

KNOWLEDGE ABOUT EMERGENCY CONTRACEPTION AMONG WOMEN REFERRED FOR TREATMENT AT A UNIVERSITY HOSPITAL IN BRAZIL

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ABSTRACT

BACKGROUND: Emergency contraception (EC) has many important indications. The aim of the study was to investigate the prevalence of use and knowledge about the correct use of EC among women referred for treatment at a university hospital in Brazil.

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METHODS: Study Design: Cross-sectional study. Settings: The study was conducted with patients admitted to the Hospital de Clínicas de Porto Alegre (HCPA) from 2009 to 2010. Patients: Sexually active women aged 18 to 50 years. Interventions: Patients answered a questionnaire on the use of and knowledge about EC. Main Outcome Measures: Primary outcome: prevalence of knowledge about correct EC use. Secondary outcome: prevalence of EC use.

RESULTS: 134 patients participated in this study. 61.2% of women reported regular use of birth control pills, 18.7% of condoms, 9.0% of other methods, 3.0% of intrauterine device, and 8.1% used no contraceptive method. As for EC, 86.5% of interviewees reported having knowledge about the method, and 43.1% of these reported knowing how to use EC. However, only 12.0% of interviewees correctly reported how EC should be used. The prevalence of EC use in our sample was 19.4%.

CONCLUSIONS: Although most interviewees reported having some knowledge about EC, only a small number were able to accurately describe its proper use.

Keywords: *emergency contraception; contraception; morning-after pill.*

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In the United States, every year 1.7 million women have an unintended pregnancy due to contraceptive method failure, and another 1.9 million due to nonuse of contraceptive methods. Also, approximately 1.6 million abortions per year are the result of unintended pregnancies (1).

There are no official data on unintended pregnancies in Brazil. It is likely, however, that the figures are not comparatively different from other countries. A study of 309 pregnancies in the city of Porto Alegre, southern Brazil, showed that only 22.0% of the pregnancies were planned (2). Abortion is illegal in Brazil. Therefore, the number of unintended pregnancies represents a public health care concern. Illegal abortion, for example, is a major cause of maternal death in Brazil. Emergency contraception (EC) is one of the strategies that can be used to reduce unintended pregnancies and their consequences.

EC is indicated in the event of unprotected sexual intercourse or in cases of possible contraceptive method failure (misuse of oral contraceptives or condom breakage). EC also plays a very important role in cases of sexual assault, as it may be the only way to protect the victim from an unwanted pregnancy (3).

During the 1970s, Canadian gynecologist Albert Yuzpe described the first EC method. The method consisted of taking 100 µg of ethinylestradiol and 0.5 mg of levonorgestrel in two doses within 72 h of unprotected sexual intercourse (4,5). Studies have shown that the method maintains its efficacy for up to 120 h after sexual intercourse (6). The effectiveness of the Yuzpe regimen is approximately 75.0% (7). However, side effects such as nausea, vomiting, fatigue, abdominal pain and menstrual irregularities limit the use of this method (3,8).

Progestogen has shown more effectiveness and efficacy than the Yuzpe regimen. The method consists of taking 1.5 mg of levonorgestrel in a single dose, or in two doses of 0.75 mg. The administration should be carried out as soon as possible after unprotected sexual intercourse (preferably within 72 h, but no later than 120 h) (9). Progestogen is currently the preferred EC method. In addition to being more effective, it causes fewer side effects than the Yuzpe regimen (10). Progestogen also offers no risk for patients with a history of thromboembolism (11).

Misconceptions on the part of health care professionals may interfere with the use of EC.

One misconception is that EC is an abortion method and that, by indicating its use, health care professionals would be encouraging the practice of unprotected sexual intercourse. Another obstacle to the use of EC is the lack of adequate resources in health care services, which may interfere directly with the availability of emergency contraceptives, especially in developing countries.

The literature on EC shows that couples who have knowledge about EC and access to emergency contraceptives are more likely to use EC. However, there are a large number of patients who do not understand how EC works or the risks and benefits involved (12). Therefore, studies are needed to further investigate individuals' actual knowledge of EC and correct EC use.

The aim of this study was to assess the level of knowledge about EC among sexually active women referred for treatment at a university hospital in southern Brazil. The study also aimed to assess the prevalence of EC use and knowledge about correct EC use.

