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Access and Attitudes Regarding Emergency Contraception and Reproductive Health in Nicaragua

By

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Introduction

Shortly following the advent of hormonal birth control, post-coital pregnancy prevention, otherwise known as emergency contraception, became an important component of fertility control. In 1966, gynecologist John McLean Morris and his biologist partner Gertrude Van Wagenen first reported successful use of high dose oral estrogen pills to prevent pregnancy in rhesus macaque monkeys.[1] In the normal female menstrual cycle, estrogen and progesterone are critical for the proper maintenance of the endometrial lining. After ovulation, increasing progesterone levels prepare the endometrium for implantation. If implantation does not occur, hormone levels decrease and the endometrial lining is sloughed off in the form of a woman's period.[2] Morris and Wagenen successfully hypothesized that if one were to consume high levels of estrogen after unprotected sex, endometrial changes would occur that would be incompatible with the implantation of a fertilized egg. Unfortunately, such high doses of estrogen lead to extreme nausea and vomiting in the subjects and ended the study.[2]

During the following decades, several methods of emergency contraception were explored, including combined estrogen and progesterone, but the ideal pill was yet to be discovered. The global need for effective, accessible emergency contraception was becoming increasingly urgent. Thus, in 1995 the International Planned Parenthood Federation (IPPF), Family Health International (FHI), Population Council and the World Health Organization (WHO) came together to form the international Consortium for Emergency Contraception. Momentum from this new collaboration lead to a 1998 study by the WHO investigating the effectiveness of progesterone alone in the form of levonorgestrel. The study was successful and the progesterone-only pill quickly became the most popular method of emergency contraception

worldwide. Rather than preventing implantation (the mechanism of estrogen based emergency contraception), high doses of levonorgestrel act earlier and interfere with ovulation.[2]

Although a globally accepted emergency contraceptive pill has been available for many years, the development of a successful pill has been only one piece of the puzzle. Societal and cultural ideals and understanding of emergency contraception can have a significant effect on its use. In Latin America, emergency contraception was expected to be widely accepted for a variety of reasons. First, the imbalance of power between men and women in the region leads to a relatively high rate of undesired and unprotected intercourse, and subsequent unintended pregnancies.[3] Emergency contraception is of great benefit in these situations. Additionally, many countries in Latin America have strict laws regarding abortion[4] and inconsistent access to modern contraception leaving emergency contraception as the last jurisdiction a woman may have over her fertility. Since the countries of Latin America have widely varying fertility and contraceptive statistics, I will focus the remainder of this exploration on the centrally located country of Nicaragua. I will investigate the complexities surrounding unintended pregnancy and the role of local culture, modern contraception, and emergency contraception.

Background

Unintended Pregnancy

Unintended pregnancy affects millions of women across the globe and often leads to an increased risk of health complications and socio-economic stress.[5] In Nicaragua, approximately 1 in 6 births are unplanned[6], a relatively low number in comparison to the United States[5]. However, the rate of unintended pregnancy is particularly problematic within the adolescent age group of Nicaragua, where 50% of women give birth before age 20 and 45% of those births are

unplanned.[7] The annual fertility rate of Nicaragua's adolescents (109 births per 1,000 15-19-year-olds) is the highest in all of North, Central and South America, where the average adolescent birth rate is 61 per 1,000 15-19-year-olds.[7]

To investigate the cause of such a high teenage pregnancy prevalence in Nicaragua, Decat et al. set out to collect data on adolescent sexual activity and contraceptive use in Managua, Nicaragua. The method included a door to door survey of randomly selected, low income neighborhoods in Managua. Data were collected from 2803 adolescents ages 13-18. Of the sample, 475 boys (35%) and 299 girls (21%) reported that they were sexually active. Unsurprisingly, as age increased, likelihood of sexual activity increased.[8]

Cultural Influences

Many cultural and political factors likely influence the high unintended birth rate among Nicaragua's youth. For example, abortion is illegal under any circumstances in Nicaragua.[4] For much of the country's history, abortion was legal under therapeutic conditions, which included protecting the mother's health, pregnancy in cases of rape or incest, and severe fetal malformations incompatible with post-natal life. However, in 2006 the article permitting therapeutic abortions was removed from the penal code, ultimately making abortion entirely illegal.[4] Since that time, maternal mortality and unsafe, illegal abortions have increased.[9]

