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Patterns of induced abortion in urban area of Southeastern region, Brazil

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Abstract

Objective To assess the behavior of induced abortion as a function of certain demographic variables, for the population of fertile women (15 to 49 years old) residing in the Vila Madalena subdistrict S. Paulo (Brazil).

Material and Method Two population samples were selected. One sample, with 996 women, investigated the incidence of induced abortions during 1987, using the RRT. In the other, involving 1,004 women, the same information was detected through a conventional approach. In both samples, the induced abortion occurring during the reproductive life was recorded in direct fashion. Though this analysis refers only to information about past abortions, that is by 2,000 women -, it should be noted that it is exactly the RRT that lends credibility to the found or results given results.

Conclusion The analysis furnishes evidence showing that single women, young women between the ages of 15 and 19, women who have not had live births, women who have a number of children below the expected ideal, women who use contraceptive methods (especially inefficient ones) and women who do not have any restrictions as to abortion constitute the categories most inclined to resort to induced abortion. This grouping suggests the existence of interrelationships between categories, that is, each of these categories is probably composed primarily of the same women, those who are at the beginning of their reproductive lives.

Abortion, criminal. Adolescence.

Resumo

Objetivo *Avaliar o comportamento do aborto provocado, segundo algumas variáveis sociodemográficas, para a população de mulheres em idade fértil (entre 15 e 49 anos de idade), residentes no subdistrito de Vila Madalena, São Paulo (Brasil).*

Material e Método *Foram selecionadas duas amostras populacionais. Uma delas, com 996 mulheres, foi destinada a investigar a incidência do aborto em 1987, recorrendo-se à TRA. Na outra, com 1.004 mulheres, a mesma informação foi coletada mediante abordagem direta. Em ambas as amostras foram coletadas*

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as informações referentes à história genética das mulheres, apenas por abordagem direta. Embora a análise desenvolvida paute-se, unicamente, nesses eventos passados, é justamente a TRA que permite assegurar que as tendências detectadas são fidedignas.

Resultados e Conclusões *Foi possível se diagnosticar que as mulheres que mais recorrem à provocação de um aborto são as solteiras, as jovens entre 15 e 19 anos de idade, as que ainda não têm filhos, as que ainda não atingiram o número desejado de filhos, as que usam contraceptivos - sobretudo os não eficazes, e as que aceitam a prática do aborto provocado sem quaisquer restrições. Essas foram as que recorreram mais largamente a tal prática. Há fortes indícios de que os referidos grupos sejam, majoritariamente, constituído pelas mesmas mulheres: as que se encontram no início de suas vidas reprodutivas.*

Aborto criminoso. Adolescência.

INTRODUCTION

Every country in the world has developed legal regulations rejarding the practice of induced abortion. However, these regulations vary considerably from country to country, ranging from total prohibition to the approval of selective abortions at the mother's request - which corresponds to total freedom of choice (United Nations[18], 1979).

In Latin America, with the exception of Cuba, abortion faces severe legal restrictions. Specifically in Brazil, abortion is allowed only when the mother's life is in danger or in cases of pregnancy resulting from rape; nevertheless, a great number of private clinics, which perform clandestine operations, are tolerated, while the hospitalization of women suffering complications from self-induced abortions is not rare.

A common argument holds that mortality linked to abortion attains high levels only in countries where that practice is illegal, especially when abortions are performed by unqualified persons. Without a doubt, this argument has solid reasons for existing. First of all, in Europe and in North America, the sharpest declines in mortality rates due to this cause occurred precisely during periods immediately following the legalization of abortion (see, Henshaw[6], 1982). Second, in Latin America, abortion remains one of the principal causes, if not the main one, of maternal mortality (Puffer[13], 1967).

In Brazil, isolated studies based on the review of death certificates have revealed that in S. Paulo abortion represents the third most frequent cause of maternal deaths (Laurenti et al[8], 1990), while in Rio de Janeiro, it is the most prominent cause of maternal deaths registered at the Miguel Couto Hospital (Laguardia et al[7], 1991).

