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PREVALENCE AND ASSOCIATED FACTORS WITH ABORTION AMONG USERS OF HEALTH SERVICES*

Prevalência e fatores associados ao abortamento entre usuárias dos serviços de saúde

Prevalencia y factores asociados al aborto entre las usuarias de los servicios de salud

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ABSTRACT

Objective: To identify the prevalence and factors associated with abortion among users of basic health units. **Methods:** Cross-sectional epidemiological study of 991 women in 26 Basic Health Units. Data were analyzed using the Chi-Square test and Poisson regression with robust variance. **Results:** 24.3% of the women reported a history of abortion, being 2.35, higher among those 35 years of age or older. The prevalence of abortion was 1.58 higher among women who reported sexual violence in childhood and 1.61 times higher among those with a history of physical and sexual violence throughout life. **Conclusion:** Abortion experience is common among women, and certain socioeconomic and life characteristics may be associated with a higher prevalence of this event.

Descriptors: Abortion, Primary health care, Epidemiology, Socioeconomic factors, Epidemiologic factors.

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RESUMO

Objetivo: Identificar a prevalência e os fatores associados ao abortamento entre usuárias de unidades básicas de saúde. **Método:** Estudo epidemiológico, transversal, realizado com 991 mulheres em 26 Unidades Básicas de Saúde. Os dados foram analisados através do teste Qui-Quadrado e da regressão de Poisson com variância robusta. **Resultados:** 24,3% das mulheres relataram história de abortamento, sendo essa prevalência 2,35, maior entre aquelas com 35 anos ou mais de idade. A prevalência de abortamento se mostrou 1,58 vezes maior entre as mulheres que relataram violência sexual na infância e 1,61 vezes maior entre aquelas com história de violência física e sexual ao longo da vida. **Conclusão:** A experiência de abortamento é comum entre as mulheres, e, determinadas características de socioeconômicas e de vida podem estar associadas a uma maior prevalência desse evento.

Descritores: Aborto, Atenção primária à saúde, Epidemiologia, Fatores socioeconômicos, Fatores epidemiológicos.

RESUMEN

Objetivo: Identificar la prevalencia y los factores asociados al aborto entre usuarias de unidades básicas de salud. **Método**: Estudio epidemiológico, transversal, realizado con 991 mujeres en 26 Unidades Básicas de Salud. Los datos fueron analizados a través del test Qui-Cuadrado y de la regresión de Poisson con varianza robusta. **Resultados:** 24,3% de las mujeres relataron historia de aborto, siendo esa prevalencia 2,35 (mayor entre aquellas con 35 años o más de edad. La prevalencia de aborto se mostró 1,58 veces mayor entre las mujeres que relataron violencia sexual en la infancia y 1,61 veces mayor entre aquellas con historia de violencia física y sexual a lo largo de la vida. **Conclusión:** La experiencia de aborto es común entre las mujeres, y ciertas características de socioeconómicas y de vida pueden estar asociadas a una mayor prevalencia de ese evento.

Descriptores: Aborto, Atención primaria de salud, Epidemiología, Factores socioeconómicos, Factores epidemiológicos.

INTRODUCTION

Abortion is the natural or induced termination of pregnancy until 20-22 weeks, or when the conceptus weighs less than 500 grams.[1-2] May occur spontaneously or induced. In spontaneous form the conceptus does not develop and is naturally expelled from the womb. In induced abortion, however, are used methods that cause this expulsion.[3]

Among the causes of spontaneous abortion are malformations, acute infection, endocrine dysfunctions, exposure to teratogenic drugs, and developmental abnormalities.[4] In addition, other causes include age under 15 and over 35 years, alcoholism, smoking and previous abortions.[5] According to the Brazilian penal code, induced abortion is not a legalized procedure because it is considered a crime against life, only in cases of anencephaly, sexual violence and pregnancies that pose a risk of death to the mother is the procedure legalized.[6,7]

According to the National Abortion Survey (Pesquisa Nacional de Aborto – PNA), the occurrence of this practice is higher among women with low education, family income of up to one minimum wage, race/color black, brown or indigenous and who already have children, when compared to the group of women who studied for more years, with income above five minimum wages, white and without children. This health problem draws attention because of its magnitude, which, although difficult to be accurately measured due to the difficulty in quantifying clandestine abortions, still shows high rates.[8]

