ORIGINAL ARTICLE / *ARTIGO ORIGINAL*

Prevalence and sociodemographic characteristics of women with induced abortion in a population sample of São Paulo, Brazil

Prevalência e características sociodemográficas de mulheres com aborto provocado em uma amostra da população da cidade de São Paulo, Brasil

Milena Goulart Souza[I,II], Carmen L. B. Fusco[I], Solange A. Andreoni[I], Rebeca de Souza e Silva[I]

ABSTRACT: *Objectives:* This study aims at estimating the prevalence of women with induced abortion among women of childbearing age (15-49 years) who had any previous pregnancy, in the city of Sao Paulo, Brazil, in the last quarter of 2008, and identifying the Sociodemographic Characteristics (SC) associated with it. *Methods:* A cross-sectional survey was carried out. The dependent variable was dichotomized as: no abortion and Induced Abortion. The independent variables were: age, paid work/activity, familial monthly income, schooling, marital status, contraceptive use and number of live births. Statistical analysis was performed using log-binomial regression models with approximation of Poisson to estimate the Prevalance Ratios (PR). *Results:* Of all women with any previous pregnancy (n = 683), 4.5% (n = 31) reported induced abortion. The final multivariate model showed that having now between 40 and 44 years (PR = 2.76, p = 0.0043), being single (PR = 2.79, p = 0.0159), having 5 or more live births (PR = 3.97, p = 0.0013), current oral contraception or IUD use (PR = 2.70, p = 0.454) and using a "non effective" (or of low efficacy) contraceptive method (PR = 4.18, p = 0.0009) were sociodemographic characteristics associated with induced abortion in this population. *Conclusions:* Induced abortion seems to be used to limit fertility, more precisely after having reached the desired number of children. The inadequate use or non-use of effective contraceptive methods, and / or the use of contraceptives "non effective", exposed also the women to the risk of unintended pregnancies and, therefore, induced abortions. In addition, when faced with a pregnancy, single women were more likely to have an abortion than married women.

Keywords: Abortion. Induced abortion. Epidemiology. Public Health. Reproductive Health. Prevalence Ratio.

[I]Department of Preventive Medicine of *Universidade Federal de São Paulo* – São Paulo (SP), Brazil.

[II]*Centro Universitário de Guaxupé* – Guaxupé (MG), Brazil.

Corresponding author: Carmen L. B. Fusco. Departamento de Medicina Preventiva, Universidade Federal de São Paulo. Rua Ceará, 101, apto. 111, CEP: 01243-010, São Paulo, SP, Brasil. E-mail: carmenlbf@uol.com.br

RESUMO: *Objetivos:* O presente estudo busca estimar a prevalência de mulheres com aborto provocado dentre as mulheres em idade fértil (15 a 49 anos de idade) que apresentaram alguma gestação prévia, residentes na cidade de São Paulo, Brasil, no último trimestre de 2008, bem como identificar essa ocorrência em função de algumas Características Sociodemográficas (CSD). *Métodos:* Trata-se de um estudo transversal. A variável dependente aborto foi dicotomizada em: Aborto Provocado (AP) e Nenhum Aborto (NA). As variáveis independentes utilizadas foram: idade, atividade remunerada, renda mensal familiar, escolaridade, estado conjugal, uso de método(s) contraceptivo(s) e número de filhos nascidos vivos. A análise estatística foi realizada por meio de modelos de regressão log-binomial com aproximação de Poisson para avaliar as Razões de Prevalência (RP). *Resultados:* Dentre o total de mulheres com alguma gestação prévia (n = 683), 4,5% (n = 31) declararam algum AP. O modelo log-binomial final mostrou que idade atual entre 40 e 44 anos de idade (RP = 2,76;p = 0,0043), estado conjugal solteira (RP = 2,79;p = 0,0159), número de filhos nascidos vivos igual ou maior que 5 (RP = 3,97;p = 0,0013, uso de contraceptivo "não eficaz" ou de baixa eficácia (RP = 4,18;p = 0,0009) e uso atual de contraceptivo oral ou dispositivo intrauterino (RP = 2,70;p = 0,454) foram as características que se apresentaram mais fortemente associadas à ocorrência de AP entre as mulheres dessa população. *Conclusões:* O aborto provocado é utilizado para limitar a fecundidade, mais precisamente após atingir-se o número desejado de filhos. O uso inadequado, ou o não-uso, de contraceptivos eficazes e / ou a utilização de contraceptivos não eficazes, ou de baixa eficácia, também promovem a resolução pelo aborto, assim como o fato de as mulheres solteiras enfrentarem uma gestação sozinhas.

Palavras-chave: Aborto. Aborto provocado. Saúde Pública. Epidemiologia. Saúde Reprodutiva. Razão de Prevalência.