As Tietze[17] (1987) has emphasized, most induced abortions observed in the world occur exclusively to terminate an unwanted pregnancy. The interruption of desired pregnancies for health reasons, either of the mother or the fetus, are far less frequent. To be sure, nowadays induced abortion emerges with renewed vigor as a form of birth control (it may be observed that all civilizations and cultures, ever since the most remote times, have appealed to abortion, though this discussion is not central to our concerns here). This is due to changes in social, economic, political and cultural patterns, among other factors, which have led to the preference for smaller families.

In the final analysis, this transition may be identified in the decline of fertility rates, a trend which in Brazil began in the 1960s, and was intensified in the 1980s. In applying Bongaarts' model[4] (1980), Berquó and Merrick[3] (1983) demonstrated that the prevailing use of birth control methods was the determining factor in fertility decline. Specifically in the State of S. Paulo, this same model points to the use of contraceptive methods as the principal factor responsible for the decline observed; however, induced abortion also plays a significant role, probably appearing as a less preponderant determining factor because of the high rate of omission in the information available on its frequency.

Essentially, however, Bongaarts' model[4] is limited to breaking down marital fertility rates, which means that it does not consider the importance of induced abortion or any other factor regulating female fertility that does not appear in regular unions.

The data presented in the present paper support the development of a hypothesis holding that in this process of transition, there has been a decline in the number of abortions per thousand women as a func-

tion of the relative decrease in the number of unwanted pregnancies, which was due to the increasing resort to birth control methods; on the other hand, though, there was an increase in the rate of pregnancies deliberately interrupted, especially by single women. Indeed, for these women who face informal relations with their partners, reduced and inappropriate birth control options, and the social discrimination that is exercised against unwed mothers, induced abortion remains practically the only alternative in avoided an unwanted birth.

The main objective of this research is to assess the behavior of induced abortion as a function of certain demographic variables, focusing on the population of fertile women (age 15 to 49) residing in Vila Madalena, a subdistrict of the city of S. Paulo. Although this project is restricted to this specific population, the relevance of the results to a wider discussion of the abortion issue is worth emphasizing, as well as the possibility of generalizing, under certain controlled conditions from, this experience to other metropolitan areas in Brazil.

Conceptual Framework

As mentioned, given the importance of this issue, it remains of interest to know the actual magnitude of induced abortion, or at least a reasonable estimate of its incidence; however this goal is still a long way off. Indeed, according to the World Health Organization[12] (1978), records offering full and reliable information on abortion are available only in some countries where abortion is legal. Most likely, information is most complete in places where abortions must be sanctioned officially by authorities and where legal operations take place in hospitals or other establishments subject to state supervision; it follows that data are probably less complete for abortions performed in private clinics. Furthermore, besides the problem of under-reporting, one notes great imprecision in the personal data on women - such as residence, age and length of pregnancy - information which is contaminated by the illegality of the event, by the amounts paid, or by the marital relations affected. In other words, though official statistics on legal, induced abortions provide the most effective measure for assessing the issue, they are not free of imperfection and thus estimates derived from these figures may present distortions.

Certainly Brazil is to be included among the nations whose statistics on the incidence of induced abortion are the most deficient. What little data exists comes from hospital records, therefore making it is impossible to extrapolate from this statistical information to society as whole. According to the World Health Organization[11] (1970), only in rare instances is it possible to calculate with any degree of certainty the percentage of abortions requiring hospitalization; furthermore, this rate surely varies between and within regions. In addition, the classification of abortions as either induced or spontaneous depends on subjective criteria and may be distorted deliberately, which makes it difficult to consider this source of data as a basis for comparisons either between different health care institutions or over time.

Household surveys, either retrospective or prospective, are known to be the most efficient source characterizing illegal abortion, though exceedingly few have been undertaken in the country. They are few not only because of the high costs involved but also because of the extreme difficulty in obtaining trustworthy responses to such a polemical and controversial issue as induced abortion.

Silva[15] (1991) sought to fill some of the gaps in knowledge of this area by investing heavily in a new research method. This method, known to the scientific community as the Randomized Response Technique (RRT), improves on estimates of induced abortion by allowing the person interviewed to furnish accurate information without exposing her privacy to the interviewer. Essentially, this technique is based on the theory of probability and consists of offering the interviewed the possibility of addressing one of two formulated questions, without knowing which question is being answered*.