Estimates indicate that around 25 million abortions occur worldwide each year and 97% of these occur in developing countries.[7] In addition, previous researches indicates that 7 million women are hospitalized for treatment of abortion complications.[9] According to the World Health Organization, in Brazil 31% of pregnancies end in abortion. Every year about 1.4 million induced and/or spontaneous abortions occur at a rate of 3.7 abortions per 100 women aged 15 to 49 years.[10]

As in Brazil, in the Brazilian state Espírito Santo it is possible to identify a frequent occurrence of abortion. A study addressing the description of abortion cases in the state of Espírito Santo shows that in 10 years there were about 38,323 hospitalizations caused by abortion in the state, with an average of 3,832 abortions per year.[11]

In this context, it is noted that abortion is a public health problem that has consequences for women and the health system, since the complications of induced abortion can lead to increased costs for the service. Besides that, these costs could be avoided or at least minimized if unwanted pregnancy prevention was accessible to all women.[12]

Given the above, this article aimed to identify the prevalence and factors associated with abortion among users of basic health units.

METHODS

This is a cross-sectional study conducted with 991 women in 26 Basic Health Units (Unidades Básicas de Saúde – UBS) in Vitória, ES. Data were obtained from a bank whose collection took place from March to September 2014. Participated in the study women users of the units aged 20 to 59 years. In addition to age, another inclusion criterion was having an intimate partner in the last year. To calculate the sample size it was estimated 25.0% prevalence of abortion among women, margin of error of 5% and interval of 95%. For the study of the association with risk factors, a

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95% confidence interval, 80% power and 1:1 exposed/unexposed ratio. 10% for possible losses and 30% for adjusted analyzes were added, with a minimum sample size of 740 women.

Women who met the study criteria were approached at the UBSs and explained about the research. The interview took place in a private place with only the interviewee and the interviewer present. The interviewers and the supervisors, all female, have undergone standardization training for the application of the instruments.

For this study as a dependent variable is abortion. This information was collected through the following research question: History of abortion (yes/no). Independent variables consist of socioeconomic aspects: age (20-25 years, 26-34, 35 years or older); self-reported skin color, according to the Brazilian Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estatística – IBGE): black (brown/black) and others; years of schooling (up to 5 years, 6 to 8 years, ≥9 years); marital status (married/stable union or others) and economy class (A/B/C and D/E). Behavioral aspects: history of use of alcohol, smoking and illicit drugs (has never used, has used at least one, has used at least two or has used all three). Reproductive characteristics: age of menarche (up to 11 years, ≥12 years), age of coitarch (<15, ≥15 years) and number of children (up to 1, 2-3, ≥4). In addition, the instrument contained questions about the experience of childhood sexual violence (yes/no).

The experience of intimate partner violence was addressed through the use of the World Health Organization instrument, valid for Brazil, consisting of 13 questions aimed at specifying the different forms of violence against women.[13] The variable was categorized into physical and sexual violence in the life committed by the intimate partner (no/at least one violence or the two violence).

These data were analyzed using the STATA 13.0 statistical program and presented in descriptive form through tables containing raw, relative frequencies and confidence interval. Bivariate analysis was performed by Chi-square test. Multivariate analysis was performed using Poisson regression with robust variance. The entry into the model happened with p<0.20, and the permanence in the model with p <0.05. Variables were adjusted by the *backward* selection method, with the hierarchical model as shown in **figure 1**.

The study was approved on November 27, 2013 by the Research Ethics Committee of the Federal University of Espírito Santo (Comitê de Ética em Pesquisa da Universidade Federal do Espírito Santo – CAAE) 21221513.4.0000.5060 (Approval 470.744/2013).

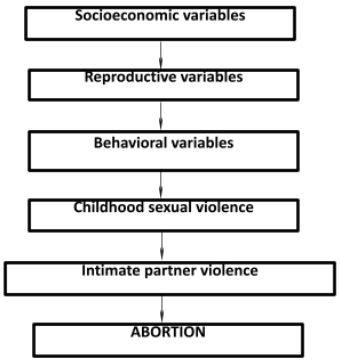

Figure 1- Hierarchical model of relations between risk factors for abortion outcome.