INTRODUCTION

Abortion is defined as discontinuation, voluntary or not, from pregnancy until the 20th week or with a conceptus weighing less than 500 grams, according to criteria established by the World Health Organization (WHO)[1,2]. Some obstetricians delimit the time of gestation to define abortion as up to 22 weeks of pregnancy[3].

It is called abortion the process that threatens pregnancy and miscarriage the product removed from the conception, however, it is common to reference both, process and product, as abortion[1]. As for the type, the abortion may be spontaneous (natural) or provoked, also known as voluntary or induced.

The incidence of induced or provoked abortion (IA) worldwide varies between regions and among subgroups of women. In addition, there are countries where the laws are permissive towards abortion, namely where abortion is legal, and others, such as Brazil, whose laws are restrictive, outlawing the IA in almost all conditions. In the latter, the majority of abortions are induced in a clandestine manner, generating the need to estimate their incidence and prevalence that will not be fully available in official data, due to under-reporting.

Clandestine abortions occur, almost always, in risk conditions, which increases maternal morbimortality which, in its turn, is numerically insignificant when it comes legal and safe abortions[2]. The abortion that takes place in inadequate or risk conditions, therefore unsafe, causes, globally, about 70,000 deaths per year (13% of all maternal deaths)[4].

Monitoring the trends to the occurrence of IA is of crucial importance to assess maternal health and progress towards Goal 5, Target 6, of the Millennium Development Goals to reduce maternal mortality and achieve universal access to reproductive health[5]. In 2003, the maternal mortality ratio in Brazil, obtained from reported deaths, was 51.7 maternal deaths per 100,000 liveborn infants (LI), and the official and adjusted maternal mortality ratio was 72.4 per 100,000 LI, corresponding to 1,572 maternal deaths[6]. Because abortion is considered a crime under the Criminal Code and of other deficiencies in the notification system of maternal deaths there is massive under-reporting of these, although the maternal death has been declared of compulsory notification in 2003[6,7].

Despite the sharp decrease in maternal mortality in Brazil of 21% in 2011, referred by the Ministry of Health[8], the country is still far from achieving the proposed target of reducing by 3/4 (three quarters), between 1999 and 2015, the maternal mortality ratio[9]. The maternal mortality indicator shows currently 68 maternal deaths for 100,000 liveborn infants (68/100,000 LI), with 8% of these being caused by unsafe abortion.

On the other hand, abortion is the 4th leading cause of maternal mortality in Brazil, being admitted by the Criminal Code, from 1940, in only two cases[*]: (i) if there is no other way of saving the mother's life, and (ii) if the pregnancy results from rape[10]. The lack of a specific policy — with counseling about risks and precautions to illegal abortion —, coupled with the clandestinity of the act, considered a crime under Brazilian law, contributes decisively to the mortality of the mother[11].

It is estimated that the annual sum of clandestine and unsafe abortions in Brazil lies between 750,000 and 1.5 million, considering only hospitalization data within the Single Health System (SUS), in 2000, if applied to Brazilian data the methodology proposed by the Alan Guttmacher Institute (1999), and remembering that most of them do not reach hospitals. For Latin American and Caribbean, the same institute attained the value of 4 million clandestine abortions, and unsafe, per year[12].

The deaths from abortion in Brazil consist mostly of poor, young, black and low education level women, which indicates high rate of social injustice and health inequities[7,13]. Abortion must be addressed as a matter of public health and human rights, keeping in mind that, when unsafe, it is a preventable cause of maternal death[13].

The information on prevalence and global and regional rates and trends as well as local, may also help to identify gaps in contraceptive use[5].

In Brazil, the 9263/96 law, that deals with Family Planning[14], was considered a significant advance in terms of sexual and reproductive rights of Brazilian men and women. In Article 9,

[*]On 04/12/2012, the Federal Supreme Court (STF) has approved the termination of pregnancy of anencephalic fetus, also called therapeutic anticipation of delivery

it states that "to the exercise of the right to family planning all the methods and techniques of conception and contraception which are scientifically accepted and do not endanger the life and health of the people will be offered, guaranteed freedom of choice". Although the law ensures, in its 1st Article, that the "family planning is the right of every citizen", the deployment of services aimed at him, their distribution and performance fall way short, not being, in most cases, even made feasible.

Given the illegality of IA and subsequent clandestinity, which lead to unsafe abortion, studies clarifying the conditions of occurrence are still necessary in Brazil. Thus, the present study seeks to estimate the prevalence of women with IA among the women of childbearing age (15 to 49 years old) who have had some pregnancy, living in the city of São Paulo, Brazil, as well as to better characterize the IA health damage in terms of some sociodemographic characteristics associated with it.