Though the analysis presented in the present article refers only to information collected by conventional methods, that is by direct survey, it should be noted that it is exactly the RRT that lends credibility to the results given here. More precisely, the confrontation of RRT results with those derived from direct survey permitted the identification of the categories of women who resort most frequently to induced abortion with the women who most often avoid this practice. In other words, the tendencies detected by conventional, explicit survey questions on induced abortions are trustworthy. However, the RRT was indispensable in determining levels of induced abortion. Since abortion is considered a criminal action, the incidence of induced abortion is severely underestimated. The RRT provides evidence to the effect that this underestimation rate, during a calendar year, is something around 80%.

* The conceptual development of this technique may be found in Silva[14] (1990) and Silva[15] (1991).

MATERIAL AND METHOD

Two samples of women in the reproductive period in compliance with the study objectives, were selected. The same sample design, including the total basic units, was adopted for both samples.

The size of each sample was estimated at one thousand women of fertile age. However, a simplified, less expensive design, produces similar estimates to the simple random sample (Cardoso[5], 1990). Essentially, this simplified process consists of the selection of n_1 squares and visits to n_2 houses in them, with a random beginning. Visits are not repeated.

In the study, squares were selected, not the houses. In the selected squares all the houses should be visited. This decision was the right one, because thus the necessary sample size of two thousand women was obtained by visiting, the 220 squares of the Vila Madalena subdistrict.

In one sample, consisting of 996 women, the incidence of induced abortions during the year immediately prior to the survey, that is in 1987, was investigated, using the RRT. In the other, involving 1,004 women, the same information was sought by means of a conventional approach.

In both samples, comprising an overall universe of 2,000 women, induced abortions were recorded in a direct fashion, though with the necessary care to avoid distorting the use of the RRT. Through the use of appropriate statistical tests, it was possible to establish the homogeneity of both samples in terms of the characteristics under survey, as well as in terms of their credibility in extrapolating their results to the Vila Madalena female population as a whole.

The statistical analysis compares three basic measurements, the proportion of abortions per gestation (A/G), mean of abortions per woman(A/W) and mean of women with gestational history per woman(W/WG), according to the variables: marital status, number of live births, difference between live births and ideal number of children, mother's age at time of the interview, use of contraceptive methods and position on induced abortion.

The Qui-Square (X^2) was used to evaluate the proportional behavior significance. In the case of means, once the variances equivalence verified ANOVA was applied, in the other case, the Kruskall-Wallis test.

Basic Characteristics of the Population Surveyed

Based on information concerning family income and education levels, it is possible to assert that the population surveyed is above average on the socio-economic scale. This feature may not in any way be dissociated from the analysis undertaken. To be sure, though a considerable portion (20%) refused to furnish information on family income, the average reported income amounts to 9.8 times the minimum wage. Hence, even under the worst hypothesis, that is, if all the women who refused to declare their family income had virtually no earnings, the average would still attain 7 times the minimum wage, well above the average for S. Paulo city as a whole.

When compared to the population of the State of S. Paulo, the privileged position of the Vila Madalena population becomes even more evident in terms of educational background, since only 33.3% of the sample had completed less than four years of schooling, while the average stood at 8.3 years of study. Indeed, based on the 1980 census, 69.8% of all women between 15 and 49 years of age in the State of S. Paulo had less than four years of formal education.

Perhaps because of this socio-economically privileged situation, the Vila Madalena population has a very low fertility rate. Without attempting to force a cause-effect relation between the variables under discussion here, it should at least be mentioned that women between ages 40 and 44 have an average of 2.4 live children, while for the entire State of S. Paulo, one finds an average of 3.9 for that age group (see. BENFAM/IRD[2] 1987).

It is worth remembering that, in general, women between 40 and 44 years of age have completed their fertile years, and consequently the number of live births constitutes a measure of past fertility levels. On the other hand, recent fertility is measured by the total fertility rate, which involves the average number of children that a women may come to bear by the end of her reproductive years, provided that the specific fertility rates measured at the time of the analysis are maintained. According to BENFAM research[2], based on births recorded between 1983 and 1986 and focusing on 1984, the estimate of current fertility for the State of S. Paulo is 2.9 children per mother. Thus, even this figure stands above the past fertility in Vila Madalena.

