

Induced Abortion – Epidemiological, Psychological and Social Aspects

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ABSTRACT

Objective: Induced abortion is termination of pregnancy based on a woman's decision and performed by a gynecologists within the gestational age limit. The aim of this study was to establish annual epidemiologic picture of induced abortions for non-medical indications at the territory of the City of Niš, Serbia.

Methods: The data analyzed in this research are based on abortion reports and birth certificates available from the Institute for Public Health Niš and from the Gynecology and Obstetrics Clinic, Clinical Center Niš for the 2012 year. Women having induced abortions were classified into IV age groups.

Results: The analysis of the collected data showed that statistically significant and highest percentage of women who required induced abortions was in those between 26 and 36 years of age. It is statistically significant that the highest percentage of women for artificial pregnancy termination is married. Statistically significant greatest percentage of women seeking induced abortion have a history of more than one delivery. Statistically significant least percentage of women seeking induced abortion have a history of more than two induced abortions.

Conclusion: Continuing education on health issues and information on contraceptives in young population of women at the beginning of their sexual activity and in married women as well is still necessary and male partners should also be informed. Women should have better access to and information on oral contraceptives, their usage, desired and side effects. Comfortable settings and medical care after the intervention both in public and private health-care facilities should be equal.

Keywords: Ages, gestation week, induced abortion, live born children, marital status

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INTRODUCTION

Induced abortion (*abortus artificialis*) is termination of pregnancy based on a woman's decision and performed by a gynecologists within the gestational age limit. In many countries termination of pregnancy is permissible, based on the woman's decision. In Serbia, such an abortion is allowed to be performed up to 10 weeks of pregnancy by state regulation. At later stages of pregnancy, the abortion must be approved by a special medical commission including two gynaecologists and a social worker. The commission approves termination of pregnancy only when there are medical and social indications that should be agreed upon with the pregnant woman. Some medical indications are neuropsychiatric disorders of pregnant women, a history of heart, liver or kidney disease, malignant diseases, congenital anomalies and genetic problems in the fetus. The most common social indications are rape and incest.

There are two basic ways abortions are performed – a medication abortion and an aspiration abortion using medical instruments. In Serbia an aspiration abortion is the only performed procedure, involving cervical dilatation and mechanical removal of pregnancy tissue from the uterus using a curette and vacuum aspiration. The intervention itself is usually performed under general intravenous anaesthesia (1).

Abortion is mentioned in ancient medical texts and has always been a controversial issue concerning medical, religious, ethical and psychosocial aspects (2). There are numerous differences concerning legal systems and abortion laws in various countries. Thus, the availability of abortion service is different worldwide. In countries with legal abortions, specialist doctors perform the procedure in physicians' offices with few complications following the intervention. On the contrary, in countries with strict legal restrictions concerning abortions,

they are performed in secret by unqualified providers with greater rate of complications and are called criminal (unsafe) abortions (3).

The aim of this study was to establish annual epidemiologic picture of induced abortions for non-medical indications at the territory of the City of Niš, which is the third largest city in Serbia, as well as to evaluate psychological and social aspects of the relationship between the age, marital status, number of children, number of previous abortions, gestation week of the termination of pregnancy and annual epidemiologic rate of induced abortions at the territory of the City of Niš.

METHODS

The data analyzed in this research are based on abortion reports and birth certificates available from the Institute for Public Health Niš. These data from 2012 were completely saved and considered relevant since both public and private clinics are under obligation to report each induced abortion and childbirth to the Institute for Public Health. The number of childbirths for the same year was collected from the Gyneacology and Obstetrics Clinic, Clinical Center Niš, the only Clinic to perform childbirths at the territory of the City of Niš that also submitted Birth reports to the Institute of Public Health Niš.

Women having induced abortions were classified into IV age groups. The first group involved women under the age of 18, the second one between 18 and 25 years of age, the third group included women between 26 and 36 years and the fourth one consisted of women over 36 years of age. Within each group women were classified according to marital status (married/single), number of live born children (no children, one child, more than one child),

number of abortions (none, ≤ 2 , > 2) and according to gestation week of pregnancy when induced abortions were performed (< 6 , 6-8 and > 8). Also, all the induced abortions were grouped according to the institution they were performed in (public or private clinics). All the collected data were statistically processed and shown in tables.