METHODS

A cross-sectional study was performed with sexually active women of reproductive age who consecutively attended the outpatient clinic of the Department of Obstetrics and Gynecology of the Hospital de Clínicas de Porto Alegre, a tertiary referral center. The primary outcome was the level of patient information about EC use. The secondary outcome was the prevalence of EC use among the patients studied.

The sample included sexually active women aged 18 to 50 years admitted to the Hospital de Clínicas de Porto Alegre from 2009 to 2010. Patients with hearing, speech or mental disorders were excluded. This research was approved by the institutional review board and by the Ethics Committee of the Hospital de Clínicas de Porto Alegre (#08299).

Patients were invited to participate and those who accepted signed an informed consent form. The questionnaire included the following topics: age, years of schooling, age at menarche, contraceptive method used and regularity of use, condom use, previous pregnancies, knowledge about EC and previous use of the method. The appropriate use of EC was evaluated by the interviewers. Patients were asked about dosage, administration and time at which EC should be administered after sexual

intercourse. Correct EC use was defined as oral intake of one pill on a day (one dose of 1.5 mg of levonorgestrel) or two pills at a 12-h interval (two doses of 0.75 mg of levonorgestrel) any time after intercourse until five days after sexual intercourse. Data were collected by medical students. After the interview, patients were offered a brochure with information about EC.

Data were stored in a Microsoft Excel database. Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 18.0 (SPSS Inc., Chicago, IL). Numerical variables were expressed as mean and standard deviation and all other variables as absolute and relative frequencies. Numerical variables were compared using Student's *t* test. Categorical variables were analyzed using the chi-square test. Results showing $p < 0.05$ were considered significant.

For an expected prevalence of knowledge about EC of 85.0% (arbitrated by the authors), within a 6.0% error margin, 95.0% confidence interval and $p < 0.05$, we estimated that a minimum sample size of 130 patients would be needed.

RESULTS

A total of 134 patients participated in the study, with mean age of 27.61 ± 6.67 years (age range, 18–

47 years). Mean schooling was 9.21 ± 3.29 years. Approximately 32.0% of interviewed patients had finished high school and only 11.6% had obtained a university degree.

The prevalence of different contraceptive methods used by patients ($n=134$) was 61.2% for combined oral contraceptives, 18.7% for condoms, 3.0% for intrauterine device, and 9.0% for other methods; 8.1% of patients used no contraceptive method. Of 123 patients who used contraceptive methods, 121 reported systematic use of the method, as follows: 65.3% reported regular use of the contraceptive method; 24.6% reported irregular use; and 10.1% sporadic use (less than 30.0% of the time). Contraceptive methods were prescribed by a physician in 75.6% (93/123) of cases. When asked about concomitant condom use, 50.0% of patients reported that they did not use condoms concomitantly with the contraceptive method. Only 9.7% of patients reported concomitant use of condoms and the regular contraceptive method.

As for years of schooling, there was a statistically significant difference between women who used oral contraceptives and women who used other contraceptive methods ($p=0.019$) (Figure 1).

The prevalence of EC use in our sample was 19.4%. Of the total sample ($n=134$), 86.5% of patients reported that they had heard about EC,

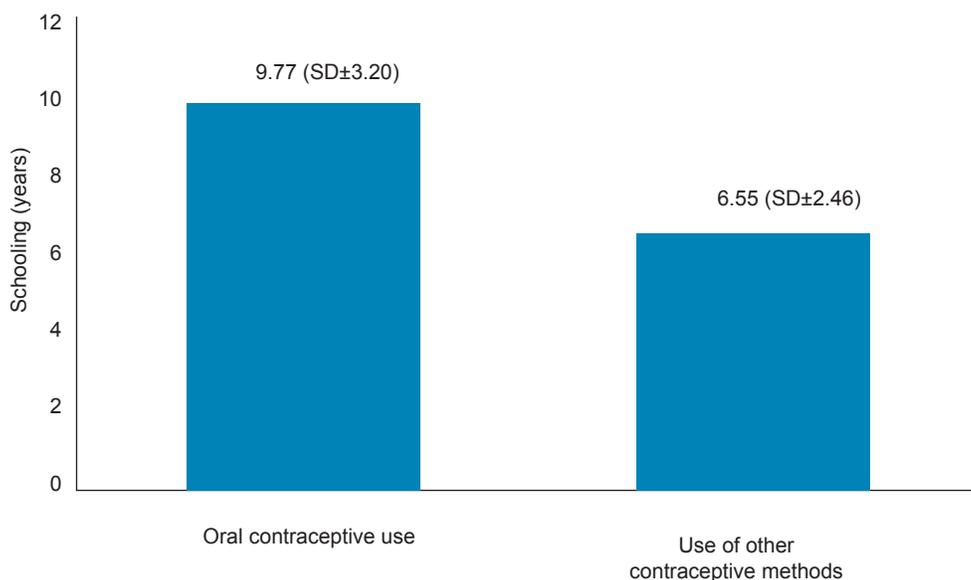


Figure 1: Years of schooling and use of oral contraceptives ($n=75$) versus other contraceptive methods ($n=38$) ($p=0.019$).