Important contributors to this policy change include a dominating Catholic presence paired with an extensive "machismo" culture. Machismo is an aggressive masculine pride that has been a major player in much of Latin American culture for centuries and has lead Nicaragua to be largely male dominated. Part of this culture is the feeling of power men gain when they have children with many different women.[10] According to Cenzontle, a women's center in

Nicaragua, "a man getting a woman pregnant is the highest expression of machismo."[10] Because of this, men are often vehemently opposed to their partners using any sort of contraception, forcing women to access contraception in secret.

Modern Contraceptive Use

In addition to the rate of adolescent sexual activity, Decat et al. also collected data on contraceptive use. Of those who were sexually active, 43% of boys and 54% of girls reported that they were using contraception. In girls, the Depo hormonal injection was the most common method of contraception (25%) followed by the oral contraceptive pill (13%) and intrauterine devices (4%). Less than 20% of respondents reported that they received information on sexuality from a healthcare provider in the past 12 months.[8]

Adding context to the Decat et al. article, Rios-Zertuche et al. investigated over-arching knowledge and understanding of available contraceptive methods in Nicaragua, Guatemala, Honduras, Panama and Chiapas, Mexico. They distributed a survey to randomly selected women ages 15-49 in the poorest regions of each country and obtained a sample of 7049 respondents. The survey results showed that greater than 30% of the women did not have any knowledge of modern contraceptives. In Nicaragua, of the women who were at least minimally familiar with contraceptives, the most commonly cited reason for nonuse (48.6%) was concern that hormonal contraceptives would be harmful to their health. Overall, the study found that contraceptive knowledge and use was lowest among those with indigenous ethnicity, extreme poverty, lack of education and rural living. However, when surveying the population as a whole, Nicaragua had the highest rate of modern contraception ever use in the region (82.2%).[11]

Emergency Contraception- Knowledge and Use

Emergency Contraception (EC) is on the World Health Organization's "Model List of Essential Medicines", which is a list of necessary medicines required in a basic healthcare system.[7] Even so, the legality of EC continues to be controversial in Latin America. EC is illegal in both surrounding countries of Nicaragua: Honduras and Costa Rica.[12] Although abortion is strictly illegal in Nicaragua, EC remains legal and is available for public purchase without a prescription.[12] However, access and use is affected by a variety of socio-demographic factors.[13]

Despite its legality, EC is not available from public health care services, which provide healthcare and medications for free to Nicaragua's general population. Instead, women must purchase EC from the private healthcare sector. At private pharmacies, EC pills cost 2-3 US dollars.[14] Nina Ehrle and Malabika Sarker conducted a study of private pharmacy personnel in the capital city of Managua. Their goal was to survey the people dispensing emergency contraception to determine their knowledge and attitudes of the medication.[14] Using a random sample of the city's pharmacies, personnel from 93 pharmacies were selected. Results showed that 91/93 pharmacies (98%) had at least one EC product available for purchase at the time of interviewing. Ninety-two per cent reported selling at least one per week, 97% of which were without a prescription.[14]

Along with dispensing statistics, Ehrle and Malabika extensively surveyed the knowledge and attitudes of the pharmacy personnel. All interviewees surveyed were familiar with emergency contraception and 50% had received information about the product within the past year. Seventy-nine per cent knew that the pill was intended for use after unprotected sex. However, of that 79%, only 45% knew that the EC pill can be taken up to 72 hours after unprotected sex. A small minority (5%) believed that EC could induce abortion, and 33%

believed the EC pill could both prevent pregnancy and cause an abortion. Fifty-seven per cent incorrectly believed that emergency contraception could cause congenital malformations and 85% believed use of the EC pill could lower a woman's subsequent fertility.[14]

Finally, when surveying personal opinions about the use of emergency contraception, 82% believed it encourages sexual risk taking, discourages use of standard contraception (75%), and increases sexually transmitted infections (76%). Sixty-nine per cent believed hormonal EC should require a prescription. Nonetheless, 68% of personnel still maintained that emergency contraception is necessary to reduce unintended pregnancies.[14] (See Appendix A)