RESULTS

Out of overall number of registered pregnancies (3099) at the territory of the City of Niš during 2012, 58.05% (1799) were intentionally terminated, and 41.95% of pregnancies (1300) resulted in live birth.

The analysis of the collected data showed that statistically significant and highest percentage of women (56.08%) who required induced abortions was in those between 26 and 36 years of age. Overall, it can be concluded that the greatest percentage of women, **75.81%**, requiring abortion is over 25 years of age. These data are shown in Table 1 ($X^2 e = 62.96 > X^2_{0.01} = 11.34$).

It is statistically significant that the highest percentage of women for artificial pregnancy termination (80.65 %) is married, as shown in Table 2 ($X^2 e = 37.48 > X^2_{0.01} = 6.63$).

It is statistically significant that the greatest percentage of women for artificial termination of pregnancy is over 36 years of age and married, as shown in Table 3 ($X^2 e = 79.14 > X^2_{0.01} = 11.34$). This Table shows overall illustration of the two previous Tables. Women over 25 are mostly married and belong to statistically significant greatest population of women seeking induced abortion.

Table 4 shows that statistically significant greatest percentage of women (54.25%) seeking induced abortion have a history of more than one delivery ($\chi^2_e = 18 > \chi^2_{0.01} = 9, 21$).

Table 5 shows that statistically significant least percentage of women (14.73 %) seeking induced abortion have a history of more than two induced abortions ($\chi^2_e = 15.73 > \chi^2_{0.01} = 9.21$).

Statistically significant increase has been registered in women for induced abortion who had had more than two previously performed curettages, as seen in Table 6 ($\chi^2_e = 14.39 > \chi^2_{0.01} = 9.21$).

Constant linear increase of women who come to curettages as they are getting older and having more and more previously performed induced abortions suggests that experience and age do not affect future decrease of induced abortions.

Statistically significant greatest percentage of female patients having curettage at older age had more than one delivery ($\chi^2_e = 69.8 > \chi^2_{0.01} = 11.34$).

Table 7 shows that the percentage of nulliparae for induced abortion decreases with age and the percentage of pluriparae increases. The greatest percentage of nulliparae for induced abortions is by the age of 18 (69.56%). Nulliparae over 36 in significantly less percentage (4.78%) choose to end a pregnancy. These data have been expected since underage female patients are commonly not ready for marriage and the pregnancies are mostly unplanned and unwanted. On the other hand, older nulipparae (> 36 years) more rarely choose to have their pregnancies terminated due to fear of biological ageing and the loss of the generative function, and also due to the fact that the pregnancies in women of this age group present at high percentage a reason for marriage.

On the other hand, the greatest number of pluriparae seeking abortion is over the age of 36. The fact is that in Serbia the greatest percentage of women after having two children do not want another child, so the greatest number of abortions is in pluriparae of this age.

The percentage of young nulliparae (< 18 years) and older pluriparae (> 36 years) seeking abortion is almost identical and is about 70% (69.56 : 73.8) what is in correlation with aforementioned facts concerning unplanned pregnancies, but only the motives differ with age and parity change.

Statistically significant greatest number of women have their pregnancies terminated between 6th and 8th weeks of gestational age, as shown in Table 8 ($X^2_e = 131.37 > X^2_{0.01} = 11.34$).

By the sixth week of pregnancy, namely two weeks after expected period, an ultrasound clearly verifies the pregnancy. For this reason, 6th week of pregnancy is the period when biochemical verification of pregnancy (test and beta hCG test) is confirmed as the pregnancy within the uterus, when women decide on eventual termination of pregnancy. Out of fear not to exceed allowed gestation week for termination (10 weeks), as well as out of danger not to evacuate intrauterine pregnancy by curettage in the early phase of limited week, or verification of extrauterine pregnancy, the least number of pregnancy termination is performed before 6th week (3.11%) and after 8th week (9.56%). One of the reason for fewer pregnancy termination before 6th week is due to the fact that medication abortions with prostaglandine (Mifegyne) are not performed in Serbia, but classically using curettage technique and vacuum aspiration.

