Vulnerability to experiencing an unintentional pregnancy among women who use the Unified Health System

Vulnerabilidade a vivenciar uma gravidez não intencional entre mulheres usuárias do Sistema Único de Saúde

Vulnerabilidad al vivenciar un embarazo no intencional entre mujeres usuarias del Sistema Único de Salud

Celia Regina Maganha e Melo[1] https://orcid.org/0000-0003-3007-971X
Natalia de Castro Nascimento[2] https://orcid.org/0000-0003-2498-5281
Luciane Simões Duarte[2] https://orcid.org/0000-0001-9173-607X
Ana Luiza Vilela Borges[2] https://orcid.org/0000-0002-2807-1762

Abstract

Objective: To analyze the vulnerability to experience an unintentional pregnancy among women users of Primary Care Centers and the associated aspects.

Methods: A cross-sectional study with a total of 470 women users of Primary Care Centers of the East Health Supervision Department from the city of Sao Paulo. Data were collected through interviews and multiple logistic regression was used to analyze the associated aspects.

Results: Approximately half of the women were found to be vulnerable to experiencing an unintentional pregnancy (48.3%). Women aged 25 to 34 years old were more likely to be vulnerable to unintentional pregnancy compared to women aged 18 to 24 years old (OR=2.0; 95%CI 1.2-3.4), the same observed for women aged 35 years old or older (OR=9.7; 95%CI 5.3-17.6). Women in a stable relationship were less likely to be vulnerable to an unintentional pregnancy compared to single women (OR=0.4; 95%CI 0.3-0.7). Women who did not plan a previous pregnancy were more likely to be vulnerable to an unintentional pregnancy compared to women who planned a previous pregnancy (OR=2.5; 95%CI 1.2-5.1), unlike women who never got pregnant (OR=0.4; 95%CI 0.2-0.7).

Conclusion: A significant portion of women was vulnerable to experiencing an unintentional pregnancy. The aspects associated with experiencing this pregnancy were age, not being in a stable relationship and not having planned the last pregnancy.

Resumo

Objetivo: Analisar a vulnerabilidade a vivenciar uma gravidez não intencional entre mulheres usuárias de Unidades Básicas de Saúde e os aspectos associados.

Métodos: Estudo transversal com 470 mulheres usuárias de Unidades Básicas de Saúde da Coordenadoria Regional de Saúde Leste do município de São Paulo. Os dados foram coletados por meio de entrevistas e utilizou-se regressão logística múltipla para analisar os aspectos associados.

Resultados: Aproximadamente metade das mulheres mostrou estar vulnerável a vivenciar uma gravidez não intencional (48,3%). Mulheres na faixa etária de 25 a 34 anos tiveram mais chance de estar vulneráveis à gravidez não intencional comparadas às mulheres na faixa etária de 18 a 24 anos (OR=2,0; IC95% 1,2-3,4), tendo sido o mesmo observado em relação às mulheres com 35 anos de idade ou mais (OR=9,7; IC95% 5,3-17,6). As mulheres em união estável tiveram menos chance de estar vulneráveis a uma gravidez não intencional comparadas às mulheres solteiras (OR=0,4; IC95% 0,3-0,7). As mulheres que não planejaram a gravidez anterior tinham mais chance de estar vulnerável a uma gravidez não intencional comparadas às mulheres que planejaram a gravidez anterior (OR=2,5; IC95% 1,2-5,1), diferentemente das mulheres que nunca engravidaram (OR=0,4; IC95% 0,2-0,7).

[1]Escola de Artes, Ciências e Humanidades, Universidade de São Paulo, São Paulo, Brazil.
[2]Departamento de Saúde Coletiva, Escola de Enfermagem, Universidade de São Paulo, São Paulo, Brazil.
Conflicts of interest: none to declare.

Conclusão: Uma parcela significativa de mulheres estava vulnerável a vivenciar uma gravidez não intencional. Os aspectos associados a vivenciar uma gravidez não intencional foram a idade, não estar em união estável e não ter planejado a última gravidez.

Resumen

Objetivo: Analizar la vulnerabilidad al vivenciar un embarazo no intencional entre mujeres usuarias de Unidades Básicas de Salud y los aspectos asociados.

Métodos: Estudio transversal con 470 mujeres usuarias de Unidades Básicas de Salud de la Coordinación Regional de Salud Este del municipio de São Paulo. Los datos se recopilaron a través de entrevistas y se utilizó la regresión logística múltiple para el análisis de los aspectos asociados.

