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Emergency contraception: knowledge and perceptions in PUMHS University population.

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Abstract:

Introduction: Rising population is the one of hot issue of Pakistan that contributes to poverty, hunger, shortage of natural resources, decrease economy growth and education. Unacceptance of contraception is major reason; resulting in unplanned pregnancy where emergency contraception method seems to be an attractive option. This study done to assess knowledge, perception and attitude of medical students of PUMHS University.

Objectives: To assess the perception, knowledge and attitude about emergency contraception (EC) among the senior undergraduate's student (fourth and final year) of PUMHS.

Methodology: This cross-sectional study was conducted by Department of gynecology & obstetrics unit 1 at People medical and health science university Shaheed Benazir Abad (PUMHS) from August 2019 to November 2019. We select 211 subjects via convenience sampling technique from senior classes. Data collected on 22 item questionnaire and analyzed on SPSS version 20.

Results: The mean age of study participants was 22.2 ± 36.435 years. Using knowledge score (1-10) mean score was 3.09 ± 1.707 . 75.36% showed positive attitude towards EC methods.

Conclusion: Medical undergraduate, as a health care provider and counselor expected to have greater knowledge than corresponding age group with less education but unfortunately information about different aspects of emergency contraception among this cohort in inadequate.

Key words: Emergency contraception, KAP, University population,

Introduction:

Keeping current population of Pakistan (184.5million) and annual growth rate of 2% in mind, it is suggested that by 2050, our country will gain fifth most populous position in world¹. It is all obvious that Pakistan has one of the highest fertility rate and of course low contraceptive usage rates (CPR) in contrast to all nearby countries². A report published in 2013 showed lowest CPR of our country (35%) as compare to other south Asian countries 53%.³ Rate of abortion in Pakistan is on rise. Pakistan Demographic and Health Survey (PDHS) of 2006-07⁶ reported annual abortion

rate in Pakistan as 27/1000 women; it raised to 50/1000 women as shown in PDHS survey of 2012¹. This rate is apparently highest in south Asia and among the one of highest rate in world. With rise in abortion rate abortion related complications are also high, as every six hours a woman dies due to miscarriage related complications. This is partly because of low utilization of contraceptive services in Pakistan. Currently only 30% of our population is using modern methods of contraception. Poor utilization of contraception services is multifactorial, including different myths. The choice of contraceptive method also counts as most couples mis-

judge contraceptive method and its safety¹⁰⁻¹² resulting in unintended pregnancies. Unintended pregnancies mostly ended up into unsafe abortion (if decided to terminate pregnancy by couple) or other adverse fetomaternal consequences (if decide to continue pregnancy)^{4,5} At a glance, worldwide each year 210 million women get pregnant but around 75 million gestations are either unintended or unplanned and 22% pregnancies ended up into abortion. It is estimated that around eight to thirty million conceptions resulted from contraceptive failure⁷

Majority of young couples when start sexual practice, do not have access to family planning services. Those having unplanned or occasional sex makes contraception planning even more difficult as is the case with forced sex. And thus, emergency contraceptive method seems to be final resort to prevent unwanted gestation.

Emergency contraception (EC) (or post-coital) methods are defined as the use of a drug or a device to prevent pregnancy after unprotected sexual intercourse. These methods are usually safe and effective and available in two forms pills and intrauterine contraceptive device (IUCD). Pills are of two types combined and only progestin containing. Progestin levonorgestrel is the drug present in progestin only drug in dose of 1.5mg, which should be taken within 72 hours of unprotected sexual intercourse. Drug is either taken in two divided doses 12 hours apart or in single dose. In combined, estrogen and progestin both are present in larger doses and taken in two doses. Pills act by inhibiting ovulation and by preventing entry of sperm by increasing cervical mucus thickening¹⁷ IUCD is the second option of emergency contraception method. Copper containing device can be used up to 5 days after insecure sex, it acts by preventing fertilization through the process of chemical reaction that damages egg and sperm before they meet.¹⁸ EC has potential to reduce these unwanted pregnancies and chance of becoming pregnant from single act of intercourse is reduced to 79-99%¹⁹. It is suggested that every female should be aware about these methods before the need arises¹⁷.