Since calculating the Total Fertility Rates lies outside the interests of the present paper, it will simply be noted in passing that the women of this survey generated an average of 1.3 live births, whereas considering the fertility only of non-single women, we arrive at an average 2.1 live births, still a low figure.

To complete this picture, the single women in the survey have an average age of 25.6, while non-single women attain an average of 35.7 years. Consequently, the general average stands at 31.4 years. In short, in order to understand the results of this research more fully, one needs to bear in mind that the population surveyed is made up primarily of women half-way through their reproductive lives, with above-average educational backgrounds, in a favored economic position and with low fertility.

RESULTS AND DISCUSSION

As mentioned, the research results demonstrate the usefulness of the RRT in establishing abortion levels. More precisely speaking, the RRT indicates that around 80 in every 100 women who induced abortions refuse to admit their experience when questioned directly. According to Singh and Wulf[17] (1991), this ratio stands at 50 in every 100 women in the United States, where abortion is permitted by law. Therefore, it seems quite acceptable that in a coun-

try like Brazil, where induced abortion amounts to a crime, the omission rate would hover around 80%.

At the national level, using conventional survey methods, it is estimated that 8 in every 1,000 women of fertile age induced an abortion in 1985. In other words, considering that during that year the number of women of fertile age reached 37.5 million (Neupert[10], 1990), one may infer that 750,000 abortions were induced in Brazil in 1985, using the conventional survey, and 1.5 million abortions according to the RRT - certainly, this last figure is more likely to be correct.

These figures, though far more modest than the millions often referred to in sensationalist terms, do not mean that induced abortion is an unimportant issue. The results for the RRT are not surprising, since de Silva[15] (1991) and the Alan Guttmacher Institute[1] (1994) show the same number of abortions in Brazil.

Indeed, regardless of the numbers involved the importance of the issue resides in the declaration that induced abortion represents one of the main causes of maternal deaths. No matter how many of these deaths occur, the fact remains that they can be avoided in almost every case, provided that the abortion be performed under adequate conditions. Much worse, in the present authors' view, is the reduction of the number of abortions at the cost of increasing the number of sterilizations, which is, in fact, what is happening in Brazil.

Marital Status

Table 1 shows that the lowest abortion rates per thousand women (A/W) appear among married women (95.5 per thousand) and among single women (99.8); widows fall into an intermediate zone (173.1), while the highest rates are to be found among women with consensual unions (405.4) and among separated or divorced women (447.4). When relating to pregnancies, however, the behavior of induced abortion reveals the following dynamics: the lowest ratios are found among married women (3.8%) and widows (4.7%), while the highest proportions are among separated and divorced women (17.9%), women in consensual unions (18.3%) and single women (22.2%). In sum, single women stand out in this comparison, since they have one of the lowest abortion rates per thousand and the highest rate of abortion per pregnancy.

The proportion of women with gestational experiences (WG/W%) helps clarify this picture, by revealing a highly significant pattern of variation, where the category of single women stands out because of its exceptionally low value compared to the others. In effect, only 23.9% of the 842 single women of the sample had experienced pregnancy, while in the other categories this percentage is about four times greater, remaining around 90%. Hence, in other words, though in proportional terms single women are less inclined to become pregnant than the women of the other categories, they are more inclined to resort to inducing abortions when they do experience pregnancy.

According to Tietze[17] (1987), the number of abortions per 100 known pregnancies is considerably higher among unmarried women - including singles and those previously married - in all countries where abortion is legalized. This pattern observed by Tietze is by and large reproduced in the results of this study, with the exception of widows, whose behavior resembles that of married women.

From the foregoing, the argument that stable unions favor the reproduction of the species, while unstable relationships appear as a factor stimulating the practice of induced abortion may be adopted. This may be because in these relationships there occurs a greater number of unwanted pregnancies, or perhaps because in stable relationships a greater

Table 1 - Total women (W), total abortions (A), women with gestational experience (WG), total gestational experiences (G) and relations between these measurements, by marital status. Vila Madalena, S. Paulo State, 1987.