After reviewing the data published by Ehrle and Malabika, Mariano Salazar and Ann Ohman set out to learn more information about the women purchasing emergency contraception from these pharmacies.[13] They obtained data from the 2006-2007 Nicaraguan Demography and Health Survey (NDHS), which was a national cross-sectional study. The survey collected reproductive health information from 14229 "ever-partnered" women ages 15-49 across the country. Results of the study showed that 6% of these women had ever used hormonal emergency contraception.[13] For reference, 11% of women in the United States reported ever using hormonal emergency contraception.[15,16] The study found that hormonal EC use was significantly higher in educated women with a high socio-economic status. Additionally, age was found to be an important factor. The likelihood of using EC decreased significantly as women aged. Finally, both women who reported having unprotected sex and women who lived in urban areas were significantly more likely to have used EC (See Appendix B).[13]

Methods

Information for this paper was gathered from the PubMed database along with the United States Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) websites. The first search terms in PubMed included “Nicaragua + emergency contraception” which yielded only three results, all of which were chosen for this article based on their inclusion of large-scale population surveys on the topics of emergency contraception and reproductive healthcare. The search was expanded by swapping “Nicaragua” with “Central America” and “emergency contraception” which yielded many more results giving context to the topic in the region. Later, the search terms included “Nicaragua + contraception”, “Nicaragua + reproductive health”, “Nicaragua + unintended pregnancy” and “Nicaragua + abortion”. Articles were chosen based on their inclusion of both usage statistics in the general population as well as in populations separated by age, gender, socio-economic status and geographic location.

The CDC and WHO websites were searched both to cross-reference statistics presented by the PubMed articles, and to investigate more large scale data on birth rates, maternal mortality and abortion in Nicaragua and the United States.

During a visit to Nicaragua, interviews were conducted on July 11th, 2017, at Centro de Mujeres Acahual, a women’s center in Managua, Nicaragua, which provides reproductive education and medical care for women. The director of the program, nurse Silvia Cisneros, as well as a local pharmacist, Karla Cisneros, and other support staff were asked questions regarding their organization’s function within the community, sex and reproductive health education, and local access and attitudes regarding women’s health issues. An interview was also conducted at a Casa Materna in San Ramon, Nicaragua on July 18th, 2017. The Casa Materna houses 20+ at-risk pregnant women nearing their due date from rural communities who need to

be close to the hospital for delivery. Questions were asked on the topics of emergency contraception, modern contraception, pregnancy, family life, social and educational programming, and local culture.

Discussion

Upon completion of thorough research on the topic, access to emergency contraception and reproductive rights in Nicaragua is clearly a multi-faceted topic. Given the conservatively Catholic and male-dominated culture, one may be surprised at the rate in which Nicaraguan women are using contraception, both long term and emergency. However, barriers to access are still evident.

Although most private pharmacies are consistently providing emergency contraception to women who seek it, the holes in pharmacy personnel knowledge are concerning. For example, a woman seeking the emergency contraceptive pill between 1-3 days after intercourse may be erroneously denied the medication due to a majority of the staff mistakenly believing EC is only effective for 12-24 hours.[14] Another concerning result was the incorrect belief by the staff that EC can cause congenital defects and lowers a woman's fertility.[14] Spreading this false information to pharmacy patrons likely discourages use of EC in women who seek it.

An interview with local pharmacist Karla Cisneros at Centro de Mujeres Acahual, a women's center in Managua, on July 11th, 2017 revealed that it is not uncommon for pharmacies to be staffed only by a pharmacy tech with little to no training. She explained that private pharmacies in Nicaragua are extremely profit-focused. Thus, there are pharmacies on almost every block in Managua, making medications very accessible to those who can afford to use

private pharmacies. However, each pharmacy cannot possibly be staffed at all times by a trained pharmacist, which causes both staff and patient education to fall by the wayside.