Published data documenting knowledge of medical students about emergency contraception is scanty particularly from Pakistan. Medical students of today are the future doctors of tomorrow, ultimately training of next generation of doctors to address such a significant health care needs of Pakistan's community (after having look on this study topic) is deemed necessary.

With this thinking in mind, current study is focused to know about the knowledge and attitude of university students of PUMHS.

Methodology:

This cross-sectional study was conducted by Department of gynecology & obstetrics unit 1 at People medical and health science university Shaheed Benazir Abad (PUMHS) from August 2019 to November 2019. We select 211 subjects via convenience sampling technique from senior classes. Data collected through pre-tested, pre-designed, self-administered questionnaire; prepared after reviewing identical studies done elsewhere^{13,14,15}. The questionnaire having three sec-

tions, the socio demographic and background characteristics of the participants to be recorded in 1st section. The "2nd" section developed to appraise the knowledge of the respondents. The "3rd" section address attitude of respondents about contraception.¹² Each item from knowledge section was assigned score of 1 (ranges from 0 to 10); participant scored 5 or more were considered having good knowledge where as those who scored less than 5 were having poor knowledge. To assess attitude towards EC method; six questions (response includes yes/no and not sure) were asked from each participant. we arbitrarily set score from zero to six each item is given one score if given correct answer and zero score if given incorrect or select option of unsure. We decided high score (>3) is considered as positive attitude and lower than this would be seen as negative attitude. Data was analyzed using SPSS 20.

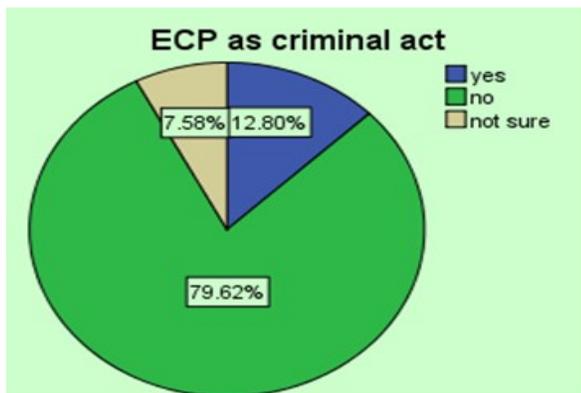
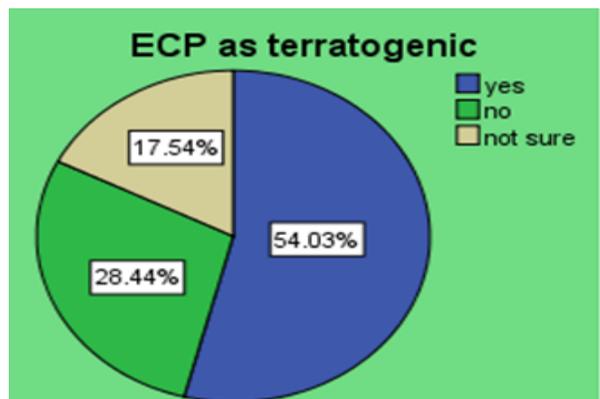
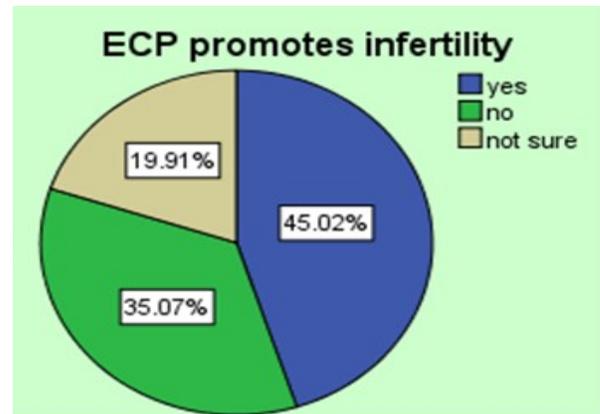
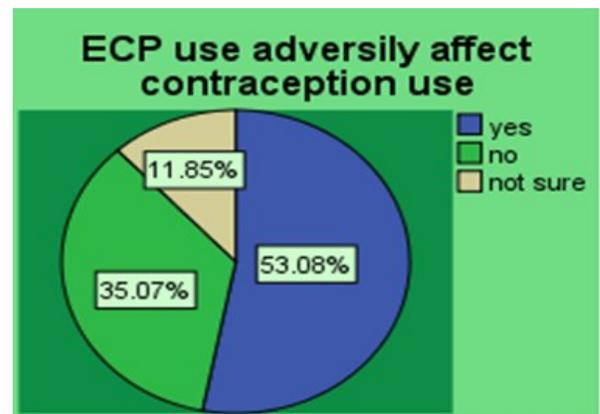
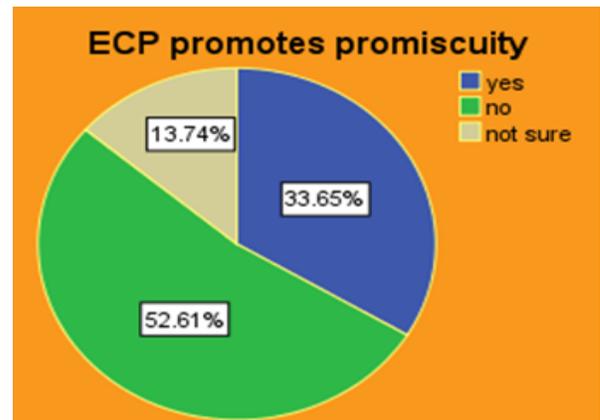
After revising the study protocol and taking approval from ethical committee, the purpose of the study explained to all participants. We highlight their rights and role during the study. Contestants showed consent to take part in the study were asked to sign consent form; privacy and anonymity of the information collected was warranted.