Marital status	W	A	WG	G	A/W*	A/G%	WG/W%
Married	880	84	816	2199	95.5	3.8	92.7
United	74	30	59	164	405.4	18.3	79.7
Widowed	52	9	49	190	173.1	4.7	94.2
Sep./Div.	152	68	139	380	447.4	17.9	91.4
Single	842	84	201	379	99.8	22.2	23.9
Total	2,000	275	1,264	3,312	137.5	8.3	63.2
Statistical				–	76.07	224.27	975.05
Level of significance				–	0.000	0.000	0.000

*per thousand.

Table 2 - Total women (W), total abortions (A), women with gestational experience (WG), total gestational experience (G) and relations between these measurements, by number of live births. Vila Madalena, S. Paulo State, 1987.

Live births	W	A	WG	G	A/W	A/G%	WG/W%
0	850	78	114	142	91.7	54.9	13.4
1	546	89	346	539	257.2	16.5	100.0
2	408	67	408	990	164.2	6.8	100.0
3	256	31	256	899	121.1	3.4	100.0
4 ou mais	140	10	140	742	71.4	1.3	100.0
Total	2,000	275	1,264	3,312	137.5	8.3	63.2
Statistical				–	14.94	224.27	170.10
Level of significance				–	0.005	0.000	0.000

percentage of unwanted pregnancies are taken to term.

Number of Live Births

Regardless of the relation adopted, the behavior of induced abortion shows variations according to the number of live births per woman. In addition, with the exception of women who never had children, one finds a decreasing tendency, that is, the greater the number of live births, the less frequent induced abortion becomes (Table 2).

For example, in measuring the proportion of abortions to gestational experiences (A/G%), one finds that 16.5% of all pregnancies experienced by women with one live birth are interrupted by induced abortions; this percentage drops to 6.8% for women with two live births, and to 1.3% for women with four or more live births.

To be sure, this situation reveals the preponderant role played by the practice of induced abortion in controlling fertility. Among women without any live births, the proportion of abortions to the number of women is lower than in all other categories; however, the relation of abortions to pregnancies reaches the highest value, well above the second highest. Thus, when compared to other categories, women without live births display an extremely high rate of pregnancies that terminate in induced abortions (54.9%), and a very low rate of abortions per thousand women (91.7).

Following this line of analysis, the proportion of women with gestational experience (WG/W) indicates that, although the group of women without live births presents a low frequency of pregnancies (13.4%), there is a greater chance that pregnancy will be interrupted when it does occur.

It is to be expected that a great majority of single women do not have live births and that, reciprocally, a large proportion of the women without live births are single. In other words, a strong correlation between these two variables should be present. This supposition is reinforced by the fact that in all countries where there are appropriate statistics we find that the majority of married women who abort have already borne two or more live children, while single women - that is, women who never married - usually do not have children (Tietze[17], 1987).

In any case, the fact that most women begin their reproductive life with the inducement of an abortion surely reflects that alternative forms of contraception are employed sparingly to avoid an inconvenient or undesired pregnancy during this initial period of reproduction. What becomes evident, thus, is not only the need for greater efforts in disseminating information about available contraceptive methods, but also, and more importantly, the need to pay greater attention to implementing appropriate methods during the initial years of the reproductive life. In spite of improvements in quality over the last ten or twelve years, the contraceptive methods considered most efficient - the IUD, the pill and obviously sterilization - present significant problems.

Difference between Live Births and Ideal Number of Children

In the field of demography, the importance attributed to desired and undesired fertility makes the study of patterns of induced abortion extremely pertinent, in comparing the difference between the total number of children actually born and the number considered ideal. Live births provide a good indicator for the prediction of future fertility, while the ideal offers a measure of whether or not there is a need to improve access to birth control methods (see, for example, Westoff[19] 1981).

Hence, from this new variable, which may be called simply the “difference”, the following categories emerge: a) Lesser, when the number of live births is smaller than the number of children considered ideal; b) Equal, when the two variables display the same value; c) Greater, when live births

Table 3 - Total women (W), total abortions (A), women with gestational experience (WG), total gestational experience (G) and relations between these measurements, by difference between live births and ideal number of children. Vila Madalena, S. Paulo State, 1987.