RESULTS

It is observed that 24.3% (N = 241) of the women interviewed reported a history of abortion (data not shown in table).

It appears that about 57.0% are 35 years old or older, approximately 75.0% and 69.0% declared themselves black (brown or black), and with nine or more years of schooling. Of the users, 74.0% reported being married/stable union, and 89.8% belong to class A/B/C. Regarding behavioral characteristics, 68.0% have already used alcohol, cigarettes or drugs. Regarding reproductive variables, for the majority (80.4%) the menarche was 12 years old or older, and the coitarch 15 years old or older (88.1%). Of the respondents, 47.0% had between two and three children. The history of childhood sexual violence was reported by 12.2% of the participants. Physical or sexual violence in the life of the intimate partner was reported by 30.6% (**Table 1**).

In the bivariate analysis, the findings show higher abortion frequencies among women aged 35 years and older, black, six to eight years of schooling, with a history of illicit drug, cigarette and alcohol use, with four or more children, sexual violence in childhood and life-long physical and sexual violence by the partner (**Table 1**).

Table 1-Prevalence of abortion according to socioeconomic, reproductive, behavioral characteristics and life experience. *Vitória*, ES, Brazil, 2014

Socioeconomic	N	%	P (CI 95%)	*p-value*
Age (years old)				
20-25	170	17.1	12.9 (8.7-18.9)	0.000
26-34	257	25.9	18.7 (14.4-23.9)	
35 or more	564	56.9	30.3 (26.7-34.2)	
Race/Color				
Black (brown and black)	742	74.9	26.2 (23.1-29.4)	0.021
Others	249	25.1	18.9 (14.5-24.2)	
Years of study				
Up to 5	159	16.0	30.8 (24.1-38.4)	0.005
6 to 8	144	14.5	31.2 (24.1-39.3)	
9 or more	688	69.4	21.4 (18.5-24.6)	
Marital status				
Married/stable union	733	74.0	24.8 (19.9-30.5)	0.832

Others	258	26.0	24.2 (21.2-27.4)	
Economic class				
A/B/C	890	89.8	23.6 (20.9-26.5)	0.115
D/E	101	10.2	30.7 (22.4-40.4)	
Behavioral				
Usage history of drink, cigarette and illicit drugs				
Has never used	139	14.0	20.1 (14.3-27.7)	0.031
Has used at least one	674	68.0	23.0 (20.0-26.3)	
Has used at least two	148	14.9	31.8 (24.7-39.7)	
Already has used all three	30	3.0	36.7 (21.4-55.2)	
Reproductive				
Menarche age (years old)				
Up to 11	194	19.6	27.3 (21.5-34.0)	0.277
12 or more	797	80.4	23.6 (20.8-26.7)	
Age of first sexual intercourse (years old)				
<15	118	11.9	31.4 (23.6-40.3)	0.058
15 or more	873	88.1	23.4 (20.7-26.3)	
Number of children				
Up to 1	429	43.3	17.5 (14.2-21.4)	0.000
2-3	466	47.0	29.2 (25.2-33.5)	
>=4	96	9.7	31.3 (22.7-41.2)	
History of violence				
Childhood sexual violence				
No	870	87.8	22.2 (19.5-25.1)	0.000
Yes	121	12.2	39.7 (31.3-48.7)	
Physical and sexual violence in life by intimate partner				
None	556	56.1	19.8 (16.7-23.3)	0.000*
At least one of the violence	303	30.6	25.4 (20.8-30.6)	
The two violence	132	13.3	40.9 (32.8-49.5)	

* p-trend value

Source: Own authorship

In the adjusted analysis, it is possible to identify that women aged 35 and older have a higher prevalence of miscarriage 2.35 (95% CI: 1.56-3.53) compared to women aged 20 to 25 years. Regarding skin color, black women have a prevalence of abortion 1.40 higher than those of another race or color (95% CI: 1.06-1.85) (**Table 2**).

About behavioral characteristics, the history of use of at least two of the drugs (alcohol, cigarettes or drugs) increases the prevalence of abortion by 1.6 times (95% CI: 1.08-2.44) compared to women who have never used it. Those with a history of use of the three drugs have twice the prevalence of abortion (PR: 2.05; 95% CI: 1.13-3.71) (**Table 2**).