Resultados: Aproximadamente la mitad de las mujeres se mostró vulnerable a vivir un embarazo no intencional (48,3 %). Mujeres en el grupo de edad de los 25 a los 34 años tuvieron más posibilidades de vulnerabilidad a un embarazo no intencional cuando comparadas con las mujeres en el grupo de edad de los 18 a los 24 años (OR=2,0; IC95 % 1,2-3,4). Lo mismo se ha observado en relación con las mujeres de 35 años o más (OR=9,7; IC95 % 5,3-17,6). Las mujeres en unión de hecho tuvieron menos posibilidades de vulnerabilidad a un embarazo no intencional en comparación con las mujeres solteras (OR=0,4; IC95 % 0,3-0,7). Las mujeres que no planificaron el embarazo anterior tuvieron más posibilidades de estar vulnerables a un embarazo no intencional cuando comparadas con las mujeres que planificaron el embarazo anterior (OR=2,5; IC95 % 1,2-5,1), a diferencia de las mujeres que nunca habían quedado embarazadas (OR=0,4; IC95 % 0,2-0,7).

Conclusión: Una parte significativa de las mujeres estaba vulnerable a vivir un embarazo no intencional. Los aspectos asociados a la vivencia de un embarazo no intencional fueron la edad, no tener una unión de hecho y no haber planificado el último embarazo.

Introduction

Unmet need for contraception is a relevant indicator to assess the difference between reproductive preferences and adoption of contraceptive methods in a population. This indicator is used worldwide, encompassing fertile women who want to avoid or delay a pregnancy, but do not use contraceptive methods to achieve this goal.[1]

In Brazil, the unmet need for contraception is relatively low, 8.3%,[2] especially compared to other low- and middle-income countries, mainly in sub-Saharan Africa, whose rates range from 20% to 59%.[3] This can be explained by the fact that the use of modern contraceptive methods is frequent in the country, reaching 77% of Brazilian women, as shown by the most recent National Demographic and Health Survey, from 2006.[4]

Although the prevalence of the use of contraceptive methods is high in the country, a nationwide study revealed that 55.4% of pregnancies were unintentional,[5] as many women are unable to reach their reproductive intention, that is, to reach the amount of children that you plan to have at the time of your life that you consider appropriate. This means that, even if women use contraceptive methods, they may be vulnerable to experiencing an unintended pregnancy, probably because they use methods of low and medium effectiveness, of short duration or inconsistently and/or discontinued.

Unintentional pregnancy occurs when the woman has no intention and/or desire to get pregnant and when actions centered on conception have not been taken, such as interrupting the use of contraceptive methods and adopting some measure of preconception preparation.[6] Although the experience of an unintentional pregnancy is not always a negative experience for the woman and her partner,[7] studies have shown that it is often associated with negative consequences for maternal and child health. For example, delayed start of prenatal care, reduced number of prenatal consultations, unsafe abortion, higher rates of low birth weight and prematurity, lower breastfeeding rates, among others.[8-11]

Studies conducted in different contexts have shown that women living in poor regions and those with a low level of education are the ones who have more difficulties in preventing pregnancy.[12] However, it is noteworthy that Brazilian women who have already experienced an unplanned pregnancy were less likely to use the contraceptive methods of their choice during the puerperium period, when compared to women who had a planned pregnancy,[13] that is, the situations that led some women to experience an unplanned pregnancy may persist after pregnancy, leading them to be vulnerable to experiencing an unintentional pregnancy again.[14]

Retrospective measures on pregnancy planning are available and have already been validated in var-

ious contexts.[11] However, research on the future intention to get pregnant versus the use of contraceptive methods can provide the identification of women who are most vulnerable to experiencing a pregnancy that is not intentional. This can support specific interventions that address their concerns and contraceptive/reproductive needs.

In this study, we consider the vulnerability to experience an unintentional pregnancy of women who are of reproductive age, have a sex life, are not infertile, not pregnant and, mainly, do not want to get pregnant, but who do not use contraceptive methods or use only those of low efficacy, that is, they seem to be in a poorly protected situation from a future pregnancy. This measure differs from the unmet need for contraception indicator in that it does not exclude women who use low efficacy methods, considering our context of high prevalence of contraceptive use.