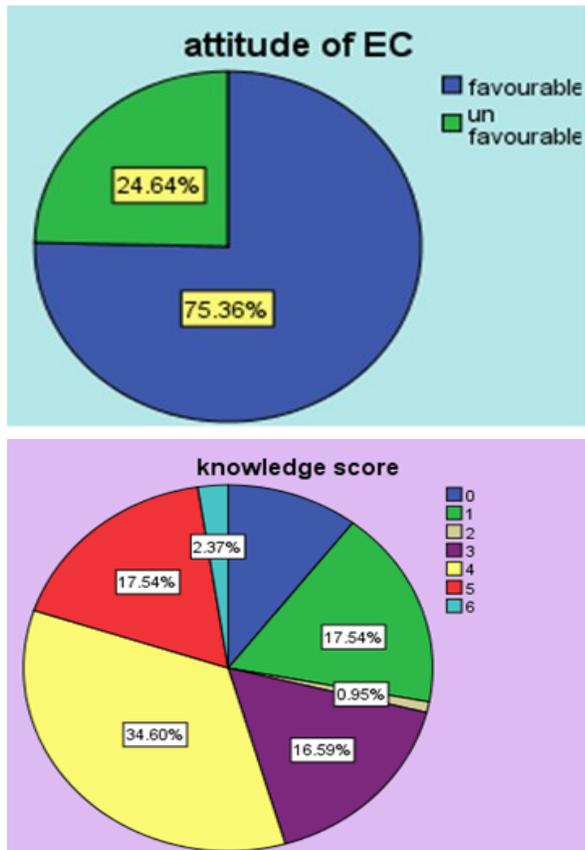
Table 1

Serial no:	Demo: characteristics	Knowledge of participant	Attitude of participant (agree, disagree, not sure)
01	Age of participant	Source of information	ALL females have right to access EC.
02	Year of student	Drug content of ECP	ECP promotes promiscuity
03	Marital status	ECP as abortifacient?	ECP teratogen
04	Religion	Timing of ECP use	ECP use is criminal
05		Efficacy of ECP.	ECP produce infertility
06		How ECP acts	ECP use affects negatively to contraception use
07		Does ECP prevents STDs	
08		Does pregnancy test compulsory prior to use ECP	
09		Side effects of ECP	
10		ECP effects with time change?	
11		Recommended dose of ECP	
12		Recommended timing between doses.	