METHODOLOGY

This is a cross-sectional study for which we performed a field survey in the months of October, November and December of 2008 in the city of Sao Paulo. For this, 120 streets were randomly selected, whose listing was made using the SEPLAN (Department of Planning and Development) map. In each street, 10 houses were drawn - the house next door would serve as a substitute to the chosen home after three visits, if there was no female resident available to answer the questionnaire for any reason. The interviews were conducted directly, on the home of the interviewee, by female interviewers, college students previously trained specifically for the use of the research instrument. We used a structured questionnaire consisting of 55 different questions on SDC and reproductive health of this population. In total, 861 women were interviewed, aged between 15 and 49 years. For this analysis, we have selected the group of women who had a previous pregnancy, totaling 683 subjects.

For the data analysis, the dependent variable abortion was categorized in IA and no abortion (NA or WA). The independent variables included were: age at the time of the interview, divided into quinquennial age groups (15 – 20; 20 – 25; 25 – 30; 30 – 35; 35 – 40; 40 – 45; 45 – 50); paid activity (yes or no); family income (divided into: up to 0.5 minimum wage (MW); from 0.5 to 1 MW, from 1 to 1.5 MW, from 1.5 to 2 MW, from 2 to 2.5 MW, from 2.5 to 3.5 MW, from 3.5 to 7 MW, from 7 to 10 MW, above 10 MW and "do not know or refused to answer"); schooling (illiterate, elementary school I incomplete / complete, elementary school II (middle school) incomplete / complete, high school incomplete / complete and higher education incomplete / complete); marital status (single, married / attached, separated or divorced and widowed); use, or no use, of one or more contraceptives (pill or intrauterine dispositive (IUD), sterilization, non-effective methods (or of low efficacy) and not using any contraceptive method).

This project, derived from the Public Notice 22 funded by the National Research Council (CNPq), was organized by the Department of Preventive Medicine of *Universidade Federal*

de São Paulo (UNIFESP) in 2008 and approved by the Ethics and Research Committee of the institution, under the number 1927/09.

DATA ANALYSIS

The data were summarized using descriptive measures appropriate to the type of variable: number and percentage for qualitative variables, mean and standard deviation for the quantitative ones.

The prevalence of women with IA was assessed through generalized linear models, using the Poisson distribution with logarithmic link function and robust variance to approximate the binomial distribution[15] according to each feature separately. The choice of this method is due to the suggestion of the literature[15] for the purpose of describing the Prevalence Ratios (PR) of events considered "rare". To identify which characteristics were more strongly associated with IA, multiple regression analysis of the PR of the factors investigated was done, using a strategy of selecting variables by the backward method and grouping the categories statistically closer. Finally, we built a final model for the PR of women with IA who had previous pregnancy.

Throughout the analysis, we used a significance level of 5% (p < 0.05) and a 95% confidence interval (95%=CI).

RESULTS

In this study, 683 women aged at the moment of the interview between 15 and 49 years referred having had a pregnancy in the course of life and, of these, 31 reported an induced IA.

In Table 1, the sociodemographic data colected, regarding these 683 women, are presented according to: age, engage in paid activity, family income, schooling, current marital status and current use of contraceptive.

Among these women, it was observed that, in terms of age at the time of the interview, the distribution of interviewed women was not even, with apparent underestimation, in the proportions of respondents who have been pregnant at least once, in the age groups that correspond to young women. The current age average of all women who have had a pregnancy, in the study population, was 36.1 years, with a higher percentage of women (20.9%) in the current age group of 30 to 35 years and around 20% in the 40 to 45 years range (Table 1).

In the same table, we noticed that, regarding paid activity, 51.7% of the women reported receiving some monthly salary. The income reported by the majority was 1 to 2.5 MW. As for schooling, only 1% of the women who have already been pregnant were illiterate, 38% had up until elementary I, incomplete or complete (13.3%) or elementary II, incomplete

Table 1. Sociodemographic data of the women studied. Sao Paulo. 2008.

	Total of women with previous pregnancy	
	n	%
Total	683	100.0
Current age (years)		
15 |-- 20	11	1.6
20 |-- 25	53	7.8
25 |-- 30	105	15.4
30 |-- 35	143	20.9
35 |-- 40	120	17.6
40 |-- 45	136	19.9
45 |-- 50	115	16.8
Paid activity		
Yes	353	51.7
No	330	48.3
Income (minimum wage)		
Up to 0.5	27	4.0
From 0.5 to 1	69	10.1
From 1 to 1.5	122	17.9
From 1.5 to 2	182	26.6
From 2 to 2.5	144	21.1
From 2.5 to 3.5	69	10.1
From 3.5 to 7	38	5.6
From 7 to 10	9	1.3
Above 10	3	0.4
Do not know/refusal	20	2.9
Schooling		
Illiterate	7	1.0
Elementary I incomplete/complete	91	13.3
Elementary II incomplete/complete	169	24.7
High school incomplete/complete	321	47.0
Higher education incomplete/complete	95	13.9
Marital status		
Single	14	2.0
Married/united	599	87.7
Separated/divorced	53	7.8
Widow	17	2.5
Current contraceptive		
Pill or IUD	175	25.6
Esterilized	134	19.6
Non-effective (or low efficacy)	207	30.3
No use	167	24.5

IUD: intrauterine dispositive.

or complete (24.7%), 47% had high school, incomplete or complete, and 13.9% had higher education, incomplete or complete.

