

Exploring the Knowledge, Attitudes and Use of Contraception Methods in Relation to Unintended Pregnancy, an Experience from the Republic of Moldova

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Abstract

Background: The results of the MICS study in the Republic of Moldova show that 7% of 15–19 year-old women have already started their sexual life, of which 5% have already given birth. Since the number of women using modern methods of contraception is suboptimal, unintended pregnancies remain a persistent problem in Moldova.

Methods: We have conducted a hospital based study in the largest maternity in Moldova. Women who gave birth 24–72 hours before were included as study participants and were divided into two groups - group # 1, in which the pregnancy was unplanned but was accepted psychologically and women gave birth and group # 2 which covered the women who consciously did not use contraception because they were planning a pregnancy.

Results: The results of the study showed that 50.6% of the respondents started their sexual life at the age of ≤ 18 but only 34.2% of the total number of these women started using a contraceptive method along with the onset of sexual life. The results of the study showed that only 54.4% of the pregnancies were planned. Besides the fact that $54.0 \pm 2.9\%$ of the women in the postpartum period were not planning a pregnancy, 10.4% of women would not use any contraceptive method after discharge from maternity. Thus, in the event of an unwanted pregnancy in the future – 17% of women will have an abortion done, and 82.6% of women will accept unwanted pregnancy and will give birth. The most frequently cited reasons for women not to use a contraceptive method when not planning pregnancy were: fear of side effects – 14.6%, insufficient knowledge of different methods of contraception – 5.8%, increased cost of contraception – 8.8%.

Conclusions: The results of the study showed that only half of the pregnancies that ended up with delivery were planned, the other half occurring spontaneously, following the unuse of a contraceptive method.

Trial registration number ISRCTN10397992

Plain English summary

The article presents data on the analysis about awareness, attitudes and use of contraception methods among 600 women who were admitted in the hospital where they gave birth 24-72 hours before. Women answered a list of questions about the contraception methods they know and used before this pregnancy, whether the pregnancy was intended or not, and perspective of using modern contraception methods after the current birth.

Respondents started their sexual life at the age of ≤ 18 in a half of cases but only 1/3 of the total number of these women started using a contraceptive method along with the onset of sexual life. The results of the study showed that only 54.4% of the pregnancies were planned. Besides the fact that 54% of the women in the postpartum period were not planning a pregnancy in future, 10.4% of women responded that they would not use any contraceptive method after discharge from maternity. Thus, in the event of an unwanted pregnancy in the future - 17% of women will do an abortion, and 82.6% of women will accept unwanted pregnancy and will give birth. The most common contraceptive method used by the women before current pregnancy is the male condom, and 1/3 of the women will use it after giving birth, at the same time, some women plan to change the contraceptive method.

Providing information for all ages groups: adolescents, young nuliparous women, and women that already have delivered is crucial for their sexual and reproductive health.

Background

It is well known that family planning (FP) provides benefits for both maternal and fetal health. However, perinatal risks cannot be reduced only by applying family planning services, while at the same time, they can be reduced by preventing unintended pregnancies and protecting maternal health during the planned pregnancy [1].

The use of contraceptives and the unmet need for family planning are two essential indicators for assessing serious changes in fertility and for improving reproductive health worldwide. According to United States Agency for International Development (USAID), the unmet need for family planning is defined as the proportion of women who do not want to become pregnant, but do not use contraception [2]. The Demographic Health Surveys (DHS) program calculates this indicator in over 70 countries around the world, using a revised 2012 definition of unmet FP need. The calculation of this indicator is complex and does not just provide the answer to the question whether a pregnancy is planned or not, and if the contraceptive method is used [3].