Given the misinformation held by the pharmacy personnel, it is unsurprising that most staff do not feel comfortable dispensing emergency contraception without a prescription. Predictably, under these circumstances many studies found women of lower education and socio-economic background access contraception less frequently.[2,8,11,13,16] An uneducated, poor woman is likely less familiar with the availability and usefulness of emergency contraception, and may be unable to afford the cost at a private pharmacy. This is, of course, contingent upon a woman living in a community large enough to have a private pharmacy. The misconceptions revealed by these studies suggests that an education initiative is urgently necessary.

While touring small mountain villages north of Managua, I recognized that the over saturation of private pharmacies in Managua did not translate to the rural communities. These communities had only one small, government sponsored clinic available to them. A private pharmacy, and therefore access to emergency contraception, would require traveling to the nearest city, which is unrealistic for many rural women.

During an interview at the Casa Materna in San Ramon, Nicaragua, on July 18th, 2017, none of the ~20 rural, pregnant women living at the center (all but two of who were teenagers) were knowledgeable about emergency contraception. Upon being asked about EC, a few of the women appeared that they had at least heard of the medication, but none showed any real knowledge or experience with EC. Furthermore, the director of the center added that even if the women did know about EC they would not be allowed to access it by their partners.

Returning to Decat et al.'s article, which reported the most commonly used modern contraception as the Depo Provera shot, the women interviewed at the Casa Materna gave a

fascinating explanation as to why this is true. They explained that the machismo culture causes their partners to oppose use of hormonal contraception due to a belief that women who are protected from pregnancy will be unfaithful to their partners. Thus, depending on which regimen they follow, the women create an excuse every 1-3 months to visit their local healthcare center for the birth control shot. Most other forms of hormonal birth control leave a trace (ex. strings on an IUD) or are difficult to maintain (ex. taking a pill every day), but the shot invisibly protects a woman with minimal required effort. However, the women reported that visiting the healthcare center exactly on time to keep up with the shots can be difficult, so they are often a week or more late for their follow up. Many of the women at the Casa Materna smiled and nodded their heads as one described the inconsistencies of follow up shots, suggesting that this may be the reason some of them became pregnant. If these young women had access to consistent contraception, and emergency contraception when necessary, many of them would not be preparing to become teenage mothers.

Conclusion

Traveling to Nicaragua provided a lens on the topics of emergency contraception and women's reproductive health that I would have been unable to attain through simply reading scholarly literature. The rich history and culture I had the privilege of experiencing filled in many of the gaps in my understanding of their reproductive healthcare system. Yet, eleven days in the country could never be enough to answer each question. I left with a deeper understanding of women's perspective on sexual health, and they described experiences with the role of men, but I was unable to interview men of the average population on the subject. In my westernized mind, I think that surely some men must be supportive of contraception, but I cannot make

assumptions. More specifically, the overwhelming consensus amongst those interviewed on the trip was that condoms are almost never used because men do not like them and do not feel it is their responsibility to use them. However, the findings from Decat et al.'s article stated that 43% of adolescent boys reported using contraception.[8] It remains unclear if the boys were reporting on knowledge that their partners were using contraception or if it truly meant that such a large percentage of the boys were using condoms.

In any case, my takeaway message from the scholarly research and trip to Nicaragua is that reproductive and sexual health education initiatives desperately need to be improved for both men and women. Wonderful organizations such as the Centro de Mujeres Acahual and the Casa Maternas are providing information to the relatively small number of women who access their services. However, I did not come across any initiatives targeting reproductive health education in men. For now, sexual health and pregnancy prevention remains an issue burdening only women in Nicaragua. Along with the expansion of education programs for women, I believe it is imperative that men are encouraged to join in on the conversation and take their share of responsibility. Although no hormonal contraception options are available for men, sharing the financial and emotional burden of fertility is essential for the reproductive health of our global community.