In relation to marital status, 87.7% of respondents in this group reported being, at the time of the interview, married or cohabiting consensually.

Regarding the use of contraceptive methods, the higher proportion of women with a previous pregnancy appears among those who used low-efficacy or "non-effective" (30.3%) contraceptive methods; followed by the ones who declared non-use of contraceptives (24.5%), those who reported current use of "the pill" or IUD (25.6%) and, lastly, those who were already sterilized (19.6%) at the time of interview.

In Table 2, we have the distribution of women with prior pregnancy according to miscarriage caused by SDC and their PR for IA (crude analysis). As stated above, of the 683 women who experienced pregnancy, 31 (4.5%) declared IA. The distribution of women with IA, according to SDC, in percentages, is shown in Table 3.

At Table 3, once again, concerning age, the distribution of women with IA denotes a underrepresentation of the younger. The higher proportion of women who had induced abortion was aged, at the time of interview, between 40 and 45 years (35.5%), followed by the group of women between 30 and 35 years (22.5%), percentage close to the age group between 35 and 40 years (19.3%). In this research, we were not informed at what age exactly each woman induced abortion, but we can conclude that between 30 and 45 years most of the women who provoked an abortion (77.3%) had already done so at least once[16].

The family income reported by most women with IA (80.6%) ranged between 0.5 and 2.5 MW, but with 19.4% of them having a less than 1 MW income[17]. Among the women who reported IA, 51.6% declared having a paid job.

Regarding schooling, among women with IA, 12.9% declared having elementary school I (incomplete to complete), 38.7% elementary school II (incomplete or complete), 38.7% high school (also incomplete or complete) and 9.6% (3 M) reported having initiated higher education (Table 3). Despite the similarity in the proportions of women with IA in elementary II and high school, we see from Table 2 that the prevalences are quite distinct, 12/169 for elementary II and 12/321 for high school, showing a preponderance of the prevalence of women with IA with elementary school II, complete or incomplete, over the women with IA with high school. Comparing Tables 1 to 3, the presence of a first filter in the schooling of the woman when she becomes pregnant and a second one at the onset of IA is noticed, particularly in relation to high school and higher education[17,18].

As to marital status, the same phenomenon can be seen in the results regarding the difference between proportions and prevalence. There is a higher proportion of women with IA who referred being married or cohabiting at the moment of the interview, yielding a higher proportion of women with IA with that marital status (67.8%) (Table 3). However, when looking at the prevalences, marital status shows a higher prevalence (7/69) of single women, 10.1%, while the women with IA that reported married/united marital status have a prevalence of 3.9%.

Table 2. Distribution of women with previous pregnancy according to induced abortion by sociodemographic characteristics and prevalence ratio in the crude analysis. Sao Paulo. 2008.

Total	Total of women with previous pregnancy		Women with induced abortion		PR	95%CI	χ^2_w	p-value
	n	%	n	%				
	683	100.0	31	4.5				
Current age (years)							6.42	0.2677
15 |-- 25	64	100.0	2	3.1	1			
25 |-- 30	105	100.0	2	1.9	0.61	0.09 – 4.22	0.25	0.6161
30 |-- 35	143	100.0	7	4.9	1.57	0.33 – 7.33	0.32	0.5688
35 |-- 40	120	100.0	6	5.0	1.60	0.33 – 7.70	0.34	0.5577
40 |-- 45	136	100.0	11	8.1	2.59	0.59 – 11.34	1.59	0.2070
45 |-- 50	115	100.0	3	2.6	0.83	0.14 – 4.87	0.04	0.8409
Paid activity							0.09	0.7701
No	348	100.0	15	4.3	1			
Yes	335	100.0	16	4.8	1.11	0.56 – 2.21	0.09	0.7701
Income (minimum wage)							2.48	0.8711
Up to 0.5	27	100.0	2	7.4	2.56	0.38 – 17.24	0.93	0.3353
From 0.5 to 1	69	100.0	4	5.8	2.00	0.38 – 10.56	0.67	0.4143
From 1 to 1.5	122	100.0	4	3.3	1.13	0.21 – 6.02	0.02	0.8851
From 1.5 to 2	182	100.0	8	4.4	1.52	0.33 – 6.97	0.29	0.5924
From 2 to 2.5	144	100.0	9	6.3	2.16	0.48 – 9.71	1.00	0.3170
From 2.5 to 3.5	69	100.0	2	2.9	1			
Above 3.5	50	100.0	2	4.0	1.38	0.20 – 9.47	0.11	0.7431
Above 10	3	100.0	0	0.0				
Do not know/refusal	20	100.0	0	0.0	-	-	-	-
Schooling							3.41	0.3323
Elementary I	98	100.0	4	4.1	1.29	0.30 – 5.62	0.12	0.7323
Elementary II	169	100.0	12	7.1	2.25	0.65 – 7.77	1.64	0.2003
High school	321	100.0	12	3.7	1.18	0.34 – 4.11	0.70	0.7904
Higher education	95	100.0	3	3.2	1			

Table 2. Continuation.