Results:

All 211 participants responded giving 100% response rate. 105 were from final year and 106 from 4th year. Respondent's age ranges from 18 to 31 years, 51.2% were belong to age group of 20-24 years, 33.2% fall in age of more than 25 years and 15.6% from age of 15-19 years. Mean age was 22.2 ±3.435 years. 66.4% were single, while 33.6% were married; majority were Muslims while 27% were Hindu by religion. According to 74.9% candidates, ECP can be available only from pharmacy or health center and 16% suggest its availability from any shop. 42.7% consider it as abortifacient, only 39.8% of the sample population truly answer about composition of drug ECP, half of the students (51.2%) consider that EC effective only within 24 hours of intercourse, 8.1% stated that it could be used up to 5 days of ovulation and 36% correctly answered about mechanism of action of ECP while 33% said this drug induced abortion. 38.9% suggest it is 75% effective, 37% said only 50 % effective and 1.9% thought it is not effective at all. 23.2% consider it as STDs preventive while 47.9% told that pregnancy test is compulsory prior to use that drug. 35.5% study population were not aware about side effects, 7% told anaphylactic reaction is the most common side effects of the drug and only 28.9 % declare harms not at all. 48.3% sure about recommended dosage and interval between drugs. 37.9% subjects thought drug effect does change with phases of menstrual cycle but according to 50%, there is no any effect. 94.8% support the idea that all women should have right to access to EC if need arises. Around 75% of candidates showed positive attitude towards emergency contraception but 80% do not have good knowledge.





Discussion:

Although emergency contraception methods are available in many countries of world but unfortunately rate of unwanted gestation is not much affected as desired. Knowledge is seeming to be an important factor for this worldwide problem, as seen by data from Demographic and Health surveys²⁹ Even in part of the world, where knowledge is high, use of EC is low, as shown in a study from United Kingdom of Great Britain and Northern Ireland³⁰ where 91% of study subjects were knowing about methods but only 7% had used it. It could be because of very low understanding of conception and contraception in both developed as well as in under developed regions. Our study showed 80% of student do not have good knowledge, finding is in agreement to that reported by Gupta RK, Rania SK et al²⁵.

This could be because of misconceptions regarding EC method. Unfortunately, these myths are being compounded by media as well. Apart from some side effects (like menstrual irregularities and nausea vomiting), mentioned by BBC story in Kenya³¹, that story also mentioned infertility and hormones related cancers as one of the side effects of ECP. Same harms added with increased blood

coagulation had been given by mainstream newspaper of USA³². These statement though incorrect but well spread across world and produced negative influence for the use of EC in time.

In our study, 28.9% of subjects suggest menstrual irregularities as the most common side effects of these methods while 35.5% had no idea for side effects but 28.9% gave right answer of minimal side effects. This is comparable to study done by Giri PA²⁶ which showed 46% of doctors gave answer that menstrual irregularities are not common side effects similar to study done by Abdulghani²³ et al. other studies done elsewhere also support this finding. Most women misjudge these methods and their safety^{10,11,12} However Uncountable studies had been done on safety of levonorgestrel containing pills, hardly nausea and vomiting is seen as common side effects (unless used more than prescribed dose in a cycle). Though a last chance to avoid unwelcome gestation but should not be used as a regular contraception. Should be used only for a backup and it does not prevent STI (sexually transmitted diseases).^{4,8,9} But this finding is not supplemented by our study in which 22% of the students were not sure about this while 54% stated not preventing. There is wide variation in studies done for this as 13.9% doctors from study by Giri PA²⁶ while 94.8% from study done by Parey³³ et al were not sure about effects of methods on risk of infections.

In our study around half of the subjects understood ECP as abortifacient which is a similar finding to study done among Cameroon university²¹ students (51.2%), Kenya nursing students²² (49%), but higher than that of study done in Karachi Pakistan²³ (25%), Ghana²⁰ (25.8%) and Delhi²⁴ (8.1%).

As suggested from study that most of the population believe that ECP act to terminate pregnancy after formation of zygote, that is an inappropriate view. This might be because of gaps in their knowledge for mechanism of action of the drug. This lack of clarity makes life problematic and hazardous when couples feel no other option rather than induced abortion, when pregnancy is still in progress (if already fertilization has occurred) even after taking these emergency contraceptive drugs. Altering these opinions could be the one of the various steps to save lives of maternity from consequences of induced miscarriages. Study done on Nigerian undergraduates³³ showed that less than one fifth of health care workers were aware about correct timing of use. This strongly suggest that most healthcare givers are unfamiliar about timing and use of EC and thus would not be able to share accurate information further. By our study we came to know that 75.36% of the persons have a favorable atti-

tude toward EC methods as seen in study by Giri PA, Bangal VB, Phalke DB²⁶ in India.