Thus, we propose to understand which women are vulnerable to experiencing an unintentional pregnancy and to analyze the aspects associated with this vulnerability. Our main hypothesis is that there is a positive relationship between having already experienced an unplanned pregnancy before and being vulnerable to experiencing an unintended pregnancy in the future.

Methods

This quantitative, cross-sectional study is a subproject of a broader study approved by the Research Ethics Committee (CAEE 60967616.5.0000.5390), whose objective was to analyze the relationship between reproductive preferences and the use of contraceptive methods by women of reproductive age who use the Unified Health System – *Sistema Único de Saúde* (SUS) of the city of Sao Paulo.

The sample size was calculated considering as a parameter the "use of contraceptive methods" (p=50%), the population of women aged 18 to 49 in an administrative district of the East Health Supervision Department (CRLeste) of the city of Sao Paulo, with 95% confidence level and 5% margin of error. The calculation showed that it would

be necessary to interview a total of 683 women. Four among the ten Primary Care Centers (PCC) with the Family Health Strategy (FHS) in an administrative district of CRLeste in the city of Sao Paulo were randomly selected as the study setting.

Data collection took place from December 2017 to February 2018, during weekdays, in the morning and afternoon, by undergraduate students of the Obstetrics course, properly trained and under the supervision of the project coordinator. Women who had already started sexual life were included, and pregnant women, those who had undergone tubal ligation or who had partners who had undergone vasectomy were excluded.

A total of 847 women who were awaiting medical consultation were randomly approached. Of these, 72 (8.5%) refused to participate in the study and 90 (10.6%) did not meet the eligibility criteria. Therefore, the number of women interviewed was 685, with 516 women referring to three PCC, 172 women in each, and 169 in one of the four PCC with FHS.

The interviews were conducted using a structured instrument that contained information on sociodemographic characteristics, reproductive history, use of contraceptive methods and reproductive intention. The form was applied to tablets using the Research Electronic Data Capture (REDCap) platform.[15]

The variable of interest in this study was the vulnerability to experience an unintentional pregnancy. Vulnerability refers to a set of conditions in the social (such as cultural traditions, generational relations, gender relations), individual (such as relationships, desires, values) and programmatic (such as politics, quality of health services, participation and social control dimensions) that make individuals and communities more susceptible to diseases or injuries.[16] In other words, some women may be more vulnerable to experiencing an unintentional pregnancy due to the influences of their social, individual and programmatic conditions.

This variable was created from the junction of three other variables collected in the interview: intention to get pregnant ("does not want to get pregnant", "wants to get pregnant" and "does

not know if she wants to get pregnant"); use of contraceptive methods (CM) in the last sexual intercourse (no and yes); and, finally, the effectiveness of the CM in use ("does not use CM", "uses low-efficiency CM" and "uses medium or high-efficiency CM"). The Center for Disease and Control Prevention's (CDC) recommendation entitled Effectiveness of Family Planning Methods,[17] in which low-efficacy CMs are spermicides, natural methods based on the perception of fertility, sponges, was adopted as classification of CM effectiveness, withdrawal, male and female condoms; medium-effective CMs are diaphragm, vaginal ring, adhesive, pill and injectable, and finally, high-effective CMs are IUD, implant, female and male sterilization.

Vulnerability to experience an unintended pregnancy was analyzed as a dichotomous variable, with women categorized as "yes" (she was vulnerable to experiencing an unintended pregnancy) or "no" ("not vulnerable to experiencing an unintended pregnancy). To construct the "yes" category, we considered women who: a) did not want to get pregnant and did not use CM; b) did not want to get pregnant and used low-efficacy CM; c) did not know if they wanted to get pregnant and did not use CM; and d) did not know if they wanted to get pregnant and used low-efficacy CM. To construct the "no" category, we considered women who: a) wanted to get pregnant and did not use CM; b) wanted to get pregnant and used low, medium and high efficacy CM; and c) did not know if they wanted to get pregnant and used medium or high efficacy CM.

The other variables were related to sociodemographic aspects and planning of the last pregnancy, as the literature has shown that they interfere with the reproductive intention and/or the use of CM.[13,18,19] They are: age group (18 to 24, 25 to 34, 35 or more); skin color (white and non-white); religion (none, Catholic, Evangelical and others); education (completed or not completed: elementary school/high school/higher education); own income (no and yes); economic classification of the Brazilian Economic Classification Criterion of the Brazilian Association of Research Companies (ABEP) (A and B, C, D and E);[20] health insurance (no and yes); stable union (no and yes); number of children (none, one, two or more); and planning the last pregnancy (planned, ambivalent, unplanned and never got pregnant).