Total	Total of women with previous pregnancy		Women with induced abortion		PR	95%CI	χ^2_w	p-value
	n	%	n	%				
	683	100.0	31	4.5				
Marital status							5.55	0.1360
Single	69	100.0	7	10.1	2.63	1.16 – 5.95	5.36	0.0206
Married/united	544	100.0	21	3.9	1			
Separated/divorced	53	100.0	2	3.8	0.98	0.24 – 4.06	<0.01	0.9750
Widow	17	100.0	1	5.9	1.52	0.22 – 10.68	0.18	0.6716
Current contraceptive							7.59	0.0552
Pill or IUD	175	100.0	8	4.6	3.06	0.66 – 14.19	2.05	0.1524
Elective sterilization	134	100.0	2	1.5	1			
Non-effective (or low efficacy)	207	100.0	16	7.7	5.18	1.21 – 22.16	4.92	0.0266
No use	167	100.0	5	3.0	2.01	0.40 – 10.18	0.71	0.4008
Liveborn							10.44	0.0054
None	28	100.0	3	10.7	2.89	0.92 – 9.05	3.31	0.0687
1 to 4	620	100.0	23	3.7	1			
Five or more	35	100.0	5	14.3	3.85	1.56 – 9.52	8.52	0.0035

PR: Prevalence ratio; * In the variable "Income", 20 women could not answer or refused to answer.

Concerning the use of contraceptive methods, most women with IA (51.6%) referred the current use of "non-effective (or low efficacy) contraceptive", while 16.1% of them do not use any contraceptives, amounting a total of 67.7% of women without basic protection against an unintended pregnancy[7]. In addition, 25.8% reported using "the pill" (oral contraceptive) or IUD currently and 6.5% had already underwent elective tubal ligation (Table 3).

The proportion of women with IA associated to the number of children born alive is thus distributed: 74.2% have one to four children; 16.1% already have more than 5 children and 9.7% did not have any children (Table 3). Again, the prevalences must be observed, because the prevalence of women with 5 or more children (5/35), 14.3%, ends up being the largest among them (Table 2).

Categorized variables, that in Table 2 had statistical significance, were: unmarried marital status (p = 0.020), "non-effective" current contraceptive (p = 0.026) and liveborn infants (p = 0.003 for 5 or more children and p = 0.068 - marginally significant - for no LI).

Table 3. Distribution of women with previous pregnancy according to induced abortion by sociodemographic characteristics in percentages. Sao Paulo. 2008.

	Women with induced abortion	
	n	%
Total	31	100.0
Current age (years)		
15 |-- 25	2	
15 |-- 20	0	0.0
20 |-- 25	2	6.5
25 |-- 30	2	6.5
30 |-- 35	7	22.5
35 |-- 40	6	19.3
40 |-- 45	11	35.5
45 |-- 50	3	9.7
Paid activity		
No	15	48.4
Yes	16	51.6
Income (minimum wage)		
Up to 0.5	2	6.5
From 0.5 to 1	4	12.9
From 1 to 1.5	4	12.9
From 1.5 to 2	8	25.8
From 2 to 2.5	9	29.0
From 2.5 to 3.5	2	6.5
Above 3.5	2	6.5
Above 10	0	0.0
Do not know/refusal	0	0.0
Schooling		
Elementary I	4	12.9
Elementary II	12	38.7
High school	12	38.7
Higher education	3	9.7

Table 3. Continuation.

	Women with induced abortion	
	n	%
Marital status		
Single	7	22.5
Maried/united	21	67.8
Divorced/separated	2	6.5
Widow	1	3.2
Current contraceptive		
Pill or IUD	8	25.8
Elective sterilization	2	6.5
Non-effective	16	51.6
No use	5	16.1
Liveborn		
None	3	9.7
One to four	23	74.2
Five or more	5	16.1

Finally, in Table 4 we have the final result of the regression analysis for prevalence ratio of IA among women with prior pregnancy with their significances.

The variable categorized with the largest PR was "use of non-effective contraception (or low efficacy)", with a PR = 4.18, which also showed a strong statistic significance ($p < 0.001$), which demonstrates that women who, among others, used non-effective or low-efficacy contraceptives were 4.18 times more likely of having an abortion in relation to the reference category, and proceeding to it. On the other hand, the "current use of pill or IUD" presented a PR = 2.70, with p = 0.046, not being informed if such use was already made, and was inadequate, at the time of the pregnancy terminated in IA.