Conclusion:

Medical undergraduate, as a health care provider and counselor expected to have greater knowledge than corresponding age group with less education but unfortunately information about different aspects of emergency contraception among this cohort in inadequate.

References:

1. Pakistan demographic and health survey 2012-13. Islamabad and Calverton, MA: national Institute of population studies and ICF International 2013. <https://dhsprogram.com/pubs/pdf>
2. Khan AA, Khan A, Javed W, et al. Family planning in Pakistan: applying what we have earned. *Journal of the Pakistan Medical Association* 2013;63(4 Suppl 3):S3-10.
3. World Bank. 2015. The Little Data Book 2015. Washington, DC: World Bank. doi: .1596/978-1-4648-0550-9. Licence: Creative Commons Attribution CC BY 3.0 IGO. https://www.popcouncil.org/uploads/pdfs/popbriefs/frontiers/Manuals/ECP_manual.pdf
4. Hossain, Sharif M.I. et al. 2009. "ECP handbook: Introducing and mainstreaming the provision of emergency contraceptive pills in developing countries," FRONTIERS Manual. Washington, DC: Population Council. https://www.popcouncil.org/uploads/pdfs/popbriefs/frontiers/Manuals/FR_ECPHandbook.pdf
5. Holness N. A global perspective on adolescent pregnancy. *Int J Nurs Pract*. 2015 Oct;21(5):677-81. doi: 10.1111/ijn.12278. Epub 2014 Mar 26. PMID: 24674421.
6. Pakistan demographic and health survey 2006-2007. Islamabad and Calverton, MA: national Institute of population studies and macro International Inc; 2008: <https://dhsprogram.com/pubs/pdf/FR200.P>
7. Elizabeth G, James T (2012) Emergency contraceptive a last chance to prevent unintended pregnancy. Princeton University; pp: 1–28. [Google Scholar]
8. Abovzar C, Wardlaw T (2001) Maternal mortality of the end of decade sin of progress? *Bull World Health Organ*. 2001;79(6):561-8. [Google Scholar]
9. Baldwin SB, Solorio R, Washington DL, Yu H, Huang YC, Brown ER. Who is using emergency contraception? Awareness and use of emergency contraception among California women and teens. *Womens Health Issues*. 2008 Sep-Oct;18(5):360-8. doi: 10.1016/j.whi.2008.06.005. PMID: 18774454.
10. Chuang CH, Freund KM. Emergency contraception knowledge among women in aoston community. *Massachusetts Emergency Contraception Network. Contraception* 2005;71:157–60. (Level II-3) [PubMed] [Full Text]
11. Aiken AM, Gold MA, Parker AM. Changes in young women's awareness, attitudes, and perceived barriers to using emergency contraception. *J Pediatr Adolesc Gynecol* 2005;18:25–32. (Level II-3) [PubMed] [Full Text]
12. Kongnyuy EJ, Ngassa P, Fomulu N, Wiysonge CS, Kouam L, Doh AS. A survey of knowledge, attitudes and practice of emergency contraception among university students in Cameroon. *BMC Emergency Medicine*. 2007;7:1-7.
13. Shelat PR, Hihoriya NH, Kumbar S. Knowledge and attitude towards the use of emergency contraceptive pills among college students. *Int J Basic Clin Pharmacol*. 2012 Oct;1(2):77-84
14. Veloso DL, Peres VC, Lopes Jda S, Salge AK, Guimarães JV. Anticoncepção de emergência: conhecimento e atitude de acadêmicos de enfermagem [Emergency contraception: knowledge and attitudes of nursing students]. *Rev Gaucha Enferm*. 2014 Jun;35(2):33-9. Portuguese. doi: 10.1590/1983-1447.2014.02.41561. PMID: 25158458.
15. Fornari A, Fletcher J, Herbitter C, Boden L, Gold M. Students as patients and teachers: Evaluation of an experiential emergency contraception project. *Fam Med*. 2011;43:172–8. [PubMed] [Google Scholar]
16. Puri S, Bhatia V, Swami HM, Singh A, Sehgal A, Kaur AP. Awareness of emergency contraception among female college students in Chandigarh, India. *Indian J Med Sci*. 2007;61:338–46. [PubMed] [Google Scholar]
17. WHO. Emergency Contraception – World Health Organization. [Last accessed on 2015 Oct 10]. Available from: <http://www.who.int/mediacentre/factsheets/fs244/en>
18. Tolossa E, Meshesha B, Abajobir AA. Assessment of level of knowledge and utilization of emergency contraception among female students of Hawassa University, South Ethiopia. *Adv Reprod Sci*. 2013;1:51–6. [Google Scholar].
19. Baiden F, Awini E, Clerk C. Perception of university students in Ghana about emergency contraception. *Contraception*. 2002;66:23–6. [PubMed] [Google Scholar]
20. Kongnyuy EJ, Ngassa P, Fomulu N, Wiysonge CS, Kouam L, Doh AS. A survey of knowledge, attitudes and practice of emergency contraception among university students in Cameroon. *BMC Emerg Med*. 2007 Jul 17;7:7. doi: 10.1186/1471-227X-7-7. PMID: 17634106; PMCID: PMC1933435.
21. Muia E, Ellertson C, Lukhando M, Flul B, Clark S, Olenja J. Emergency contraception in Nairobi, Kenya: Knowledge, attitudes and practices among policymakers, family planning providers and clients, and university students. *Contraception*. 1999;60:223–32. [PubMed] [Google Scholar]
22. Abdulghani HM, Karim SI, Irfan F. Emergency contraception: Knowledge and attitudes of family physicians of a teaching hospital, Karachi, Pakistan. *J Health Popul Nutr*. 2009;27:339–44. [PMC free article] [PubMed] [Google Scholar]
23. Shalini Singh, Suneeta Mittal, P.N. Anandalakshmy and Vandana Goel. Emergency Contraception: knowledge and