There was no significant difference in relation to age and gestational age of terminated pregnancy. Regardless the age of the woman, pregnancy terminations are usually performed between 6th and 8th week (from 82.60% to 89.29%). However, the Table 9 shows two-fold

percentage of women under the age of 18 and over the age of 38 (4.34% - 5.35%) who have their pregnancies terminated in the earliest period (before 6th gestation week).

Despite the fact that the price for pregnancy termination is higher at private clinics, the greatest percentage of termination is performed there, as shown in Table 10. Decisive factors for such distribution are: the choice of doctor, no waiting lists, comfort and discretion.

DISCUSSION

The incidence of unintended pregnancies is one of the key reproductive health indicators. Accordingly, conclusions on widespread availability of contraception as a means of protection against unintended pregnancies at a certain area can be drawn. In the USA the incidence of unintended pregnancies followed in the period of five years increased for 1%. Accordingly, special attention should be paid to educate couples with increased risk of unintended pregnancies based on their social and psychological status (4).

In the state of Louisiana (the USA) restrictive abortion law is still in procedure, requiring abortion clinics to meet hospital-like standards. Roberts et al concluded in their study that half of the examined women seeking abortion had high school education, 73% of them had already had children and most abortions were performed in the first trimester of pregnancies. By putting this new law into effect, women will not be able to have abortions performed in small surgeries, but will have to travel three times longer and pay more money for this intervention. Female patients of wealthy social status will not be affected by this law, but the poor ones who probably choose to have termination of pregnancy for social reasons (5).

In developing countries, like Pakistan, the abortion rate has had an increasing trend in the same period of time. Sathar et al concluded in their research that abortion rates vary among provinces of Pakistan due to different social, cultural and religious status (6).

In some countries, including Ghana, the rate of criminal abortions is increasing due to restrictive abortion laws. This developing country has taken certain steps to alleviate high rates of maternal mortality, high rates of complications following the intervention by addressing unsafe abortions (7).

Gao et al described that the prevalence of induced abortions is still very high among great number of married women included in the study in rural areas of Anhui province in China and the most common methods of contraception is intrauterine device and sterilization (8).

Ngo et al drew interesting results in one study. Namely, women with repeated abortions underwent a survey in three provinces in Vietnam. It is concluded that highly statistically significant repeat abortions remain high partly due to inadequate use of contraceptives and due to son preference (9).

In Vietnam, status relating to abortions varies highly among the different regions and provision of manual vacuum aspiration is greater than provision of medical abortion (10).

Rominski et al conducted a study in Ghana and concluded that there are numerous factors associated with termination of pregnancies, not only reports of women having terminated a pregnancy. Some of these factors are: women's autonomy within a region and family, contraceptive use, living in urban versus rural areas, marital status, education, previous abortions, number of children, intervention costs, living in the northern regions of the country (11).

Shah et al compared the rate and safety of abortions from 1994 International Conference on Population and Development with the data from 2008 and concluded that globally the number of induced abortions has declined, mortality rate after this intervention has also declined, the number of countries with more liberal abortion laws has increased and both methods of abortion have become more available. Mortality rate due to unsafe abortion has declined, but still remains a problem, especially in developing countries. Recommendations on abortion interventions imply that they have to be safe concerning the health-care providers and equipment, women should be better informed on contraceptive methods to reduce the rate of termination of pregnancies, all women should have access to post-abortion services and care (12).

In Brazil, the parliament is influenced by public opinion and strict restrictions on abortion law. A study by Faundes et al showed that medical students were more liberal concerning abortion laws than civil servants who mostly agreed that a woman who has had an abortion should go to jail, as well as for not facilitating access to legal abortion. All of this increases the rate of illegal abortions and possible complications after the intervention (13).

Our study confirmed that younger women take more care about contraceptive use since they have fear of unintended pregnancy and have not planned marriage and having children yet. These data indicate that induced abortions are most common in women who have been sexually active for a few years, who completed their education and who are mostly married, as shown in this study. Taking into account this information and these women's age, it can be concluded that the cause for such a high percentage of artificial abortions in this population of women cannot be inexperience, or not being informed on contraceptives and consequences of unprotected sex. It is expected from medical histories that certain percentage of women seeking curettage had had less than two previous abortions. But, the fact that was not expected was that more than half of