Then we have the "number of children of 5 or more", with PR = 3.97 and p = 0.001. It had already been pointed out that 74.2% of women with IA have 1 to 4 children and 16.1%, over 5 children[19]. The latter had an almost four times higher chance than the previous of inducing an abortion.

The "single status on the marital status category" has PR = 2.79, with p = 0.015, meaning that unmarried or single women, of the analyzed group, resorted to abortion almost 3 times more than the others.

Table 4. Final model of the regression analysis for prevalence ratio of induced abortion for women with previous pregnancy. Sao Paulo. 2008.

Characteristics*	PR	95%CI	p-value
Age 40 to 44 years	2.76	1.37 – 5.54	0.0043
Single	2.79	1.21 – 6.41	0.0159
Five or more liveborn	3.97	1.71 – 9.20	0.0013
Pill or IUD	2.70	1.02 – 7.16	0.0454
Uses non-effective (or low efficacy) method	4.18	1.80 – 9.71	0.0009
% of reference	1.09	0.49 – 2.45	

*at the interview; PR: prevalence ratio; IUD: intrauterine dispositive.

The "current age category, or stratum, of 40 to 44 years", shows PR=2.76 and p=0.004, which demonstrate that this age group had, at the time of the interview, in this population, a prevalence of women with IA 2.7 times higher than the age stratum taken as a reference.

DISCUSSION

Globally, 40% of all pregnancies are unintended or unplanned[20]. Women faced with an unintended, or unplanned, or even inappropriate pregnancy have only two choices: facing an unwanted birth or interrupting pregnancy[20]. In Brazil, as in many poor or developing countries, this option is made difficult by restrictive laws toward voluntary abortion, leading to clandestine abortion.

Women in social circumstances of disadvantage are more likely to experience an unintended gestation than women with greater financial and social resources[20]. Family income declared by the women in this study demonstrates, once again, the influence of a low income on the occurrence of induced and unsafe abortion[17].

The vulnerability to unwanted pregnancies is strongly influenced by access and use, or no use, of effective contraception, besides exposure to unwanted sex, early marriage and sexual violence[20]. Contraceptive use is closely associated with the level of education of the woman; the more educated women are, the more knowledge they have about contraceptive methods and their use, may choose the most effective, unlike the less educated, who are more likely to mention lack of knowledge about sexual and reproductive health, including family planning. Women who are more educated have, besides more acquired knowledge, greater autonomy and greater choice making capacity[7,20].

As we've seen, in the population surveyed, more than half of the women with IA report the current use of non-effective contraceptives, or low efficacy, and another part does not

use contraceptives, leading to a significant proportion of women without protection against an unplanned pregnancy[20]. It can be noted that these women, if this situation is maintained, continue to be candidates for new IA[17].

Although we do not have accurate knowledge about the type of access to health services of these women (how many are SUS users, how many have health insurance and so on), it can be deduced that the "family planning" stated by law does not satisfy the required demands of contraceptives. The Brazilian population, especially SUS users, does not have yet regular access to contraceptives[21]. In Brazil, the National Family Planning Policy was created in 2007. In 2009, this policy was enlarged, providing greater access to definitive methods of contraception, such as tubal ligation and vasectomy, as well as condoms and other contraceptives[22].

To the women who have access to contraceptives, often lacks the possibility of choosing the method or the medicine most appropriate and effective, particularly in the SUS. On other occasions, the failure is in the lack of appropriate information by a multidisciplinary team, as required by the technical standards of care in family planning of the MH[21], especially for less educated women. These standards recommend at least three types of activity in contraceptive assistance: educational activities, counseling and clinical activities that, on the other hand, must be developed in an integrated manner and in a process that goes beyond contraception, aiming to support comprehensive women health[21]. In practice, this level of complexity of actions has not yet been reached.

The number of children born alive is another important variable to determination of the outcome IA. The average number of children per woman in the study population was 2.17. With inadequate or irregular use of contraceptives, with use of low efficacy contraception, or without the use of any contraceptive method, women of childbearing age end up having more children than the number desired by them. Several studies[17,23] point to this issue as one of the main factors that lead women to choose abortion, especially among low-income women without access to family planning services. As mentioned above, the law on family planning in Brazil[14] was considered a breakthrough in the area of sexual and reproductive rights, but in practice, its application still is precarious. Thus, the higher the number of unwanted children, the greater the chance of occurrence of IA[7,17,20] — the prevalence being four times higher for women with more children born alive in the population under study corroborates this fact. It can be noted that in São Paulo in 2002 the fertility rate was 1.88 children per woman, value below the replacement level[24], falling to 1.7 in 2012. Once again it is evidenced the IA use for fertility control, as already shown in other studies[7,18,20].