To assess the planning of the last pregnancy, the London Measure of Unplanned Pregnancy (LMUP) was used, translated and validated for the Brazilian context.[21] The LMUP is an instrument that measures pregnancy planning, regardless of the pregnancy outcome, it can be used retrospectively. The instrument has questions concerning three areas: intentionality (desire to get a mother and expressed intention to get pregnant), context (influence or not of the partner and personal circumstances, such as material resources, stage of personal life and type of affective-loving relationship) and behavior (use of contraceptive methods and preconception preparation for a pregnancy, such as taking folic acid, adopting a healthier diet or reducing smoking, among others). The classification regarding the pregnancy planning is obtained by the sum of points for each question. Women who scored between 10 and 12 points are classified as having (or having had) a planned pregnancy; between 0 and 3 points as unplanned pregnancy and between 4 and 9 points as ambivalent.[22] In this variable, the category "never got pregnant" was added to consider women who never got pregnant, since, for these women, there is no way to measure the planning of the last pregnancy.

Statistical analysis was performed using Stata software version 15.0. Descriptive analysis is presented using absolute and relative numbers. Bivariate analysis consisted of the association between independent variables and vulnerability to experience an unintentional pregnancy (dependent variable), using the proportion difference test (Pearson's Chi-square). Multiple analysis was performed to verify the aspects associated with vulnerability to experiencing an unintentional pregnancy, through multiple logistic regression, in which the covariates were simultaneously inserted in the model. The models are presented taking into account the odds ratio (OR) and the 95% confidence interval (CI). A significance level of 5% was adopted.

Chart 1. Vulnerability to experiencing an unintended pregnancy

Variables considered	Vulnerability to experiencing an unintended pregnancy							
	Yes n=227 (48.3%)					No n=243 (51.7%)		
Intention to get pregnant	No n=210			Does not know n=17		Does not know (n=22)	Yes (n=221)	
Use of CM*	No n=179	Yes n=31		No n=16	Yes n=1	Yes n=22	No n=104	Yes n=117
Method effectiveness	Does not use CM	Low n=31	Medium and high n=0	Does not use CM	Low n=1	Medium and high n=22	Does not use CM	Low n=13	Medium and high n=104

*Contraceptive Methods (CM)

Results

A total of 685 women were interviewed. However, the following results are restricted to 470 who had complete data regarding the three variables used to elaborate the variable vulnerability to experiencing an unintentional pregnancy. Approximately half of the women were found to be vulnerable to experiencing an unintended pregnancy (48.3%). Chart 1 shows the distribution of women in the three variables that made up the vulnerability to experience an unintentional pregnancy. It is noteworthy that, among the women who had no intention of becoming pregnant, 179 did not use a contraceptive method and 31 used a method of low efficacy.

Table 1 shows that the women interviewed were, in greater proportion, non-white, of evangelical religion, with secondary education, without their own income, belonging to economic group C, without health insurance and in a stable relationship. Only a quarter had no children. Among those who had already get pregnant, the last pregnancy was classified as planned for 27.6%. This table also shows the distribution of sociodemographic aspects and planning of the last pregnancy according to vulnerability to experience an unintentional pregnancy. Vulnerable women were older (48.5%), without health insurance (86.8%), with two or more children (60.3%) and whose last pregnancy was unplanned (20.9%).

Table 2 presents sociodemographic aspects and planning of the last pregnancy associated with vulnerability to experience an unintended pregnancy. In the univariate logistic regression, the aspects associated with being vulnerable to experiencing an unintentional pregnancy were age, health insurance, number of children and planning for the last pregnancy.