the women (54%) seeking termination of pregnancy had already had one or more previous induced termination of pregnancy. Despite the previous experience of not using contraceptives and risk unplanned pregnancy and possible difficulties aggravated by an abortion, more than half of the women do not use any of available contraceptives, but choose intended abortions. From this point of view, percentage of 14.73% of women already having more than 2 abortions and having repeat abortion is not a low one. It is clear that the issue is not inexperience or not being informed, but conscious avoidance of not using a contraceptive method. Most women are aware of the risk they are exposed to during curettage, but not using contraceptives may be their or their partners' decision. The most common reason for not having contraceptive pills is fear of hormonal contraception (obesity, toxicity, thrombosis, cancer etc.), fear of intrauterine device (discomfort, infections, invasive application, pain etc.), discomfort of hormonal contraception and loss of spontaneous sexual intercourse and so on.

Bearing all of these in mind, it is clear that despite the fact that the women are from urban area, that they are educated and in their mature age, there is a lack of information on how contraceptives work, what the indications, contraindications and side effects are. Also, women are poorly informed about new generation of low-dose contraceptives and combined hormonal contraceptives. Apparently, women in our country are reluctant to use hormones for therapeutic purposes, not only to use oral contraceptives, but to substitutional hormonal therapy as well. The data from this research indicate the fear of contraceptive side effects is greater than experience of induced abortion the women have gone through.

Induced abortions may have some consequences concerning the patients' psyche. After the intervention, one third of women experience signs of acute stress disorder. By comparing such a reaction with the one after giving birth, it can be concluded that induced abortion results

in greater stress than delivery itself. Women expressing greater acute stress reaction are less educated, of poor financial status, more religious and experience problems with partners after the intervention. Unlike these factors, age, number of previous abortions and difficulties in abortion decision making do not have an impact on frequency of acute stress intervention after the intervention (14).

A Swedish multicenter cohort study on posttraumatic stress disorder after induced abortion enrolled a great number of women followed at three and six months after induced abortion. The women who participated in the study filled out three questionnaires about their age, education, employment, social status, anxiety symptoms, depression symptoms, use of antidepressant drugs, information on alcohol and tobacco use, number of children, previous abortions, abortion methods, medical or surgical ones. Previous posttraumatic stress symptoms and posttraumatic stress disorders present at the abortion clinic were assessed after the induced abortions up to the period of six months. Only a small fraction of women have developed complete posttraumatic stress symptoms or disorders, and the majority of them had trauma experiences unrelated to the induced abortion (15).

The decision to have an abortion is motivated by multiple reasons. At the end of the last century a large study encompassing 27 countries was carried out by Bankole et al and they showed that the most important reason is to limit births and stop childbearing followed by socioeconomic factors, unemployment, relationship problems, further education, focus on making better life for existing children (16). In a recent study by Finer et al women in America reported similar reasons for termination of pregnancy. The decision is the result of diverse reasons that motivate women to eventually seek the help of gynecologists to induce abortion. The most common reasons are: the woman is not ready to have a child because she is unmarried

or a student, unemployed, having financial problems, having no family support, relationship problems and fear of single motherhood, married women indicated that they had completed their childbearing, they do not want other people to know that they still have sexual relations with their husbands, they feel old to raise another child, husbands force them to abort the pregnancy, they are afraid of possible complications at certain age and have concerns about their own health. The least percentage of pregnant women was among the victims of rape or incest. In this study also the decision interferes with the level of education, existence of live children, relationship with family and partner (17). Fisher et al studied the reasons for repeated abortions and concluded that besides aforementioned reasons for induced abortions, in this case it is necessary to take into account a history of physical or sexual abuse associated with women's socioeconomic status, marital status, age and education (18).

Our study indicates that married women have least concern about unintended pregnancies. A possible explanation for so high percentage of abortions among married women is a kind of relaxation and safety of matrimony. Sexual intercourses are more frequent and the woman feels protected and safe with a permanent partner. On the other hand, unmarried women are of younger age (Table 3), commonly without a permanent partner, they have a great fear of unintended pregnancies and take much more care of contraception.