Difference	W	A	WG	G	A/W	A/G%	WG/W%
Lesser	1,313	180	585	1,040	137.1	17.0	43.5
Equal	436	63	428	1,177	144.4	5.4	98.2
Greater	251	32	251	1,095	127.5	2.9	100.0
Total	2,000	275	1,264	3,312	137.5	8.3	63.2
Statistical				–	0.56	165.85	585.42
Level of significance				–	0.767	0.000	0.000

are more than the number of children considered ideal.

Table 3 includes the basic data for this analysis. The first observation that may be made is that most women (65.7%) have not yet reached desired fertility levels. More important, only 12.6% exceded the number of children considered ideal and, consequently, 21.7% of the women consider that the number of children they have represents the ideal.

With regard to patterns of induced abortion, as such, variations appear between "difference" categories only when related to gestational experiences, showing a higher value in the Lesser category, an intermediate value in the Equal category and, consequently, a smaller value in the Greater category.

More precisely, one could argue that the induced abortion rate, when related to gestation, is much higher among women who have not yet reached desired fertility that among those who have at least attained desired fertility levels. Another argument is that the behavior of induced abortion with reference to the difference between actual live births and the number of children considered ideal is contrary to what one might expect to find. After all, it seems most reasonable to expect that women would resort to abortion basically once they already had the desired number of children.

Nonetheless, such behavior supports the preliminary assertion that when a pregnancy occurs at the beginning of the reproductive life, there is a strong probability of its being deliberately interrupted. Therefore, following prior findings, one may draw the conclusion that the most "unwanted" pregnancies are those which occur at the beginning of the reproductive life. This may well be because it is a stage of life when women have not yet achieved a "stable" conjugal phase.

Age at Time of Interview

According to Tietze[17] (1987) who studied the percentage distribution of legal induced abortions, taking into consideration the age of the women who abort, a considerable majority of abortions (58% to 80%) over the last few years involved women between 20 and 34 years of age. On the other hand, Tietze observes that the specific abortion rates by age per thousand women in all the populations studied are higher in one of the five-year age sets covering the 20-34 span, that is from 20 to 24, 25 to 29 or 30 to 34. In Tietze's view, the concentration of abortions during this age interval may be explained by related schedules of fertility, sexual activity, and family formation and structure.

In Milanesi's study[9] (1970) in the city of S. Paulo, taking into account the age of women at the time of the abortion, the highest concentration of induced

Table 4 - Total women (W), total abortions (A), women with gestational experience (WG), total gestational experience (G) and relations between these measurements, by mother's age at the time of the interview. Vila Madalena, S. Paulo State, 1987.

Age	W	A	WG	G	A/W	A/G%	WG/W%
15 ⊢ 19	249	6	19	26	24.1	23.1	7.6
20 ⊢ 24	322	22	125	199	68.3	11.1	38.8
25 ⊢ 29	361	53	223	478	146.8	11.1	61.8
30 ⊢ 34	352	68	275	666	193.2	10.2	78.0
35 ⊢ 39	265	44	233	709	166.0	6.2	87.9
40 ⊢ 44	203	24	181	531	118.2	4.5	89.2
45 ⊢ 49	221	55	198	685	248.9	8.1	89.6
Total	1,973	272	1,254	3,294	137.9	8.3	63.
Statistical				–	23.84	31.65	644.15
Level of significance				–	0.001	0.000	0.000

abortions also falls within the 20 to 34 year-old group.

The present study, in seeking to minimize the embarrassment of the women interviewed, does not include detailed information on the date of abortion episodes. As a result, it remains impossible to determine the age of women at the time of these events.

Nevertheless, even though the ages reported are those at the time of the interview, Table 4 shows that indeed there is a greater concentration of abortions among women between the ages of 20 and 34, and that women of the last group reveal the greatest number of episodes. However, in using the age at the time of interviews, one might expect an upward tendency in the number of abortion cases, insofar as women accumulate episodes over time. But the WG/M ratio is the only one to point clearly towards an upward tendency, that is, showing an increase with the age of women. The other ratios display fluctuations that cannot be readily explained.

All things considered, thus, one can appreciate the difficulty involved in establishing abortion differentials when using the age of women at the time they are interviewed. Hence, what can be highlighted with certainty is that the abortion behavior of women between 15 and 19 years of age clearly stands out from that of other women. Within this age set, one finds lower values for the ratio of abortions/women and the highest figures in the ratio abortions/pregnancies. Therefore, once again the issue faced by women who experience undesired pregnancy at the beginning of their fertile years comes to the surface.

