41.18%
Emergency Contraceptive methods are 100% effective	46	14.24%	244	75.54%	33	10.22%
Emergency Contraceptive pills are more effective if taken within 72 hours of unprotected coitus	49	15.17%	138	42.72%	136	42.11%
Emergency Contraceptive Copper T / Multiload is more effective if inserted up to 120 hours of unprotected coitus	48	14.86%	68	21.05%	207	64.09%
Use of Emergency Contraceptive methods acts as an abortifacient	189	58.51%	70	21.67%	64	19.81%
Fetal Anomalies with use of Emergency contraceptive methods are common	178	55.11%	91	28.17%	54	16.72%
Copper T / Multiload should be removed if a woman gets pregnant	48	14.86%	31	9.60%	244	75.54%
<b>Attitudes toward EC</b>						
Emergency contraceptive methods will lead to promiscuity if available without permission/ prescription	147	45.51%	132	40.87%	44	13.62%
Emergency contraceptive methods are easily accessible	189	58.51%	91	28.17%	43	13.31%
Emergency contraceptive methods are inexpensive	162	50.15%	112	34.67%	49	15.17%
Emergency contraceptive methods should be available to victim of rape only	126	39.01%	168	52.01%	29	8.98%
Emergency contraceptive methods might affect pregnancy in the future	112	34.67%	163	50.46%	48	14.86%
Emergency contraceptive methods might be harmful to body	98	30.34%	160	49.54%	65	20.12%
Do you support its use	192	59.44%	79	24.46%	52	16.10%
It can be discussed with husband/mother in law before use	225	69.66%	42	13.00%	56	17.34%
<b>Practices of EC</b>						
Have you ever practiced Emergency Contraceptive methods (if answer is "yes" then answer the questions given below)						
Have you ever used Emergency Contraceptive Pills	50	15.48%	182	56.35%	91	28.17%
Have you ever practiced Copper T / Multiload as Emergency Contraceptive	9	2.79%	197	60.99%	117	36.22%
Have you ever practiced both pills and Copper T / Multiload as Emergency contraceptive	6	1.86%	193	59.75%	124	38.39%
EC=Emergency contraception						

**DISCUSSION**

While contraception appears to be one of the major determinants of fertility levels, inadequate knowledge, negative attitude and poor practices of emergency contraceptive methods is one of the major reasons for the lack of its use amongst Pakistani females[23]. This can be a product of culture, insufficient counseling and may be a reflection of social norms<sup>24</sup>. One in three currently married women in Pakistan are at the risk of having a mistimed pregnancy<sup>25</sup>. One woman dies every eight minutes because of unsafe abortion in developing countries like Pakistan according to WHO<sup>26</sup>. So it is very important to disseminate information about the availability, correct timing of use and effectiveness of emergency contraceptive methods. Indeed it should be an integral part of our routine counseling as it will help to reduce maternal morbidity and

mortality due to unsafe abortions because of unwanted conceptions.

The results of present study are having important points to discuss and conclude. First of all it is obvious from the findings of present study that although people have shown positive attitude towards EC but still there is a considerable number of people who have poor knowledge about EC. In our study only 20% of the study population has knowledge about emergency contraceptive methods which is a bit better (16.9%)s as compared to that of the study done by Manzoor et al in 2017 but it is comparable to an international study done by Tesfa A et al in 2015 in Ethiopia where the knowledge about emergency contraception was found to be 40%[27,28]. This difference in results is most likely due to difference in the education level of participants of both studies. The difference in awareness level of participants appears to be more wide in

developed countries e.g., it was found to be 98% in the female population of a college in New York<sup>29</sup>.

The knowledge of our study population about availability of EC was 15% that is much lower to that found in the study done by Singh V et al in 2014 in India where it was 94%<sup>[30]</sup>. The knowledge of our study population about the correct timing of use of EC was found to be 15% which is again very low as compared to 80% calculated in the study done by Gupta RK et al in India in 2017<sup>31</sup>. This is also comparable to another local study done by Munzar et al in Islamabad where the knowledge about correct timing of user of EC was 26%. Again here there is difference in education level of study population.