Approximately 225 million women in developing regions have an unmet need for modern contraception, of whom 160 million women did not use contraception, and 65 million used a traditional method [2]. Unmet contraceptive needs have a profound impact on health. Each year, approximately 74 million unwanted pregnancies are registered in developing regions, most of which are among women who do not use contraception. According to Singh S. (2014), 52 million of these unintended pregnancies could have been avoided, thus preventing the death of 70,000 women from pregnancy-related causes if unmet needs for modern methods had been addressed [4]. Another issue that requires attention is the term when women expect to start postpartum contraception: immediately after birth (prospective indicator), after six months of amenorrhea

(intermediate marker) and at the end of amenorrhea (classic indicator). DHS data from 57 countries over the period 2005–2013 indicates that 62% (prospective), 43% (intermediate), and 32% (classic) women in the first year after birth have an unmet need for contraception [5].

According to the results of the Guttmacher Institute Report (2016), "Unmet Contraceptive Needs in Developing Countries: Examining Women's Reasons for Not Using a Method", there is no single answer to the question of why women who do not plan a pregnancy do not use contraceptives. Among the frequent reasons mentioned by married women are concerns about adverse effects and health risks, and irregular sexual life. Unmarried women do not use contraception due to rare sexual contacts (49%) because they are not married and risk societal disapproval due to their interest in contraception (29%) and fear of adverse effects (19%). Other studies have identified other barriers such as increased costs, lack of information about the action mechanism of contraception, on how to use FP methods [6].

According to United Nations Children's Fund (UNICEF) data, only 1/3 of women of reproductive age (15–49 years) in the Republic of Moldova use modern contraception methods. At the same time, women do not have access to the entire range of modern contraceptives such as hormonal implants, female condoms, combined contraceptive patch, injection methods and others [7].

Methods

The aim of the study is to assess the level of knowledge, use and uptake of using FP methods in women evaluated in the postpartum period. In order to achieve the proposed aim, the following objectives were set: determination of the occurrence of the current pregnancy: planned, unintended or failure/lack of a contraceptive method; assessing the degree of knowledge of family planning methods as one of the sexual and reproductive rights; identifying the reasons for not using a contraceptive method when not planning a pregnancy; evaluation of the perspective of using modern contraception methods after the current birth.

Participants. The cross sectional study was carried out within the Clinical Municipal Hospital no. 1 (Chisinau) by questioning 600 women, who gave birth during the year of 2019. The criteria for inclusion in the study were as follows: the informed consent of the patient, women in the postpartum period of 24–72 hours. Exclusion criteria have established the cases where pregnancy occurred after a period of couple infertility.

Study design. The cases were divided into two groups - group #1, in which the pregnancy was unplanned but was accepted psychologically and women gave birth and group #2 which covered the women who consciously did not use contraception because they were planning a pregnancy. The survey included 58 questions on general patient data, obstetric, gynaecological and extragenital anamnesis, questions about their knowledge about family planning methods, methods used up to the present pregnancy, how the pregnancy occurred (planned or not), reasons for not using a contraceptive method if they did not plan a pregnancy and the prospect of using modern contraceptives after giving birth.

Data analysis. The statistical data refer to the number of 600 cases that were investigated through the semi-structured interview method. Data analysis was done using Microsoft Excel software. Prevalence and 95% confidence intervals for prevalence estimates were calculated.

Results

In the present study we started with the analysis of the situation in contraceptive method used by women who gave birth recently, to investigate (A) The degree of information (awareness of) about contraceptive methods; (B) Contraceptive methods used during the last year before pregnancy; (C) Determining the mode of occurrence of the present pregnancy: planned, unintended or failure/lack of a contraceptive method and reasons for unmet need in FP; (D) Assessing the perspective of using modern contraception methods after the current birth.

A. We initially proposed to analyse the situation regarding *information about contraceptive methods* among the women who planned a pregnancy and among those whose pregnancy was unintended.

The age of the women included in the study ranged from 18–47 years, with the vast majority being between 21–30 ($59.3 \pm 1.7\%$) years old. At the same time, $33.1 \pm 1.6\%$ of the women, enrolled in the study, were 31–40 years old, and in six cases ($0.9 \pm 0.3\%$) the age of the patients exceeded 40.