Participants who were less than 15 years old when the coitarch occurred had a 1.38-fold higher prevalence of abortion (95% CI: 1.02-1.88) compared with those who were 15 or older. Also, the results show that women with four children or more have a prevalence of 1.33 times more than those who had up to one child (**Table 2**).

The results indicate that the prevalence of abortion among women who reported having suffered sexual violence in childhood is 58.0% higher compared to those who did not. Women who experienced life-long sexual and physical violence committed by their intimate partner had 1.61 times more prevalence of abortion than women without this type of experience (p <0.05) (**Table 2**).

Table 2. Crude and adjusted analysis of socioeconomic, reproductive, behavioral characteristics and life experience of abortion. *Vitória*, ES, Brazil, 2014

Variables		Crude analysis			Adjusted analysis		
Socioeconomic	**N**	**PR**	**CI 95%**	***p-value***	**PR**	**CI 95%**	***p-value***
Age (years old)				0.000			0.000
20-25	170	1.0			1.0		
26-34	257	1.44	0.90-2.30		1.43	0.90-2.28	
35 or more	564	2.34	1.55-3.52		2.35	1.56-3.53	
Color				0.025			0.018
Black (brown and black)	742	1.39	1.04-1.84		1.40	1.06-1.85	
Others	249	1.0			1.0		
Years of study				0.004			0.149
Up to 5	159	1.44	1.10-1.94		1.30	0.98-1.74	
6 to 8	144	1.46	1.10-1.90		1.19	0.90-1.58	
9 or more	688	1.0			1.0		
Economic class				0.103			0.428
A/B/C	890	1.0			1.0		
D/E	101	1.31	0.95-1.78		1.13	0.83-1.57	
Behavioral							
Usage history of drink, cigarette and drugs				0.023			0.027
Has never used	139	1.0			1.0		
Has used at least one	674	1.14	0.80-1.63		1.23	0.86-1.76	
Has used at least two	148	1.58	1.05-2.37		1.62	1.08-2.44	
Already has used all three	30	1.82	1.02-3.24		2.05	1.13-3.71	
Reproductive							
Age of first sexual intercourse (years old)				0.049			0.037
<15	118	1.34	1.0-1.80		1.38	1.02-1.88	
15 or more	873	1.0			1.0		
Number of children				0.000			0.036
Up to 1	429	1.0			1.0		
2-3	466	1.67	1.30-2.14		1.28	0.88-1.92	
>=4	96	1.79	1.25-2.57		1.33	1.02-1.74	
History of violence							
Childhood sexual violence				0.000			0.001
No	870	1.0			1.0		
Yes	121	1.79	1.39-2.30		1.58	1.22-2.04	
Physical and sexual violence in life by intimate partner				0.000			0.002
None	556	1.0			1.0		
At least one of the violence	303	1.28	0.99-1.66		1.13	0.87-1.46	
The two violence	132	2.07	1.59-2.69		1.61	1.22-2.13	

Source: Own authorship.

DISCUSSION

In the present study, a prevalence of abortion of 24.3% (N=241) was observed. Similar results were found in a study conducted at the Carapina maternity hospital, a public institution in Serra, Espírito Santo, which shows a prevalence of 25.3% among women with a history of abortion.[14] A study conducted at a public maternity hospital in Manaus, Amazonas, showed higher prevalence of abortion, which was about 45.0% .[15]

Moreover, the findings show higher prevalence of abortion among women aged 35 years (PR: 2.35; 95%

CI: 1.56-3.53) compared to women aged 20 to 25 years. Similar results were found in another study[16], which shows that the prevalence of both spontaneous and induced abortion was 1.07 times higher in older women compared to younger women. This can be explained by the increased risk of pregnancy at this age and the increased exposure to pregnancy.[17]

Regarding race/color, women who declared themselves black (black and brown) had 1.40 times more prevalence of abortion than those of another race/color. In accordance with this finding, study[18] shows that the prevalence among black women was 1.78 (95% CI: 1.24-2.56) times higher compared to white women. Black women historically are more vulnerable to health problems because of their social condition. They generally live in worse living conditions, and have low economic level and access to information [19]. In addition, black women have the highest rates of death from external causes, complications in childbirth and also death related to the abortion procedure due to unsafe methods.[20]