The knowledge about efficacy of emergency contraceptive methods turned out to be only 14% in our study which is better to that shown by Sing V et al (7.7%) but much lower to that shown by Alam K et al(47%) as her study population were health care providers.58.5% respondents in our study believed that emergency contraceptive methods act as abortifacient. Which is much higher to that observed in study done by Alam K et al where it was 40.9%. In a study done by Charandabi A et al,87.9% of the study population answered that EC acts as abortifacient<sup>32</sup>. While 72% of our respondents believed that EC use is associated with fetal abnormalities which is much higher to that found in study by Alam K et al (38%). Another study done in china by L Zhanget al showed no risk of fetal malformation with emergency contraceptive methods usage<sup>33</sup>. Only 14.9% females in our study asked to remove IUCD in case if the woman conceives with 75% being unsure whether to remove it or not in case of conception. This is much lower to that found in study by Alam K et al where 61% respondents asked to remove it in case of pregnancy. So people need to be educated and trained to have good level of knowledge about EC and obviously this good level of knowledge will further modify the attitude of females of Pakistan towards EC.

In my study 45.5% females answered that use of emergency contraceptive methods will promote promiscuity if used without prescription .This is comparable to that 60% found in study done by Zakia M Ibrahim in Egypt in 2013<sup>34</sup>. 39% females responded positively towards availability of EC to rape victims only while 52% showed negative attitude towards availability of EC to rape victims only. This is in contrast to the study done by Ahmed et al where 82% of the study population showed positive attitude towards availability of EC post rape<sup>17</sup>. In our study 34.7% females answered that EC can affect a future conception. This is comparable to the study done by Chethana R et al in 2018 where 27% females answered to this question in YES<sup>[35]</sup>. 30.3% of our study population believed that EC can be harmful to our body .This is in contrast to the answer given by 13% of the Ethiopian population in the study of Ahmed A et al.59.4% females showed positive attitude towards the use EC which is comparable to 77.5% found in study one by Irfan F et al in 2009. 69% females in our study considered it important to discuss with husband or mother in law before they used EC. This finding is in line with the literature on contraceptive decision making<sup>36</sup>.

15.48% patients in our study answered in YES about use of ECP. 2% used CU T/Multiload as their method for EC while only 1.86% females had used both pills and

IUCDs as their method of emergency contraception. This is found to be better than that reported by Manzoor et al where it was 5.6% but it is much lower to that observed in study done by Munzar et al where use of ECP was 36%<sup>37</sup>and 24.8% in a study done by Dagnachew in Eastern Ethiopia<sup>38</sup>.

## CONCLUSION

Our research concludes that although the attitude of female respondents in our study was positive towards EC but knowledge about effectiveness, correct timing of use and mechanism of action about EC is not up to the mark so majority of females are not practicing any method of EC that is quite disastrous for a country like Pakistan that is already under a huge pressure of increase in population per year. Secondly, it is noted that people need to be educated on religious grounds too because majority of women in Pakistan still believe that using EC is contradicted with their religious beliefs. For this purpose the government should utilize religious scholars to come forward and change this misconception and play their part. Similarly electronic media, print media, social media are useful tools to give awareness about different emergency contraceptive methods. LHV, LHW, TBA and health care professionals should be encouraged at national level to do appropriate counseling about reproductive health and modern forms of emergency contraceptive methods keeping in mind our social norms and religious values in order to decrease maternal morbidity and mortality in terms of induced abortions because of unwanted conceptions.

**Limitations and Future Research Directions:** The present research study has some limitations too but the researcher feels that these limitations open the way for upcoming researchers who want to do research on the same topic. The first limitation of study is that we collected the data only from the female population presenting to one hospital so the results cannot be generalized over all the Pakistani female population with confidence that's why further research work is required to assess the knowledge, attitude and practice of emergency contraceptive methods in Pakistan to collect data from a large and more diverse population. Similarly the sampling technique is non probability convenience sampling that is not an ideal technique and it has limited the generality and ability of our study that's why in future the same research can be repeated by using probability sampling technique. Finally the majority of respondents belong to rural area in present survey and as their level of education is not good enough so it is another factor to keep in mind and future research work is required to include participants from urban areas so that it can be assessed what is the knowledge and attitude of educated female population towards EC and whether there is any significant difference in knowledge and attitude of people towards EC living in urban areas and rural areas.