Women over the age of 25 should be a target group for future health education. Besides aforementioned reasons for such a high percentage of induced abortions in married women, the role of male partner (husband) should not be neglected. The fact is that the percentage of male sexual partners taking care of contraception in matrimony is much less than before marriage. Barrier contraception, condoms, are more widely used in unmarried men for contraception reasons and as a protection from sexually transmitted diseases as well. Married couples avoid the

use of condoms due to discomfort, finances, relaxation and unplanned sexual intercourses (not buying condoms). The least effective and most commonly used contraceptive method in married couples is withdrawal method which poses one of the causes of such a high percentage of unintended pregnancies in this population of women in our study.

A small number of women plan more than two children, thus there is a growing trend of women who choose to terminate pregnancies after two deliveries, as shown in our study. On the other hand, the cause of concern is the fact that about 50% of women (45.74 %) having one child or no children at all and who are still of reproductive age choose to intentionally terminate pregnancies. These data are worrying due to possible consequences of such intervention on general and reproductive health (infertility). Thus, not only education on types of contraceptives, but education on harmful effects of induced abortions is required as well. It is necessary to raise awareness in young women that abortion is not a contraceptive method, but a necessary evil from unplanned pregnancy performed by invasive gynecology intervention that may have early and late consequences on women's health.

Better electronic medical recording and storing enables a more precise insight into abortion rates worldwide. It has been noted that the number of legal abortions has declined in many countries, especially in eastern European countries and Central Asian countries where the abortion rates were among the highest in the world. Out of overall number of countries, the highest rate is in Armenia, Azerbaijan and Georgia where most women have had even three induced abortions in their life. Contrary to these data, abortion rate is increasing in the Netherlands and New Zealand. In China there is a decline in abortion incidence for 21% although this country had third highest rate of legal abortions in the world in 1996 (19). Abortion incidence declined in America in the late 1990-s, and significant, but still not sufficiently applied

abortion method in the first trimester of pregnancies has become medical in comparison to surgical method since 2001 (20). In comparison to these earlier researches, the latest ones using electronic databases and surveys revealed that out of 77 countries with liberal abortion laws, even 33 are developing countries. Abortion rate has declined in many developed countries, while in developing and underdeveloped countries the rate is still increasing and the way of collecting and processing data is not an adequate one. These data indicate the need for better family planning, health education for women and better technical possibilities for statistical data processing as well (21).

Unsafe or criminal abortions are performed by unqualified and unskilled providers and often take place in unhygienic and inadequate conditions for such interventions. Unfortunately, this kind of induced abortion is still present, mostly in countries lacking legal abortion laws, Sub Sahara Africa, Latin America, in South and Southeast Asia. They are mostly developing countries with rigid social, ethic and religious dogmas concerning induced abortion. Women in these countries lack contraception methods education, they are inferior to their partners, have poor socioeconomic status and are in conflict with existing social norms. Thus, they choose unqualified providers to perform the intervention, usually discretely conducted in unsanitary home conditions. So, legalization of abortion and social norms change, as well as health education of women would decrease the incidence of unsafe abortions in these countries and the rate of maternal morbidity as well (22). There are no unsafe abortions in Serbia since induced abortions are legalized, so this intervention is legally performed in adequate medical facilities.

One of the countries with unsafe abortions is Mexico where Koch et al conducted a research during a period of ten years and found out that post-induced abortion morbidity and mortality were lower in the provinces exhibiting less permissive legislation in comparison to

provinces with more permissive abortion law. But, these differences are also consistent with different education in women, medical awareness, epidemiologic and socioeconomic conditions, fertility rate in these provinces and violence against women (23).

Ireland, both Southern and Northern, is one of the developed countries where different norms are present. Motherhood has been idealized regarding extremely rigid religious jurisdictions and patriarchy. Thousands of women from these countries are forced to go to neighbourhood countries for safe abortion - abortion tourism - due to restrictive legislation in their home countries (24).

The latest recommendations on induced abortions about the guiding principles that should be followed include explanation of the procedure and possible complications, emphatic attitude towards women, respect of the woman's autonomy, reasonable price, available information on the ways abortions are performed and medical facilities they are performed in (25).

Recent studies show that induced abortions have protective effect concerning the risk of breast cancer. One study found the connection between breast cancer and history of previous abortions, both induced and spontaneous, regardless the number of abortions, woman's age at first abortion and gestational age of the terminated pregnancy in the sense of protective effects of these factors (26).