Having analysed the obstetric anamnesis of the women under study, it was found that most of them were primiparous – $33.5 \pm 2.0\%$, secundiparous in $31.8 \pm 2.0\%$ cases and had 3 and more pregnancies in anamnesis – $34, 7 \pm 2.0\%$. At the same time, among the interviewed females, multiparous (3 and more births) were 84 women ($14.0 \pm 1.9\%$). In the past, these women had voluntary abortion in $15.4 \pm 1.3\%$ (94 women), of which 57.4% (54 cases) abortion was in place due to the fact that contraceptive methods had not been used. Miscarriages were reported by $13.4 \pm 2.1\%$ and $6.3 \pm 1.5\%$ of the surveyed women, and one female had a history of extrauterine pregnancy.

Figure 1 shows the age of onset of sexual life in women included in the study, demonstrating that approximately 50.6% of the females started their sexual life at the age of ≤ 18 , but only 34.2% of the total number started using a method of contraception simultaneously with the onset of sexual life, which denotes the importance of informing and educating adolescents about safe methods of contraception. The age group under 18 represents a risk group for both unwanted pregnancies and sexually transmitted infections, therefore informing adolescents about contraceptive methods is of high importance, and including this information in the (school) curriculum would increase the level of knowledge and training of

young people. Also, in some cases ($1.3 \pm 0.3\%$), unintended pregnancies occurred in young women who did not finish schooling. Postponing pregnancy by using a contraceptive method would have allowed these girls to finish their pre-university education.

Study data showed that, on average, it takes 2 years from the onset of sexual life to start using a contraceptive method. In women aged 15–18 years, there was a 4-5-year difference between the onset of sexual life and the beginning to use a contraceptive method, which from the start includes these women in an increased risk group for an unwanted pregnancy.

Based on the analysis about the level of information in family planning methods, it was found that only $63.7 \pm 2.7\%$ of the study respondents knew that the right to contraception or information on contraceptive methods is a state-guaranteed sexual and reproductive right as well as the right to a risk free maternity and the right to abortion. Analysing the data obtained from Pearson correlation, there was a significant positive correlation between informing on sexual reproductive rights and knowledge about such methods of contraception as implants (0.237^{**} , $p < 0.05$), combined oral contraceptives (COC) (0.136^* , $p < 0, 01$), contraceptive patch ($0,142^*$, $p < 0,01$), vaginal ring ($0,222^{**}$, $p < 0,05$), diaphragm ($0,116^*$, $p < 0,01$). This means that the patients who are aware of the notion of reproductive sexual rights and its components are better informed about the diversity of the existing contraceptive methods.

The survey questionnaire included the questions regarding informing the population about different methods of contraception. The results presented in Fig. 2 conclude that most women are familiar with: male condom (98.3%), intrauterine device (IUD) (93%), COC (88.3%), calendar methods (87.7%) and withdrawal (81%), female sterilization (78%), emergency contraception (72.3%).

The present study showed that 42.3% of the surveyed women did not have enough knowledge or never heard about the contraceptive vaginal ring - a hormonal contraceptive method available in the Republic of Moldova for about 5 years. Also, the women confused oral contraceptives with pills containing progesterone (POP) alone. The study participants/ respondents noted that only 13% of the women knew about POPs, although this method of contraception is suitable for many women, including breastfeeding mothers, right after giving birth [8]. Unfortunately, some very effective methods of contraception are not available for women in the Republic of Moldova (RM), which explains the lack of awareness of the contraceptive implant (70%), contraceptive patch (66.3%) and injectable contraceptives (55.3%). Although 55.3% of women are informed about male sterilization (vasectomy), this procedure is very rarely chosen by a partner in the RM as a contraceptive method.

Despite the fact that 92.6% of women would like to be consulted by a doctor about the methods of family planning, $62.3 \pm 2.8\%$ of them did not refer to it. At the same time, $22.7 \pm 2.5\%$ of women consulted the gynaecologist in the outpatient department, $6.0 \pm 1.2\%$ - a family doctor and $9.0 \pm 1.6\%$ of women consulted other specialists (e.g. oncologists, endocrinologists for contraception), or referred to gynaecologist in private consultations.