## REFERENCES

1. Shen J ,et al.(2017). Interventions for emergency contraception. Cochrane Database Syst Rev 2017,issue 7
2. .Irfan F, Karim S, Hashmi S, Ali S. (2009). Knowledge of Emergency contraception among women of child bearing age

- at a teaching hospital of Karachi. *Journal of the Pakistan Medical Association*, 59(4),235-40.
3. Alam K, Snover A, Sultana N, Munir A, Shah S S.(2013). Emergency Contraception: Knowledge ,Attitude and Practices among doctors of a tertiary care hospital. *J Ayub Med Coll Abbottabad* 2013;25(1-2).
  4. Sedgh G, Singh S, Hussain R.(2014). Intended and unintended pregnancies worldwide in 2012 and recent trends. *Studies in Family Planning/ Vol 45(3)*.
  5. WHO Facts on induced abortions worldwide. Guttmacher Institute; 2018.
  6. Jabeen M, Gull F, Wazir U F, Javaid N.(2014). Knowledge, Attitude and Practice of Contraception in women of reproductive age. *Gomal Journal of Medical Sciences July-Dec 2014, vol 9(2):223-329*.
  7. Pakistan Demographic and Health Survey 2017-2018 Key Indicators Report. National Institute of Population Studies Islamabad, Pakistan.
  8. A Khatoon, S Hassan, T Imtiaz, R Imtiaz , H Umair .(2012). Knowledge and need for emergency contraception among women at Abbasi Shaheed Hospital. *Pak J Surg*2012;28(3):204-207.
  9. Sathar Z, Singh S, Niazi R.(2014). Induced abortions and unintended pregnancies in Pakistan. *Stud Fam Plann*.2014 Dec;45(4):471-491.
  10. S Jabeen, F Naseem, S Altaf, N Fatima. (2011). Knowledge ,Attitude and practices about induced abortions among women of child bearing age at Bahawalpur. *Pakistan Journal of Medical and Health Sciences* 5(1):147-150.
  11. Gharzeddine O, Iversen K.(2012). Maternal deaths halved in 20 years, but faster progress needed, press release ,UNFPA,16 May 2012.
  12. Deb R.(2010). Knowledge,Attitude and practices related to family planning methods among the khasi tribes of East Khasi Hills Meghalaya. *Anthropologist*,12(1):41-45(2010).
  13. Contraceptive Performance Report 2016-2017. Government of Pakistan, Pakistan Bureau of Statistics, Statistic Division July 2018.
  14. Hamza M.Abdulghani, Syed I. Krim. Irfan F.(2009). Emergency contraception: Knowledge and attitudes of family physicians of a teaching hospital, Karachi,Pakistan. *J Health Popul Nutr Jun*;27(3):339-344.
  15. LaValleur J. Emergency Contraception. Elsevier .*ObstetGynecolClin North Am*.2000;27(4):817-839.
  16. Carbonell L J, Garcia R, Sanchez C.(2015). Mefepristone 5mg versus 10mg foe emergency contraception:double blind randomized clinical trial *Int J Womens Health*.2015;7:95-102.
  17. Ahmed et al.(2012). Assessing knowledge, attitude and practice of emergency contraception: a cross sectional study among Ethiopian undergraduate female students. *BMC Public Health* 2012 12:110
  18. Trussell J, Raymond EG, Cleland K.(2017). Emergency contraception :A last chance to prevent unintended pregnancy. Princeton University, Office of Population Research,2017 Apr.38p.
  19. Curtis K M et al.(2016). MMWR-CDC. Medical Eligibility Criteria for Contraceptive Use,2016;65(No.RR-3):1-104.
  20. Celia M. J. Matyanga et al. Clinical pharmacology of hormonal emergency contraceptive pills. *Int J Reprod Med Vol* 2018,Article ID 2785839,5 pages
  21. P F A Van Look, H von Hertzen . Emergency Contraception. *British Medical Bulletin*, issue 1, 1993;49:158-170.