and 43.1% of these (50/116 patients) reported that they knew how to use it. However, only 12.0% of patients were able to correctly report how the EC method should be used.

There was a statistically significant difference in mean years of schooling between patients who correctly and those who incorrectly described EC use, 11.14 ± 3.64 vs. 9.0 ± 3.19 years, respectively ($p=0.025$).

Age at menarche and age at first sexual intercourse, number of (planned and unplanned) pregnancies and number of partners are shown in Table 1. Prevalence of unplanned pregnancy among patients who reported regular use of contraceptive methods was 59.5% (47/79), being lower than that observed among patients who reported irregular use of contraceptive methods (76.2%, 32/42)

($p=0.103$). There was no statistically significant difference between these two groups.

Patients were asked about the amount of time that could elapse between unprotected sexual intercourse and effective use of EC to prevent pregnancy. Of the total sample ($n=134$), 49.1% answered 24 h, 17.2% 72 h, 8.2% 6 h, and only 3.4% answered that EC could be used within 5 days following unprotected sexual intercourse. Approximately 22.0% of patients reported that they did not know the answer to the question.

Responses to the question about EC use revealed that 66.6% of patients who had never used EC ($n=108$) would have used this method if they had known more about it. Of 116 patients who reported that they had heard about EC, 58.6% reported that they had obtained information

Table 1: Demographic data, gynecological history and information on contraceptive methods used.

	Mean \pm SD	n (%)
Age (years)	26.61 (\pm 6.67)	
Menarche age (years)	12.00 (\pm 1.68)	
Age at first sexual intercourse (years)	16.00 (\pm 1.86)	
Schooling (years)	9.21 (\pm 3.29)	
Number of partners per patient	3.30 (\pm 2.80)	
Number of pregnancies per patient per patient	2.18 (\pm 1.66)	
Number of planned pregnancies per patient	1.11 (\pm 1.12)	
Number of unplanned pregnancies per patient	1.15 (\pm 1.17)	
Contraceptive method in use (n=123)		
Combined oral contraception		75 (61.2%)
Condom		23 (18.7%)
Intrauterine device		4 (3.0%)
Other methods (hormonal injection, adhesive)		11 (9.0%)
Did not use contraceptive method		9 (8.1%)
Use of the contraceptive method (n=121)		
Regular		79 (65.3%)
Irregular		30 (24.6%)
Sporadic (use less than 30%)		12 (10.1%)
Concomitant use of condoms (n=123)		12 (9.7%)
Regular		26 (21.6%)
Irregular		23 (18.7%)
Single use		62 (50.4%)
Do not use		
Have received enough information about the method in use		
Yes		88 (65.8%)
No		46 (34.2%)

about EC from friends and 8.6% from doctors. The remaining answers indicated that patients obtained information from parents, pharmacists, and drugstore attendants.

DISCUSSION

Currently, there are over 50 types of EC. Most EC methods consist of taking progestogen pills. In Latin America, 15 out of 18 countries have included the use of EC in their family planning programs (preventing unintended pregnancies) and sexual assault laws (13).

Since 2010, EC has been made available in over 140 countries around the world, being available over the counter in about 50 of these countries (14). Unfortunately, in most countries, including Brazil, EC is only available to the public through health care services. Moreover, several health care professionals, from public and private services alike, are still poorly informed about EC methods (15,16). Recent data indicate that women are increasingly seeking to use EC. In 2002, in the United States, 4.0% percent of women reported using the method at least once. Between 2006 and 2008, that number increased to 10.0% (17).

Pharmacists can dispense Emergency contraceptive pills. However, knowledge and attitudes of the pharmacy personnel regarding EC may affect access to the methods as well as their use and availability (13). Studies have shown that lack of knowledge about and negative attitudes toward EC among pharmacy personnel and health care professionals may hinder access to EC (18,19).