-
- views of doctors in Delhi. *Health and Population-Perspectives and Issues*; 2002; 25(1): 45-54,
24. Gupta RK, Raina SK, Verma AK, Shora T. Emergency contraception: Knowledge and attitude toward its use among medical students of a medical college in North-West India. *J Pharm Bioallied Sci.* 2016;8(3):235-239. doi:10.4103/0975-7406.175974
 25. Giri PA, Bangal VB, Phalke DB. Knowledge and attitude of medical undergraduate, interns and postgraduate students in India towards emergency contraception. *N Am J Med Sci.* 2013; 5:37-40.
 26. Farooq F, Kadri SM, Gash BA. Emergency contraception: Knowledge of doctors in Kashmir valley. *J Community Med.* 2007;3:1-9.
 27. OM Ebuehi, EE Ekanem, OAT. Knowledge and practice of emergency contraception among female undergraduates in the University of Lagos, Nigeria, *East African Medical Journal* Vol 83 No. (3) 90-95 March 2006.
 28. Khan S, Mishra V, Arnold F, Abderrahim N. Contraceptive trends in developing countries [CHS comparative reports 16]. Calverton: Macro International;. 2007. Available from: <http://www.measuredhs.com/pubs/pdf/CR16/CR16.pdf> [accessed 9 March 2010]
 29. Gibbs, S. E., Kusunoki, Y., & Moreau, C. (2019). Sexual Activity and Weekly Contraceptive Discontinuation and Selection Among Young Adult Women in Michigan. *Journal of sex research*, 56(8), 977-984. <https://doi.org/10.1080/00224499.2018.1556239>
 30. Mawathe A. Kenya concern over pill popping. BBC News website, 15 July 15 2009. Available from <http://news.bbc.co.uk/2/hi/africa/8145418.stm>
 31. Piccoli K. *When Plan B becomes Plan A*. Long Island Press, 17 September 2009
 32. Aziken, M., Okonta, P., & Adedapo B. A. Ande. (2003). Knowledge and Perception of Emergency Contraception among Female Nigerian Undergraduates. *International Family Planning Perspectives*, 29(2), 84-87. doi:10.2307/3181062
 33. Parey B, Addison L, Mark JK, Maurice B, Tripathi V, Wahid S, et al. Knowledge, attitude and practice of emergency contraceptive pills among tertiary level students in Trinidad: A cross-sectional survey. *West Indian Med J.* 2010;59:650-655.