  22. WHO, Emergency Contraception, Key facts.(2018). <https://www.int>.
  23. Sajid, A., & Malik, S. (2010). Knowledge, attitude and practice of contraception among multiparous women at Lady Aitchison Hospital, Lahore. *Annals of King Edward Medical University*, 16(4), 266-266.
  24. Karim I S, Irfan F,Rowais A N, Zaharani A B, Qureshi R ,Qadrah A H B.(2015). Emergency contraception: Awareness,attitudes and barriers of Saudi Arabian Women. *Pak J Med Sci*.2015;31(6):1500-1505.
  25. Unwanted Pregnancy and post abortion complication in Pakistan: findings from a national study. Oct 2004,Pop Council(online) Cited 2008 April. Available from URL:<http://www.popcouncil.org/projects/RH> Pak ResearchUnwantedPreg.html.
  26. World Health Organisation: Unsafe Abortions: Global and regional estimates of unsafe abortion and associated mortality in 2003,5<sup>th</sup> edition.
  27. Manzoor et al. Emergency Contraception: Knowledge, Attitude and Practice among Women of Childbearing age at a Teaching Hospital of Lahore. *P J M H S Vol.11,NO.4,OCT-DEC 2017*.
  28. Tesfa A et al. Assessment of Knowledge, Attitude and Practice Towards Emergency Contraceptive Methods Among Female Students in SetoSemero High School, Jimma Town, South West Ethiopia. *Science Journal of Public Health*, Vol 3,(4);2015:478-486.
  29. Mary T Hickey. Female college students knowledge,perception,and use of emergency contraception. *Journal of Obstetrics and Neonatal Nursing* 2009,38(4),399-405.
  30. Singh Vet al. Knowledge attitude and practice of emergency contraceptive pills among women of reproductive age group attending AIIMS OPD Raipur. *Int J Adv Med*.2014 Aug;1(2):105-112.
  31. Gupta R Ket al.2017. Assessment of knowledge and attitude about emergency contraception: a cross sectional study among medical students in North India. *Int J ReprodContraceptObstet Gynecol*. 2017 Sep;6(9):4042-4047.
  32. Charandabi A M S et al, Emergency Contraception: Providers Knowledge and Attitudes and their relationship with Users Knowledge and Attitude at Public Health Centers/Posts of Tabriz. *JCaring Sci*. 2012 May;1(1):53-59.
  33. L Zhang et al( pregnancy outcome after levonorgestral only contraception failure: a prospective cohort study, *Human Reproduction*,vol. 24,no 7pp,1605\_1611,2009
  34. Z M Ibrahim et al. Knowledge,attitude and practice of emergency contraception among health care providers in Ismailia Egypt. *Middle East Fertility Society Journal Vol* 18(4),2013,246-252.
  35. Chethana Ret al. Assessment of knowledge and attitude towards emergency contraception among postnatal mothers in Bruhat Bengaluru MahanagaraPalike referral hospital. *Int J of Community Med and public health*.2018 Sep;5(9):3813-3819.
  36. Najafi-Sharjabad, Zainiyah Syed Yahya S, Abdul Rahman H, HanafiahJuni M,Abdul Manaf R. Barriers of modern contraceptive practices among Asian women:a mini literature review. *Glob J Health Sci*.2013;5(5):181-192.
  37. Munzar et al, 2017. Emergency Contraception:Knowledge, Attitude and Practices among women reporting to Al Nafees Medical College Hospital Farash Town Islamabad. *Isra Med J Vol*9(5), Sept-Oct 2017.
  38. Dagnachew A. Assessment of knowledge,attitude and practice of emergency contraceptive use among female students in Harar Preparatory Schools,Harari Regional State, Eastern Ethiopia. *ReprodSyst Sex Disord* 2017,6:4.