Regarding the history of cigarette, alcohol and illicit drug use, this behavior was associated with a two-fold increase in the prevalence of abortion. According to a study conducted in southern Brazil, the prevalence of abortion is higher about 1.85 times (95% CI: 1.42-2.42) times compared to the group of women who did not use alcohol and tobacco.[21]

Another finding in a study conducted at a university hospital in the interior of São Paulo shows that the prevalence of abortion was related to the use of illicit drugs during pregnancy, and that women with a history who were exposed to illicit drugs during pregnancy showed a higher prevalence of abortion compared to the group of women who did not use any drugs during pregnancy.[22]

According to research on alcohol[23], the constant intake of alcohol by pregnant women can cause abortion, since alcohol ingested crosses the placental barrier, causing the fetus to be exposed to the same amounts of alcohol present in the mother's blood, but the effects in the fetus are higher because of slower metabolism and elimination. In addition, the study also points out that illicit drug use can lead to decreased blood flow to the fetus leading to spontaneous abortion. Smoking during pregnancy exposes the fetus to cigarette components such as nicotine and carbon monoxide. Exposure to cigarettes may cause changes in oxygenation and metabolism in the fetus. In addition, smoking leads to impairment of the immune system that alters mucosal antibody levels and consequently to abortion.[24]

Regarding reproductive characteristics, the present study indicates that women who had four or more children had higher prevalence of abortion (PR: 1.33). Similar to a study that reveals higher prevalence of abortion among women who have two to five children.[25] In this same context, it was found that the prevalence of abortion was 38.0% higher among those who reported the coitarch before the age of 15. The onset of sexual practice before 16 years of age is related to the occurrence of abortion in relation to the group that did not initiate sexual life early. This phenomenon occurs due to the increased exposure time to pregnancy that is caused by the early coitarch.[24]

Regarding the experience of violence, there is a higher prevalence of abortion among women who experienced the phenomenon, either during life or sexual violence in childhood ($p<0.000$). The present study shows that the prevalence of abortion is 1.61 times higher among those who suffered physical and/or sexual violence throughout their lives. In a cross-sectional study conducted in five UBSs in Ribeirão Preto, the prevalence of abortion was twice as high among women with a history of physical violence. According to research in a public maternity hospital in Salvador, Bahia, domestic violence was identified as a determining factor in the decision to abort, and, according to reports of the study participants, the behavior of the partner changed after the discovery of pregnancy, with the increase of marital conflicts, which culminated in the decision to abort.[26]

Another study[19] on the experience of abortion and a bioethical approach shows that gender-specific violence, domestic violence, causes changes in sexuality, not only by physical violence, but also by conjugal sexual violence, which in many cases is not recognized as such. Sexual violence can expose women to sexual and psychological problems and the risk of contracting sexually transmitted infections. In addition, it may culminate in an unplanned pregnancy and as a result abortion. It worth to remember that pregnancy due to sexual violence, women have the right to perform abortion according to the Brazilian penal code.

As a limitation of the study, it is possible to highlight the information bias, due to possible omissions in the reports; however, most studies on this theme use the interview tool as a data collection method, and it is worth mentioning that all interviews were conducted individually and privately, in order to minimize information bias. Another limitation is the fact that the study was conducted only with women users of the health service, limiting the generalization of the findings, since they do not correspond to the general population of women, however, uses of prevalence results found were discussed with similar populations showing very similar results. Finally, as a limitation the study design, because it is a cross-sectional study, we highlight the reverse causality, which refers to the impossibility of establishing a relationship between exposure and outcome, ie, when there is a reversal of cause and effect.

CONCLUSIONS

According to the findings of the present study, it is possible to conclude that abortion is a common event among

women. Socioeconomic, behavioral and reproductive characteristics are associated with the prevalence of the event. Women 35 years of age or older, black, with a history of using alcohol, cigarettes and/or illicit drugs, with four children or older, coitarch before the age of 15, profile women with higher prevalence of abortion, revealing the need for pay attention to this most vulnerable group.

Thus, it can be concluded that women who are exposed or have been exposed to violence throughout their lives have higher prevalence of abortion. It is necessary to trace this problem during gynecological and prenatal consultations, in order to break this cycle of violence. In addition, it is essential to promote access to information in order to prevent unplanned pregnancies and to track the groups most at risk for abortion, in order to ensure more qualified care.

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