It has been previously demonstrated that one in every five doctors hesitates before providing information about this method to sexually active adolescents (20). In our study, of 116 patients who had been given information about EC, only 8.6% obtained such information from their doctors, even though over 75.0% of the participants using contraceptive methods ($n=123$) were given prescriptions for other contraceptive methods on a regular basis. Our data show regular use of contraceptive methods in the population (hormonal contraceptives and condoms). Yet these methods may fail. Inadequate use or failure of a contraceptive method, in addition to unprotected sexual intercourse, may contribute to the incidence of unintended pregnancies. In the present study, despite the regular use of

contraception in 65.3% of patients, there were 59.5% of unintended pregnancies. The number of unintended pregnancies was high even among interviewees who reported regular use of contraception, suggesting contraceptive misuse.

From 1996 to 2006, in Brazil, contraceptive use by women increased from 78% to 81% among married women aged 15–49 years, mostly due to increased use among lower-income women (21). In our study, there was a significant difference in the level of education of patients using oral contraceptives as compared to that of patients using other methods. This result highlights the importance of prescribing contraceptive methods that are easy to use for patients with lower levels of education. We found a strong relationship between patients with more years of schooling and correct EC use, as previously shown by Cayan and Karaçam (22). This result supports the notion that EC use depends not only on medical prescription and supply, but also on the patient's level of education. In the Brazilian Unified Public Health System (SUS), EC is provided at no cost to the patient, but a prescription is required — a requirement that has been seen as a limiting factor for obtaining EC in the SUS. However, in Brazilian drugstores, it can be obtained without prescription for approximately USD 3.6-9.2 (although the package is marked with a red label indicating that a prescription is required). Easy access to contraception (including EC) could help, among other things, to reduce unsafe abortion practice (23).

In Turkey, of 1,298 patients, 18.1% had knowledge about EC and 73.6% were able to accurately describe how it should be used. Most patients learned about the method in health care centers. This indicates that information available from health care services may improve the correct use of EC. There was no relationship between years of schooling and having information about EC (24). This finding is different from our results, in which the average number of years of schooling was related to access to information. Similar to our results, Goicolea and San Sebastian (25) showed a significant difference related to level of education. There were twice as many unwanted pregnancies among illiterate women than in those with over nine years of schooling (24). In southern Brazil, low maternal education showed no significant correlation with unintended pregnancies after adjusting for other socioeconomic and demographic variables (26).

Although a high percentage of our patients reported that they had knowledge about EC, most of them were unable to accurately describe how EC should be used. There is a lack of information about EC use in the population. When asked about how the EC method should be used, almost half of the patients reported that the correct use of the method would be within the first 24 h after engaging in unprotected intercourse. Unfortunately, thousands of women in Brazil miss the opportunity of using EC due to lack of proper information. The findings of this study stress the need to provide better information and replace the concept of the 'morning-after pill' with a more accurate term: emergency contraception. Strategies to outreach a broader public remain to be established. EC prescription should be incorporated into women's regular health care. Public health services should adopt measures aiming to include

the understanding of EC as a sexual and reproductive right of women. All women of reproductive age and at risk of unintended pregnancy should be granted access to EC. Training of health care professionals in contraception prescribing and counseling, easier access to health care services and educational programs are some of the actions that remain to be established.