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APPENDIX A:

TABLE 1. Percentage distribution of interviewed pharmacy personnel, by selected social and demographic characteristics, Managua, Nicaragua, 2009

Characteristic	% (N=93)
Sex	
Male	35.5
Female	64.5
Age	
<20	6.5
20–29	25.8
30–39	40.9
40–49	21.5
≥50	5.4
Education or training	
Pharmacist: university degree	23.7
Medical: university degree	5.4
Pharmacy student	8.6
Dispensary assistant	47.3
No pharmaceutical training	15.1
Yrs. of experience in pharmacy work	
<5	31.2
5–10	52.7
>10	16.1
Religion	
Catholic	52.7
Protestant	26.9
Other	2.2
No religion	8.6
No response	9.7
Total	**100.0**

TABLE 2. Percentage distribution of pharmacies that carried emergency contraceptive pills, by stocking and selling practices

Practice	% (N=93)
≥1 products in stock at time of visit	
Yes	97.8
No*	2.2
Experience selling products	
Yes	100.0
No	0.0
Frequency of product sales	
Discontinued sales	2.2
≥1 times a week	92.4
≥1 times a month	5.4
≥1 times a year	0.0
<1 time a year	0.0
Most frequent clients	
Adolescents	16.1
Adult women	21.5
Women of all ages	60.2
Men	2.2
How products are sold in most cases	
Patient request	96.8
Patient presents prescription	2.2
Pharmacy personnel recommendation	0.0
With or without prescription	1.1
Educational material made available	
Yes	35.5
No	64.5
Total	**100.0**

*These two pharmacies stopped carrying emergency contraceptive pills because of a Church campaign.

TABLE 3. Percentage of pharmacy personnel, by knowledge about emergency contraceptive pills, time of use and mechanism of action

Question	% (N=93)
Do you know of emergency contraceptive pills?	
Yes	100.0
No	0
Have you received information about the method in the past year?	
Yes, more than once	22.6
Yes, once	28.0
No	49.5
Sources of information*	
Pharmaceutical industry	59.6
Textbooks	27.7
Training	25.5
Pharmaceutical newspapers and brochures	19.1
Internet	12.8
Ministry of Health	8.5
Other	6.4
When must pills be taken to be clinically effective?	
Before unprotected sexual intercourse	10.8
During unprotected sexual intercourse	7.5
After unprotected sexual intercourse	78.5
Does not know/no response	3.2
Within how many hours after unprotected sexual intercourse should the pills be taken?†	
3	1.4
24	38.4
48	15.1
72	45.2
120	0.0
Mechanism of action	
Prevent pregnancy	59.1
Induce abortion	5.4
Prevent pregnancy and induce abortion	33.3
Other	2.2

*Only participants who had received information within the past year (n=47) were asked this question; multiple answers were possible. †Only participants who had correctly stated that emergency contraceptive pills are to be taken after unprotected sexual intercourse (n=73) were asked this question.

TABLE 4. Percentage distribution of pharmacy personnel who sell emergency contraceptive pills (ECPs), by knowledge about method contraindications and side effects

Measure	Yes %	No %	Does not know/no response	Total (N=93)
Consider ECPs safe despite these potential contraindications				
Females <16	14.0	84.9	1.1	100.0
Female smokers >35	57.0	37.6	5.4	100.0
Used method within last month	35.5	62.4	2.2	100.0
Breast-feeding	2.2	97.8	0.0	100.0
Pregnant or possibly pregnant	1.1	97.8	1.1	100.0
Possible side effects				
Nausea and vomiting	84.9	11.8	3.2	100.0
Altered menstrual bleeding	97.8	1.1	1.1	100.0
Congenital malformations	57.0	25.8	17.2	100.0
Lowered fertility	84.9	9.7	5.4	100.0

TABLE 5. Percentage distribution of pharmacy personnel, by agreement with statements about availability and necessity of emergency contraceptive pills

Statement	Totally agree	Some-what agree	Some-what disagree	Totally disagree	Doesn't know/no response	Total (N=93)
The availability of ECPs encourages sexual risk-taking.	69.9	11.8	2.2	12.9	3.2	100.0
The availability of ECPs discourages use of ongoing contraceptive methods.	62.4	12.9	2.2	22.6	0.0	100.0
Wide availability of ECPs does not lead to abuse or repeated use.	11.8	9.7	10.8	63.4	4.3	100.0
The availability of ECPs increases the transmission of HIV and other sexually transmitted infections.	72.0	4.3	5.4	17.2	1.1	100.0
ECPs are a necessary method to reduce unwanted and unplanned pregnancies.	57.0	10.8	0.0	31.2	1.1	100.0