Jun-Qing et al conducted a similar study and questionnaires were completed by women having 3 or more times induced abortions, live children, their reproductive history has been analysed, as well as their socioeconomic status and the results suggest that a history of induced abortions may not increase the risk of breast cancer (27).

According to results obtained, it can be concluded that continuing education on health issues and information on contraceptives in young population of women at the beginning of their sexual activity and in married women as well is still necessary. Besides this, male partners should also be informed and awakened to actively take part in contraception issues. Women should have better access to and information on oral contraceptives, their usage, desired and side effects as well. Comfortable settings and medical care after the intervention both in public and private health-care facilities should be equal to counterbalance the number of interventions in all health-care institutions. Of course, public health-care facilities should improve their socioeconomic conditions for future young married couples to stimulate birth rate and decrease the rate of abortions for the same reason.

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Table 1. Distribution of patients with artificial termination of pregnancy related to age

Age	Number	Percentage
< 18	23	1.27
18 - 25	412	22.90
26 - 36	1009	56.08
> 36	355	19.73
Total	1799	100

Table 2. Distribution of patients with artificial termination of pregnancy related to marital status

Matrrial status	Number	Percentage
Married	1451	80.65
Single	348	19.34
Total	1799	100

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Table 3. Distribution of patients with artificial termination of pregnancy related to age and marital status

Age Matrrial status	<18 ages		18- 25 ages		26- 36 ages		>36 ages		Total	Percentage
	Percentage		Percentage		Percentage		Percentage			
Married	9	39.13	191	46.31	912	90.38	331	93.23	1451	80.65
Single	14	60.86	221	53.64	97	9.61	16	4.5	348	19.34
Total	23	100	412	100	1009	100	355	100	1799	100

Table 4. Distribution of patients with artificial termination of pregnancy related to the number of deliveries

Number of deliveries	Number	Percentage
0	418	23.23
1	405	22.5
> 1	976	54.25
Total	1799	100

Table 5. Distribution of patients with artificial termination of pregnancy related to previous induced abortions

Previous induced abortions	Number	Percentage
0	796	44.24
< 2	738	41.10
> 2	265	14.73
Total	1799	100

Table 6. Distribution of patients with artificial termination of pregnancy related to previous induced abortions and age

Number of artefital abortions	Number of artefital abortions		Number of artefital abortions		Number of artefital abortions	
	Number	Percentage	Number	Percentage	Number	Percentage
Age	0	%	< 2	%	> 2	%
< 18	22	95.65	1	4.34	0	0
18-25	295	71.60	100	24.27	17	4.12
26-36	391	38.71	458	45.31	160	15.85
> 36	88	24.78	179	50.42	88	24.78
Total	796	44.24	738	41.10	265	14.73

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Table 7. Distribution of patients with artificial termination of pregnancy related to number of deliveries and age

Number of deliveries	Number		Percentage		Number		Percentage		Total	Percentage
	0	%	1	%	>1	%				
Age							Broj	%		
< 18	16	69.56	5	21.73	2	8.69	23	1.27		
18-25	249	60.43	72	17.42	91	22.08	412	22.90		
26-36	136	13.47	252	24.97	621	61.54	1009	56.08		
> 36	17	4.78	76	21.40	262	73.80	355	19.73		
Total	418	23.23	405	22.51	976	54.28	1799	100		

Table 8. Distribution of induced abortions related to gestation weeks of terminated pregnancy

Gestation weeks	Number	Percentage
< 6	56	3.11
6-8	1571	87.32
>8	172	9.56
Total	1799	100

Table 9. Distribution of induced abortions related to women's age and gestation weeks of terminated pregnancy

Gestation weeks	Number	Percentage	Number	Percentage	Number	Percentage	Total	Percentage
Age	< 6 weeks	%	6-8 weeks	%	> 8 weeks	%	Number	%
< 18	1	4.34	19	82.60	3	13.04	23	1.27
18-25	8	1.94	350	84.95	54	13.10	412	22.90
26-36	28	2.77	901	89.29	80	7.92	1009	56.08
>36	19	5.35	301	84.78	35	9.85	355	19.73
Total	56	3.11	1571	87.32	172	9.56	1799	100

Table 10. Distribution of induced abortions related to health-care facility where abortions have been performed

Health-care facility	Number	Percentage
Public	168	9.32
Private	1631	90.66
Total	1799	100