The mean age at the time of the interview for the total of women in the group of women who have had a pregnancy was 36.1 years, with an uneven age distribution in this sample and under-representation of young women belonging to the first two five-year periods (15 to 19 and 20 to 24 years). We were not informed of the age at the time of pregnancy or abortion. These facts, as discussed above, prevent the study of the behavior of the IA according to

age group among women below 24 years old. Surveys show an increased vulnerability to abortions among teenagers and young females[25], although it is necessary to have further discussions on social determinants and even on the experiences of pregnancy and abortion in these stages of life[26].

There was not, in the crude analysis, significant difference between age groups. It is known that several studies show a higher prevalence of women with IA among young women[17,21,27], but some studies indicate abortion reports in ascending order according to the age of the women, with higher prevalence among those of 35 years and older[16]. In agreement with the latter, and respecting the limitations of the sample, in this population the current age group with the higher prevalence of women with IA was 40 to 44 years. One can think of omission in the statements of the young women, but it should also be considered that "the higher the age, the longer the exposure period to pregnancy and abortion"[16].

The sociodemographic characteristic "marital status" is one of the possible definers of the occurrence or not of an induced abortion in the existence of an unplanned pregnancy[7] In the population studied, the PR for the categorized variable "single", as shown in Results, indicates that the officially sigle women (until the moment of the interview) induced about three times more abortions than the married/united ones[28]. These women also had a higher incidence of paid activity, lower household income, and lower schooling[7,28], factors that contribute to the choice of IA along with the fact that they find themselves alone facing an unintended pregnancy[18,20].

In a worldwide review of induced abortion[29], published in 2001, which included countries in which abortion was legalized and countries where it is restricted by law, developed countries and developing countries, it was concluded by the authors: "In more than half of the analyzed countries, married women have a higher percentage of abortions that single women. Once pregnant, however, the single woman is more likely to choose abortion than the married one"[29]. One could think that these findings justify the higher prevalence of single women with IA in the present study.

CONCLUSIONS

Of the 683 women interviewed who had already experienced a pregnancy, aged between 15 and 49 years, living in the city of São Paulo, 31 reported at least one IA. The categorized variables corresponding to the main SDC studied that showed PR significantly associated with the occurrence of IA were: current age between 40 and 44 years old, use of non-effective or low efficacy contraceptives and/or inappropriate use of contraceptive methods, number of children born alive equal or superior to 5 and single marital status.

In this article, we discussed the main implications of these findings that, once again, along with their overlapping with others SDCs or variables such as income, schooling and changes in the participation of modern women in society, lead to the urgency of implementing effective family planning services, the need for equity in health and the legalization of abortion.

REFERENCES

1. Andalaft Neto J, Rocha MIB. Sexo e vida: panorama da saúde reprodutiva do Brasil. In: Berquó ES, editor. A questão do aborto: aspectos clínicos, legislativos e políticos. São Paulo: Universidade Estadual de Campinas; 2003. p. 257-318.

2. World Health Organization. Unsafe abortion: global and regional estimates of the incidence of unsafe abortion and associated mortality in 2008 [Internet]. Geneva: World Health Organization; 2011 [cited 2013 Jan 14]. Available from: http://whqlibdoc.who.int/publications/2011/9789241501118_eng.pdf

3. Rezende J, Montenegro CAB. Obstetrícia fundamental. 11a ed. Rio de Janeiro: Guanabara Koogan; 2008.

4. International Planned Parenthood Federation. Morte e negação: abortamento inseguro e pobreza. New York: International Planned Parenthood Federation; 2006.

5. Sedgh G, Singh S, Shah IH, Ahman E, Henshaw SK, Bankole A. Induced abortion: incidence and trends worldwide from 1995 to 2008. Lancet. 2012; 379(9816): 625-32.

6. Ministério da Saúde, Secretaria de Atenção à Saúde, Departamento de Ações Programáticas Estratégicas. Manual dos comitês de mortalidade materna [Internet]. Brasília: Ministério da Saúde; 2007 [citado 2011 Jul 24]. Disponível em: http://bvsms.saude.gov.br/bvs/publicacoes/comites_mortalidade_materna_3ed.pdf

7. Fusco CLB, Silva RS, Andreoni S. Unsafe abortion: social determinants and health inequities in a vulnerable population in São Paulo, Brazil. Cad Saúde Pública. 2012;28(4):709-19.

8. Laboissière P. Mortalidade maternal no Brasil teve queda de 21% de 2010 para 2011 [Internet]. 2012 [citado 2011 Jul 25]. Disponível em: http://agenciabrasil.ebc.com.br/noticia/2012-05-25/mortalidade-materna-no-brasil-teve-queda-de-21-de-2010-para-2011

9. United Nations. The Millennium Development Goals Report [Internet]. New York: United Nations Department of Public Information; 2005 [cited 2011 Jul 28]. Available from: http://unstats.un.org/unsd/mi/pdf/MDG%20Book.pdf

10. Brasil. Código Penal: Decreto lei n. 1.004, de 21 de outubro de 1969. 4a ed. São Paulo: Saraiva; 1971.

11. Adesse L. O ponto crítico do aborto. J Ciênc [Internet]. 2012. Disponível em: http://www.jornaldaciencia.org.br/Detalhe.jsp?id=82958

12. Rede Nacional Feminista de Saúde e Direitos Reprodutivos. Dossiê aborto inseguro: direito de decidir sobre o aborto: uma questão de cidadania e democracia. Saúde da mulher e direitos reprodutivos Belo Horizonte: Rede Nacional Feminista de Saúde e Direitos Reprodutivos; 2001.