Use of Contraceptive Methods

First of all, it should be noted that among the 2,000 women interviewed, only 728 (36.4%) used some form of birth control at the time of the survey. This percentage is lower than the one detected for all of Brazil in the national BENFAM/IRD report[2] (1987), which stood at 43%.

Certainly, the socio-economic profile of the Vila Madalena women, which places them in a privileged position within the context of the State of S. Paulo, should contribute to the wider use of birth control methods. In contrast to the BENFAM results, when considering the type of control used, it becomes clear that the low incidence of sterilization is what reduces the proportion of birth control users within the Vila Madalena population. In effect, according to the BENFAM report, among current birth control users, the majority had been sterilized (42.8%), while 42.2% were using birth control pills, which means that only a tiny proportion of that population was using other methods. By contrast, in the Vila Madalena sample, the great majority of birth control users were taking pills (55.8%), while 13.5% had been sterilized, 9.9% were using IUDs and a large group (20.8%) were using other, much less efficient, methods. It should be noted that in the national survey, there were so few IUD users that this method was not even listed. In other words, the BENFAM report reveals the predominant application of irreversible methods over one of the more effective reversible methods.

With the help of Table 5, it is possible to demonstrate variations in the behavior of induced abortions with reference to the condition of birth control methods used, as the lowest values appear among women who do not use contraceptive methods, intermediate values among women who use some form of contraception (not the most effective ones) and the highest values among users of efficient birth control devices.

It seems quite plausible, then, to infer that nonusers of birth control would include women least exposed to the risk of becoming pregnant and, as a result, women who do not use an effective form of fertility regulation but resort to abortion in extreme cases, in order to terminate an undesired pregnancy. The case of birth control device users is different. More exposed to the risks of becoming pregnant, they seek to control their fertility and resort to abortion when these methods fail. However, surely the probability of becoming pregnant is smaller among women who use efficient contraceptive devices than among those who adopt other methods, and as a con-

Table 5 - Total women (W), total abortions (A), women with gestational experience (WG), total gestational experience (G) and relations between these measurements, by use of contraceptive methods. Vila Madalena, S. Paulo State, 1987.

Use of contracep.	W	A	WG	G	A/W	A/G%	WG/W%
Not used	1,272	118	685	1,947	92.8	6.1	53.9
Efficient	576	103	466	1,051	178.8	9.8	80.9
Other	152	54	113	314	355.3	17.2	74.3
Total	2,000	275	1,264	3,312	137.5	8.3	63.2
Statistical				–	59.65	48.58	133.52
Level of significance				–	0.000	0.000	0.000

Table 6 - Total women (W), total abortions (A), women with gestational experience (WG), total gestational experience (G) and relations between these measurements, by attitude to induced abortion. Vila Madalena, S. Paulo State, 1987.

Situation	W	A	WG	G	A/W	A/G%	WG/W%
None	373	16	228	628	42.9	2.5	57.5
Law	804	27	514	1,394	33.6	1.9	61.1
Law/Econ.	120	14	69	165	116.7	8.5	63.9
Any	692	218	448	1,109	315.0	19.7	64.7
Total	2,000	275	1,264	3,312	138.3	8.3	63.3
Statistical				–	139.12	288.04	3.25
Level of significance				–	0.000	0.000	0.345

sequence these latter would resort to induced abortion with greater frequency.

Opinion on the Acceptability of Abortion

As a rule, one finds variations in patterns of induced abortion as a function of women's opinions on the circumstances under which they consider abortion acceptable. In effect, Table 6 shows that the WG/W ratio does not vary statistically from category to category when considering the opinion variable.

The number of abortions per thousand women is smaller among women who have greater restrictions as to the use of this practice - that is, those who do not accept it under any circumstances, and those who accept it only in cases of rape, in cases of risk to the mother's life, or in cases of congenital defects; this number reaches an intermediate level among women who are more flexible with respect to abortion - those who in addition to the conditions mentioned in the previous set consider economic motives; and it is greatest among women who accept abortion in any given situation. The ratio of abortions over pregnancies reveals a similar behavior pattern.