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REFERENCES

- Trussell J, Ellertson C, Stewart F, Raymond EG, Shochet T. The role of emergency contraception. *Am J Obstet Gynecol.* 2004;190(4 Suppl):S30-8.
- Abeche AM, Maurmann CB, Baptista AC, Capp E. A gestante adolescente e seu parceiro: Características do relacionamento do casal e aceitação da gravidez. *Rev HCPA.* 2006;26(2):18-23.
- Lalithkumar PG, Berger C, Gemzell-Danielsson K. Emergency contraception. *Best Pract Res Clin Endocrinol Metab.* 2013;27(1):91-101.
- Yuzpe AA, Lancee WJ. Ethinylestradiol and dl-norgestrel as a postcoital contraceptive. *Fertil Steril.* 1977;28(9):932-6.
- Piaggio G, von Hertzen H, Grimes DA, Van Look PF. Timing of emergency contraception with levonorgestrel or the Yuzpe regimen. Task Force on Postovulatory Methods of Fertility Regulation. *Lancet.* 1999;353(9154):721.
- Ellertson C, Evans M, Ferden S, Leadbetter C, Spears A, Johnstone K, et al. Extending the time limit for starting the Yuzpe regimen of emergency contraception to 120 hours. *Obstet Gynecol.* 2003;101(6):1168-71.
- Trussell J, Rodriguez G, Ellertson C. Updated estimates of the effectiveness of the Yuzpe regimen of emergency contraception. *Contraception.* 1999;59(3):147-51.
- Yuzpe AA, Smith RP, Rademaker AW. A multicenter clinical investigation employing ethinyl estradiol combined with dl-norgestrel as postcoital contraceptive agent. *Fertil Steril.* 1982;37(4):508-13.
- Spence MR, Elgen KK, Harwell TS. Awareness, prior use, and intent to use emergency contraception among Montana women at the time of pregnancy testing. *Matern Child Health J.* 2003;7(3):197-203.
- Grimes DA, Raymond EG. Emergency contraception. *Ann Intern Med.* 2002;137(3):180-9.
- Brunton J, Beal MW. Current issues in emergency contraception: an overview for providers. *J Midwifery Womens Health.* 2006;51(6):457-63.
- Rocca CH, Schwarz EB, Stewart FH, Darney PD, Raine TR, Harper CC. Beyond access: acceptability, use and nonuse of emergency contraception among young women. *Am J Obstet Gynecol.* Jan;196(1):29.e1-6; discussion 90.e1-5.
- Schiappacasse V, Diaz S. Access to emergency contraception. *International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics.* 2006;94(3):301-9.
- Glasier AF, Cameron ST, Fine PM, Logan SJ, Casale W, Van Horn J, et al. Ulipristal acetate versus levonorgestrel for emergency contraception: a randomised non-inferiority trial and meta-analysis. *Lancet.* 2010;375(9714):555-62.
- Golden NH, Seigel WM, Fisher M, Schneider M, Quijano E, Suss A, et al. Emergency contraception: pediatricians' knowledge, attitudes, and opinions. *Pediatrics.* 2001;107(2):287-92.

16. Khan Y, Sbrocca N, Stanojevic S, Penava D. Exposure to emergency contraception in an undergraduate medical curriculum. *J Obstet Gynaecol Can.* 2003;25(5):391-5.
17. Mosher WD, Jones J. Use of contraception in the United States: 1982-2008. *Vital Health Stat* 23. 2010;(29):1-44.
18. Yam EA, Gordon-Strachan G, McIntyre G, Fletcher H, Garcia SG, Becker D, et al. Jamaican and Barbadian health care providers' knowledge, attitudes and practices regarding emergency contraceptive pills. *Int Fam Plan Perspect.* 2007;33(4):160-7.
19. Blanchard K, Harrison T, Sello M. Pharmacists' knowledge and perceptions of emergency contraceptive pills in Soweto and the Johannesburg Central Business District, South Africa. *Int Fam Plan Perspect.* 2005;31(4):172-8.
20. Kelly PJ, Sable MR, Schwartz LR, Lisbon E, Hall MA. Physicians' intention to educate about emergency contraception. *Fam Med.* 2008;40(1):40-5.
21. Diniz SG, d'Oliveira AF, Lansky S. Equity and women's health services for contraception, abortion and childbirth in Brazil. *Reprod Health Matters.* 2012;20(40):94-101.
22. Cayan A, Karacam Z. Factors concerning the attitudes of married women toward family planning in Aydın, Turkey: a cross-sectional study. *Iran J Nurs Midwifery Res.* 2013;18(4):323-8.
23. Faundes A, Shaw D. Universal access to reproductive health: opportunities to prevent unsafe abortion and address related critical gaps. *Int J Gynaecol Obstet.* 2010;110 Suppl:S1-2.
24. Yapici G, Oner S, Kurt AO, Sasmaz T, Bugdayci R. Knowledge of emergency contraception among women aged 15-49 years in Mersin, Turkey. *J Reprod Med.* 2011;56(5-6):204-10.
25. Goicolea I, San Sebastian M. Unintended pregnancy in the amazon basin of Ecuador: a multilevel analysis. *Int J Equity Health.* 2010;9:14.
26. Prietsch SO, Gonzalez-Chica DA, Cesar JA, Mendoza-Sassi RA. [Unplanned pregnancy in Southern Brazil: prevalence and associated factors]. *Cad Saude Publica.* 2011;27(10):1906-16.

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