13. Adesse L, Monteiro FG, Levin J. Panorama do aborto no Brasil. Radis 2008; 66(11): 10-15.

14. Brasil. Lei nº 9.263, de 12 de janeiro de 1996. Regula o § 7º do art. 226 da Constituição Federal, que trata do planejamento familiar, estabelece penalidades e dá outras providências. Diário Oficial da República Federativa do Brasil [Internet]. Brasília (DF); 1996 jan 15 [citado 2011 Jul 25]. Disponível em: http://www.planalto.gov.br/ccivil_03/Leis/L9263.htm

15. Barros AJD, Hirakata VN. Alternatives for logistic regression in cross-sectional studies: an empirical comparison of models that directly estimate the prevalence ratio. BMC Med Res Methodol [Internet]. 2003 [cited 2011 Jul 25];3(21). Available from: http://www.biomedcentral.com/1471-2288/3/21

16. Cecatti JG, Guerra GVQL, Sousa MH, Menezes GMS. Aborto no Brasil: um enfoque demográfico. Rev Bras Ginecol Obstet. 2010;32(3): 105-11.

17. Fusco CLB. Aborto Inseguro: determinantes sociais e iniquidades em saúde em uma população vulnerável Favela Inajar de Souza, São Paulo, SP, Brasil [tese de doutorado]. São Paulo: Universidade Federal de São Paulo; 2011.

18. Fusco CLB. Aborto inseguro: frequência e características sociodemográficas associadas, em uma população vulnerável - Favela Inajar de Souza, São Paulo [dissertação de mestrado]. São Paulo: Universidade Federal de São Paulo; 2006.

19. Souza e Silva R. Patterns of induced abortion in urban area of Southeastern region, Brazil. Rev Saúde Pública. 1998; 32(1): 7-17.

20. Malarcher S, Olson LG, Hearst N. Unintended pregnancy and pregnancy outcome: equity and social determinants. In: Blas E, Kurup AS, editores. Equity, social determinants and public health programmes. Geneva: World Health Organization; 2010. p. 177-97.

21. Ministério da Saúde (BR). Secretaria de Políticas de Saúde. Área Técnica de Saúde da Mulher. Assistência em Planejamento Familiar: Manual Técnico/Secretaria de Políticas de Saúde, Área Técnica de Saúde da Mulher – 4ª edição – Brasília: Ministério da Saúde,2002. Disponível em: http://bvsms.saude.gov.br/bvs/publicacoes/0102assistencia1.pdf

22. Ministério da Saúde (BR). Saúde da Mulher/Planejamento Familiar. Portal Brasil.Brasília (DF): Ministério da Saúde;2010. Disponível em: http://www.brasil.gov.br/sobre/saude/saude-da-mulher/planejamento-familiar

23. Silva RS. O aborto provocado frente à contracepção e o declínio da fecundidade na Cidade de São Paulo. Rev Saúde Pública 2005; 1(9): 9-29.

24. Yazaki LM. Fecundidade da mulher paulista abaixo do nível de reposição. Estud Av 2003; 17(49): 65-86.

25. Ministério da Saúde (BR). Secretaria de Ciência, Tecnologia e Insumos Estratégicos. Departamento de Ciência e Tecnologia. Aborto e saúde pública no Brasil: 20 anos. Brasília: Ministério da Saúde; 2009. (Série B. Textos Básicos de Saúde). Disponível em: http://bvsms.saude.gov.br/bvs/publicacoes/livro_aborto.pdf

26. Menezes G, Aquino EML. Pesquisa sobre o aborto no Brasil: avanços e desafios para o campo da saúde coletiva. Cad Saúde Pública 2009; 25: s193-s204.

27. Cabezas-García E, Langer-Glass A, Alvarez-Vázquez L, Bustamante P. Perfil sociodemográfico del aborto inducido. Salud Pública Méx 1998; 40(3): 264-71.

28. Silva RS, Andreoni S. Aborto induzido: uma comparação entre mulheres casadas e solteiras residentes na cidade de São Paulo em 2008. Rev Ciência&Saúde Coletiva 2012; 17(7): 1725-33.

29. Bankole A, Singh S, T. H. Características de mulheres que obtêm aborto induzido: uma revisão a nível mundial. Perpect Int Planej Fam 2001; Spec: 10-9.