Table 1. Vulnerability to experiencing an unintended pregnancy and sociodemographic aspects and planning for the last pregnancy

Variables	Vulnerability to experiencing an unintended pregnancy			
	Yes n(%)	No n(%)	Total n(%)	p-value*
Age group (Years old)				<0.001
18 - 24	47(20.7)	121(49.8)	168(35.7)	
25 - 34	70(30.8)	86(35.4)	156(33.2)	
≥ 35	110(48.5)	36(14.8)	146(31.1)	
Skin color**				0.255
White	56(24.7)	71(29.3)	127(27.1)	
Not white	171(75.3)	171(70.7)	342(72.9)	
Religion				0.880
None	59(26.0)	63(25.9)	122(26.0)	
Catholic	53(23.4)	53(21.8)	106(22.5)	
Evangelical	104(45.8)	118(48.6)	222(47.2)	
Others	11(4.8)	9(3.7)	20(4.3)	
Education				0.065
Elementary school	8(3.5)	6(2.5)	14(3.0)	
High school	194(85.5)	192(79.0)	386(82.1)	
Higher education	25(11.0)	45(18.5)	70(14.9)	
Own income**				0.702
No	125(55.1)	129(53.3)	254(54.2)	
Yes	102(44.9)	113(46.7)	215(45.8)	
ABEP economic classification***				0.568
A + B	50(22.4)	63(26.6)	113(24.5)	
C	162(72.7)	164(69.2)	326(70.9)	
D + E	11(4.9)	10(4.2)	21(4.6)	
Health insurance				0.006
No	197(86.8)	187(77.0)	384(81.7)	
Yes	30(13.2)	56(23.0)	86(18.3)	
Stable union				0.691
No	90(39.7)	92(37.9)	182(38.7)	
Yes	137(60.3)	151(62.1)	288(61.3)	
Number of children				<0.001
None	24(10.6)	89(36.6)	113(24.1)	
One	66(29.1)	124(51.0)	190(40.4)	
Two or more	137(60.3)	30(12.4)	167(35.5)	
Planning the last pregnancy****				<0.001
Planned	68(30.2)	61(25.2)	129(27.6)	
Ambivalent	87(38.7)	82(33.9)	169(36.1)	
Unplanned	47(20.9)	20(8.3)	67(14.3)	
Never got pregnant	23(10.2)	79(32.6)	102(21.8)	
Total	227	243	470	

*Pearson chi-square; **1 woman did not answer; ***10 women did not answer; ****3 women did not answer

Table 2. Sociodemographic aspects and planning of the last pregnancy associated with vulnerability to experience an unintended pregnancy

| Variables | Vulnerability to experiencing an unintended pregnancy | | | |
| | Univariate/Brute | | Multiple | |
	OR	CI 95%	OR adjusted	CI 95%
Age group (Years old)				
18 - 24	1.0	-	1.0	-
25 - 34	2.0	1.3-3.2*	2.4	1.4-4.1*
≥ 35	7.9	4.7-13.0**	10.5	5.7-19.5**
Skin color				
White	1.0	-	1.0	-
Not white	1.3	0.8-1.9	1.0	0.6-1.7
Religion				
None	1.0	-	1.0	-
Catholic	1.1	0.6-1.8	0.8	0.4-1.5
Evangelical	0.9	0.6-1.4	0.7	0.4-1.2
Others	1.3	0.5-3.4	1.6	0.5-4.8
Education				
Elementary school	1.0	-	1.0	-
High school	0.8	0.3-2.2	2.2	0.6-8.0
Higher education	0.4	0.1-1.3	1.4	0.3-5.8
Own income				
No	1.0	-	1	-
Yes	0.9	0.6-1.3	0.7	0.6-1.1
ABEP economic classification				
A + B	1.0	-	1.0	-
C	1.2	0.8-1.9	1.0	0.6-1.8
D + E	1.4	0.5-3.5	1.1	0.4-3.3
Health insurance				
No	1.0	-	1	-
Yes	0.5	0.3-0.8*	0.6	0.3-1.2
Stable union				
No	1.0	-	1.0	-
Yes	0.9	0.6-1.3	0.4	0.3-0.7**
Planning the last pregnancy				
Planned	1.0	-	1.0	-
Ambivalent	0.9	0.6-1.5	1.1	0.7-1.9
Unplanned	2.1	1.1-3.9*	2.3	1.1-4.8*
Never got pregnant	0.2	0.1-0.5**	0.2	0.1-0.5**

*p<0.05; **p<0.001

In multiple logistic regression, the variable number of children showed interaction with the variable planning the last pregnancy, which made the confidence intervals very large. We chose to stratify the regression models, considering separately women who did not have children and women who already had children. However, the models proved to be unfeasible, because the number of women in each category was small. Thus, it was decided to conduct the multiple logistic regression model without the variable number of children.