TABLE 6. Willingness of pharmacy staff to provide emergency contraceptive pills to certain clients and concerns regarding availability of the method over the counter

Question	Yes	No	Doesn't know/no response	Total (N=93)
Would you provide ECPs to:				
Rape victims	75.3	20.4	4.3	100.0
Women whose partner's condom broke or slipped off	81.7	15.1	3.2	100.0
Women who incorrectly used a contraceptive method	72.0	28.0	0.0	100.0
Women who did not use any contraceptive method	69.9	28.0	2.2	100.0
Minors without parental consent	12.9	81.7	5.4	100.0
Sex workers	59.1	35.5	5.4	100.0
Men who request ECPs for their partner	83.9	15.1	1.1	100.0
Any woman who requests ECPs, regardless of circumstances	64.5	34.4	1.1	100.0
Should ECPs be available only with a prescription?	68.8	30.1	1.1	100.0
Are you concerned about selling ECPs over the counter because:*				
Women lose the benefits of a consultation with a doctor.	96.9	1.6	1.6	100.0
Some women use the method repeatedly.	95.3	3.1	1.6	100.0
Adolescents have easy access to emergency contraceptive pills and abuse them.	98.4	1.6	0.0	100.0
Women need medical supervision to take the pills.	96.9	1.6	1.6	100.0

*Only the 64 participants who had stated that emergency contraceptive pills should be available only with a prescription were asked this question.

APPENDIX B:

Table 1 Women's socio-demographic characteristics and lifetime exposure to intimate partner violence stratified by ever use of hormonal emergency contraception (HEC)

Characteristic	HE. contraception No n = 7901	HE. contraception Yes n = 383	All n = 8284
	% (95% CI)	% (95% CI)	% (95% CI)
Age. Mean (SE)*	28.5 (0.14)	25.8 (0.34)	28.3 (0.13)
Residency. Rural*	48.2 (44.1-52.4)	9.1 (6.3-13.0)	45.9 (41.0-50.0)
Education*			
No education	15.7 (14.2-17.0)	0.5 (0.0-1.5)	14.8 (13.4-16.1)
Primary school	42.8 (40.9-44.6)	10.8 (7.2-15.8)	40.8 (39.0-42.7)
High school education	31.7 (29.9-33.6)	48.7 (42.1-55.4)	32.8 (30.9-34.7)
College education	9.8 (8.6-11.0)	40.0 (33.6-46.4)	11.6 (10.2-13.0)
Parity. Mean (SE)*	2.49 (0.03)	1.28 (0.06)	2.41 (0.04)
Socioeconomic status*			
Low	25.4 (22.2-28.3)	2.2 (1.0-4.7)	24.0 (21.1-26.8)
Medium - low	21.4 (19.8-23.2)	4.5 (2.6-7.2)	20.4 (18.7-22.1)
Intermediate	20.0 (18.4-21.6)	13.0 (9.3-17.6)	19.6 (18.0-21.2)
Medium - high	18.5 (16.5-20.2)	29.5 (23.5-36.2)	19.1 (17.2-20.9)
High	14.7 (12.9-16.7)	50.8 (43.8-57.8)	16.9 (14.8-19.2)
Current use of reversible			
Contraception. Yes	57.7 (56.1-59.2)	60.4 (53.9-66.6)	57.8 (56.3-59.3)
Emotional IPV. Yes†	43.6 (42.0-45.2)	49.3 (43.1-55.5)	43.9 (42.4-45.5)
Physical IPV. Yes†	23.2 (22.0-24.1)	27.7 (21.9-34.2)	23.4 (22.3-24.6)
Sexual IPV. Yes†	10.9 (10.0-11.8)	12.4 (8.6-17.4)	11.0 (10.1-11.9)
Controlling behavior by partner. Yes†	53.7 (52.0-55.4)	57.2 (50.7-63.3)	54.0 (52.3-55.6)

*T-test or Chi2 test, $p < 0.05$. †Lifetime exposure to intimate partner violence. Weighted percentages and 95% CIs shown.

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