In sum, though women from all four groups under consideration become pregnant at similar rates, they resort to abortion differently, that is, the greater the resistance to accepting induced abortion, the smaller the frequency of such episodes. Furthermore, insofar as the number of abortions per thousand women and the ratio of abortions over pregnancies display similar behavioral dynamics, it may be inferred that the more rigid abortion restrictions are, the smaller is the practice of fertility regulation. Therefore, the adoption of birth control methods, including induced abortion, is intrinsically related to the socio-moral values of women.

It should be noted here that among 1989 women who expressed their opinions on the conditions under which they considered induced abortion acceptable, a majority of 59.2% raised serious objections to the matter. More precisely, 1,177 women either did not accept abortion under any circumstances, or only in cases of rape, imminent risk of life or congenital malformation.

In short, we are faced with the following picture: in spite of restrictions expressed as regards the practice of induced abortion, this remains one of the principal mechanisms in regulating fertility. The paradox lies in that the restrictions raised by women as regards induced abortion mirror the moral and cultural patterns of the same society that impels them to resort to this practice.

CONCLUSION

To sum up, the analysis of variations provides evidence showing that single women, young women between ages 15 and 19, women who have not had live births, women who have a number of children below the expected ideal, women who use contraceptive methods (especially inefficient ones) and women who do not have any restrictions as to abortion constitute the categories most inclined to resort to induced abortion. This grouping suggests the existence of interrelationships between categories, that is, each of this categories must be composed primarily of the same women, those who are at the beginning of their reproductive lives.

Further, partial conclusions suggest that this same group of women either do not use birth control or use contraceptive methods that are inefficient in regulating fertility, almost surely because they are not substantially exposed to the risk of becoming pregnant. In addition, the evidence suggests that the adoption of birth control methods, including induced abortion, is closely linked to women's socio-cultural values.

Though extremely relevant, this the sort of analysis falls short of explaining the action of all the variables mentioned as a whole. Therefore, in order to understand the whole picture, where all the variables interact simultaneously, multi-variable analysis be-

comes a necessary tool. Without going into great detail, what should be emphasized here is that the use of a multivariable model confirms the foregoing analysis, which focused on isolated variables, presenting the following features:

1. The variable possessing the highest explanatory value in abortion differentials is the woman's position as to the acceptability of this practice, which expresses socio-cultural values. The stigma of abortion, seen in this society as a moral and even legal crime, surely justifies the explanatory weight of this variable. In short, the absence of any restrictions on the practice of abortion is an overriding condition for the practice to take place;
2. The marital status variable also appears to have great explanatory value, which also derives from the effect of socio-moral values, as we shall see below;
3. If not married, women resort to abortion basically before reaching the desired number of children. When married, they resort to this practice when they have surpassed the desired number of children;
4. Married women resort to induced abortion either as a means of planning fertility, or in order to maintain the number of children within the limits of an expected ideal, or to keep a space between one birth and another. Unmarried women, for their part, appear to desire only to free themselves of an unwanted pregnancy, because of social discrimination, etc. As a rule, they resort to abortion without even having experienced a live birth. Furthermore, they resort to this practice almost hegardless of any other condition. Even when they manifest restrictions to abortion, there is a considerable chance that these women will induce abortions.

Indeed, the public authorities dealing with health issues, particularly in the area of reproductive health, should develop priorities in terms of directing resources towards the production of birth control methods that are less harmful to health, that are more conducive to the needs of women at the beginning of their reproductive lives and that are more compatible with the reality faced by poor countries like Brazil. Until this effectively comes about, the legalization of abortion appears to provide a reasonable alternative in practical terms, and this practice should be made available to women through public health programs, as a citizen's right and the State's duty.

After all, it is clear that couples control fertility at any price. Within this process, induced abortion represents one of the more "attractive" alternatives. But it is an option that may cost the life of a mother when performed under precarious conditions and, conversely, one which is relatively simple and risk-free when performed under adequate medical control.

The legalization of abortion in Brazil means more than the democratization of access to this procedure with the diminution of associated risks, since it also fundamentally represents a means of containing the process of mass sterilization, which appears to be growing in intensity. It would thus represent a significant advance in the area of human reproduction, guaranteeing fuller rights to women. These include rights to their own bodies, saving them from unnecessary mutilation.

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