The aspects that maintained a statistically significant association in the final multiple models were age, stable union and planning the last pregnancy. Thus, women aged 25 to 34 years old were more likely to be vulnerable to unintended pregnancy compared to women aged 18 to 24 years old (OR=2.0; 95%CI 1.2-3.4), and the same was observed in relation to women aged 35 years old or older (OR=9.7; 95%CI 5.3-17.6). Women in a stable relationship were less likely to be vulnerable to an unintended pregnancy compared to single women (OR=0.4; 95%CI 0.3-0.7). Women who did not plan a previous pregnancy were more likely to be vulnerable to an unintended pregnancy compared to women who planned it (OR=2.5; 95%CI 1.2-5.1), unlike women who never got pregnant, who showed less chance (OR=0.4; 95%CI 0.2-0.7).

Discussion

This study deals with the vulnerability of women of reproductive age, SUS users, to experience an unintentional pregnancy. Participants answered questions about their intention to get pregnant, use of contraceptive methods, planning for the last pregnancy, and sociodemographic aspects. The results showed that almost half of the women were vulnerable to experiencing an unintentional pregnancy, that is, a significant number of women who did not intend to get pregnant, did not use contraception or used a method of low efficacy.

Analyzing intentional and unintentional pregnancies and the use of contraceptive methods is one of the most relevant indicators for the area of sexual and reproductive health, as it reveals the unmet demand for contraception in the population. This concept is related to the discrepancy between fertility preferences and the use of contraception, and it specifically refers to the behavior of women who wanted to avoid or postpone pregnancy, however, do not use contraceptive methods for this purpose.[1]

In Brazil, despite the context of low fertility rates and the high prevalence of contraceptive use, a still representative percentage of women experience positive discrepant fertility, which means the occurrence of unintended pregnancies,[23] probably

resulting from the existence of unintended demand by highly effective contraceptive methods.[24]

Despite the high proportion of women using contraceptive methods in the country, the rate of unintended pregnancy remains high. Numerous aspects can contribute to this supposed paradox, such as the inadequacy of the supply of contraceptive supplies in primary health care services, especially the long-term reversible ones (LARCs), such as the intrauterine device (IUD) and the implant; the ineffective, or absent, educational actions on contraception; the absence of flows and protocols to meet the contraceptive needs of women, men and couples; in addition to other gaps in contraceptive care in the country.[25]

Specifically with regard to the offer of the IUD in Brazil, a study carried out in cities in Minas Gerais on barriers to accessing the method found that more than half of the cities reported not making it available in primary health care services, such as the FHS, being made available in other services such as the central pharmacy, specialty outpatient clinic, health department and hospital; other cities referred women who were interested in using the IUD to other locations. Still, among the cities that offered the IUD (84.8%), most did not have a specific protocol for its availability.[26] Such barriers to access to contraceptive methods in the SUS may explain the fact that having a health insurance plan was significant in the univariate analysis. However, the same variable was not associated with vulnerability to experiencing an unintentional pregnancy in the multiple analysis, that is, this variable lost significance in the presence of other conditions, such as age, stable union and planning for the last pregnancy.

Increasing access to the most effective and reversible methods of contraception is a positive strategy for decreasing women's vulnerability to unintended pregnancy, and possibly unintended pregnancy rates.[27] LARCs offer high safety and low failure rate, as the probability is less than one pregnancy in every 100 users/year. Restoration of fertility occurs after discontinuation of the methods: blood levels of etonorgestrel are undetectable one week after implant removal and pregnancy can occur in the same or the next cycle after removal of the copper IUD or the intrauterine system of levonorgestrel, important aspects for

women planning their reproductive life and a timely pregnancy.[28] In addition, they do not depend on the user's behavior and are well accepted by women, with continuity and satisfaction rates above 80%.[29,30] Therefore, its use must be made available, encouraged and demystified, avoiding unnecessary exposure to unintentional pregnancies and their repercussions on sexual and reproductive health.

Worldwide, 61% of women aged 15 to 49 years old use some form of contraception to prevent pregnancy, however, a considerable proportion of unintended pregnancies continue to occur due to misuse or discontinuity, particularly among women with less education and more impoverished,[29] corresponding to the profile of the population in this study. This scenario confirms that the availability of contraceptives by health services must include, in addition to adequate processes in the supply chain, ensuring that services meet the contraceptive needs of women with adequate counseling on the adoption of contraceptive methods and psychosocial conditions necessary for their use. In addition, it is known that access to the most effective contraceptive methods continues to be a strategy to correct global inequality.[30] The focus on intersectoral actions should also exist, as the literature indicates that social inclusion has an effect on reproductive health. For example, a study showed that women with higher education were less likely to experience an unplanned pregnancy.[31]

In the multiple analysis conducted in this study, most vulnerable women to experience an unintentional pregnancy were over 35 years old, had two children or more, were in a stable relationship and experienced an unplanned pregnancy, which shows that, somehow, there was no opportunity to access more effective or even irreversible methods, making them vulnerable to experience an unintended pregnancy again. Therefore, it is a profile of women who may have already reached their reproductive goal but remain vulnerable to experiencing an unintentional pregnancy.

The limiting aspect of this investigation is the fact that we only considered SUS users, which may not allow us to generalize to all women, such as those who use private health services, but it is necessary to

consider that most of the Brazilians are users of the SUS. Another limitation resides in the fact that an instrument to measure the future intention to get pregnant in the Brazilian context is not yet available. The potential of this study is that a validated instrument was used to analyze the planning of previous pregnancy, which is the LMUP. In addition, the study addresses a topic that is still incipient in the Brazilian research scenario in sexual and reproductive health, which is the intention to get pregnant.

Conclusion

Almost half of women of childbearing age, unsterilized and not pregnant, were vulnerable to an unintended pregnancy because they did not use contraceptive methods or used methods that were ineffective when they did not intend to get pregnant. The aspects associated with experiencing an unintentional pregnancy were age, not being in a stable relationship and not having planned the last pregnancy.

Collaborations

Melo CRM, Nascimento NC, Duarte LS and Borges ALV collaborated with the project design, data analysis and interpretation, article writing, relevant critical review of the intellectual content and approval of the final version to be published.

References

1. Bradley SE, Casterline JB. Understanding unmet need: history, theory, and measurement. Stud Fam Plann. 2014;45(2):123-50.

2. Carvalho AA. Demand for contraception in Brazil in 2006: contribution to the implementation of fertility preferences. Cien Saude Colet. 2019;24(10):3879-88.

3. Wulifan JK, Brenner S, Jahn A, De Allegri M. A scoping review on determinants of unmet need for family planning among women of reproductive age in low and middle income countries. BMC Womens Health. 2016;16:2.

4. Brasil. Ministério da Saúde. Centro Brasileiro de Análise e Planejamento. Política Nacional de Demografia e Saúde da Criança e da Mulher - PNDS 2006: dimensões do processo reprodutivo e da saúde da criança. Brasília (DF): Ministério da Saúde; 2009 [citado 2021 Jun 26]. Disponível em: https://bvsms.saude.gov.br/bvs/publicacoes/pnds_crianca_mulher.pdf

5. Viellas EF, Domingues RM, Dias MA, Gama SG, Theme Filha MM, Costa JV, et al. Prenatal care in Brazil. Cad Saude Publica. 2014;30(Suppl 1):S85-S100.

6. Barrett G, Wellings K. What is a 'planned' pregnancy? Empirical data from a British study. Soc Sci Med. 2002;55(4):545-57.

7. Aiken AR, Borrero S, Callegari LS, Dehlendorf C. Rethinking the pregnancy planning paradigm: unintended conceptions or unrepresentative concepts? Perspect Sex Reprod Health. 2016;48(3):147-51.

8. Dott M, Rasmussen SA, Hogue CJ, Reefhuis J; National Birth Defects Prevention Study. Association between pregnancy intention and reproductive-health related behaviors before and after pregnancy recognition, National Birth Defects Prevention Study, 1997-2002. Matern Child Health J. 2010;14(3):373-81.

9. Gipson JD, Koenig MA, Hindin MJ. The effects of unintended pregnancy on infant, child, and parental health: a review of the literature. Stud Fam Plann. 2008;39(1):18-38. Review.

10. Keenan K. Novel methods for capturing variation in unintended pregnancy across time and place. Lancet Glob Health. 2018;6(4):e352-3.

11. Aiken AR, Westhoff CL, Trussell J, Castaño PM. Comparison of a Timing-Based Measure of Unintended Pregnancy and the London Measure of Unplanned Pregnancy. Perspect Sex Reprod Health. 2016;48(3):139-46.

12. Bearak J, Popinchalk A, Alkema L, Sedgh G. Global, regional, and subregional trends in unintended pregnancy and its outcomes from 1990 to 2014: estimates from a Bayesian hierarchical model. Lancet Glob Health. 2018;6(4):e380-9.

13. Borges AL, Dos Santos OA, Fujimori E. Concordance between intention to use and current use of contraceptives among six-month postpartum women in Brazil: the role of unplanned pregnancy. Midwifery. 2018;56:94-101.

14. Guzzo KB, Eickmeyer K, Hayford SR. Does postpartum contraceptive use vary by birth intendedness? Perspect Sex Reprod Health. 2018;50(3):129-38.

15. REDCap Consortium International. Research Electronic Data Capture. Hospital das Clínicas da Faculdade de Medicina, Universidade de São Paulo. São Paulo: REDCap; 2011 [citado 2021 Jun 26]. Disponível em: https://redcap.hc.fm.usp.br/

16. Ayres JR, Paiva V, França Junior I. From natural history of disease to vulnerability. In: Parker R, Sommer M. Routledge handbook in global public health. New York (US): Routledge; 2011. p. 98-107.

17. World Health Organization (WHO); Johns Hopkins Bloomberg School of Public Health. Center for Communication Programs. (2018). Family planning: a global handbook for providers: evidence-based guidance developed through worldwide collaboration, 3rd ed. Genève: WHO; 2018 [cited 2021 Jul 26]. Available from:https://apps.who.int/iris/handle/10665/260156.

18. Coelho EA, Andrade ML, Vitoriano LV, Souza JJ, Silva DO, Gusmão ME. Association between unplanned pregnancy and the socioeconomic context of women in the area of family health. Acta Paul Enferm. 2012;25(3):415-22.

19. Wellings K, Jones KG, Mercer CH, Tanton C, Clifton S, Datta J, et al. The prevalence of unplanned pregnancy and associated factors in Britain: findings from the third National Survey of Sexual Attitudes and Lifestyles (Natsal-3). Lancet. 2013;382(9907):1807-16.

20. Associação Brasileira de Empresas de Pesquisa (ABEP). Critério de Classificação Econômica Brasil. São Paulo: ABEP; 2016 [citado 2020 Jul 8]. Disponível em: www.abep.org

21. Borges AL, Barrett G, Santos OA, Nascimento NC, Cavalhieri FB, Fujimori E. Evaluation of the psychometric properties of the London Measure of Unplanned Pregnancy in Brazilian Portuguese. BMC Pregnancy Childbirth. 2016;16:244.

22. Barrett G, Smith SC, Wellings K. Conceptualisation, development, and evaluation of a measure of unplanned pregnancy. J Epidemiol Community Health. 2004;58(5):426-33.

23. Diniz D, Medeiros M, Madeiro A. National abortion survey 2016. Cien Saude Colet. 2017;22(2):653-60.

24. Carvalho AA, Wong LL, Miranda-Ribeiro P. Discrepant fertility in Brazil: an analysis of women who have fewer children than desired (1996 and 2006). Rev Latinoamericana Población. 2016;10(18):83-106.

25. Borges AL, Santos OA, Araújo KS, Gonçalves RF, Rosa PL, Nascimento NC. Satisfação com o uso de métodos contraceptivos entre usuárias de unidades básicas de saúde da cidade de São Paulo. Rev Bras Saude Mater Infant. 2017;17(4):749-56.

26. Gonzaga VA, Borges AL, Santos OA, Rosa PL, Gonçalves RF. Organizational barriers to the availability and insertion of intrauterine devices in Primary Health Care Services. Rev Esc Enferm USP. 2017;51:e03270.

27. Curtis KM, Peipert JF. Long-acting reversible contraception. N Engl J Med. 2017;376:461-8.

28. Sorpreso IC, Soares-Jr JM, Baracat EC. Mulheres com vulnerabilidade sexual: anticoncepção reversível de longa duração pode ser a solução? [Editorial]. Rev Bras Ginecol Obstet. 2015;37(9):395-6.

29. Caetano AJ. Esterilização cirúrgica feminina no Brasil, 2000 a 2006. Rev Bras Estud Popul. 2014;31(2):309-31.

30. Ferreira JM, Monteiro I, Villarroel SC, Silveira C, Bahamondes L. Use of LARCs and the Relationship between DMPA and Sterilizations. Rev Bras Ginecol Obstet. 2016;38(5):210-7.

31. Santos OA, Rosa PL, Borges AL. Determinantes do planejamento da gravidez segundo a raça/cor em São Paulo, Brasil. Rev Assoc Bras Pesquis Negros. 2015;(7):74-88.