According to the study results, $82.3 \pm 2.2\%$ of women choose family planning methods by discussing in couple and $16.0 \pm 2.0\%$ consider that only women are responsible for choosing the contraceptive method.

Women were asked how comfortable they feel when discussing contraceptive methods. Thus, $17.1 \pm 2.3\%$ of women considered that they felt themselves uncomfortable during discussions about contraceptive methods, and the majority (81 cases, 79.4%) responded that contraception is too intimate to discuss with someone. At the same time, $80.0 \pm 2.3\%$ of women discussed contraception with their partner and $69.3 \pm 2.6\%$ talked to their mother, sister, or friends.

Taking into consideration the fact that the population of the RM is not informed enough about the effectiveness of contraceptive methods, that information being obtained from unreliable not evidence-based sources, we have proposed to determine which method from the perspective of the women included in the study is the most effective one. We also asked about what method of contraception they would recommend to a friend (Table 1).

Table 1
Efficiency of contraceptive methods in women surveyed (%).

	Considered to be the most efficient method (%)	Method you would recommend to a friend (%)
Male condom	39%	44%
COC	24.7%	28.7%
IUD	16.7%	13.7%
Do not know	7.7%	7.7%
Abstinence	2.4%	0%
Withdrawal	2.3%	1.7%
Female sterilization	2.3%	0%
Implants	1%	1.3%
Vaginal ring	0.7%	0.3%
Fertility awareness methods	0.7%	0%
Spermicides	0.7%	0.7%
Combined methods	0.6%	0.6%
Emergency contraception	0.3%	0.3%
Injectable contraceptives	0.3%	0.7%
Diaphragm	0.3%	0.3%
Vasectomy	0.3%	0%

During the questionnaire, the women were informed about Multiple Indicator Cluster Survey (MICS) data, 2012, according to which about 40% of Moldovan women do not use a modern method of contraception. Being asked about the reasons for not using contraception, most women (65.3%) responded that the underlying reason is the lack of sufficient knowledge about different contraceptive methods, 27.0% of women consider that contraceptive methods are costly, 20.3% do not want to use contraception, while 5.3% think that they can do an abortion in case of unwanted pregnancy (Fig. 4). Several women gave more than one answer to this question, the total amount thereby exceeding 100%.

B. In addition to assessing the level of information about PF methods, we intended to find out *which contraceptive methods the women had used in the last year*, both the women who planned pregnancy (Group #2) and those who did not (Group #1.) (Fig. 5).

Following the data analysis and semi-structured interviews, we have found that $60 \pm 2.6\%$ of the women surveyed did not have a permanent contraceptive method although they periodically used one of the methods listed in Fig. 5 during the last year before pregnancy. Thus, even though the women mentioned, for instance, the use of a male condom, they also confirmed that they had had unprotected sex contacts periodically. Thus, we can conclude that the women in the study used a modern contraceptive method in 53.0% cases, in 28.3% cases they used a traditional method, and in 18.7% of cases they had never used a contraceptive method (Table 2).

Table 2
Use of modern vs. traditional contraception methods during the last year before pregnancy (planned or unintended) (abs.,%).

FP methods	N (abs.)	M \pm m (%)
Modern FP methods	318	53.0 \pm 2.8
Traditional FP methods (withdrawal and fertility awareness methods)	170	28.3 \pm 2.0
They have never used a FP method over the course of their life	112	18.7 \pm 2.2

Although most of the couples used male condom ($36.2 \pm 2.7\%$), the second place goes to withdrawal ($14.1 \pm 2.1\%$), while COC and IUD were by used 8.7% and 5.4% of the participants. Women using withdrawal as a contraceptive base method face a higher risk of unwanted pregnancy than women using other modern methods as traditional methods have higher failure rates [9].

Mention should be made that only in 5.4% cases the LARC, a long-term reversible contraception method, was used In $8.2 \pm 1.4\%$, the women used combined methods: "fertility awareness methods + withdrawal" - 4%, "COC + male condom" - 1.3%.

While $19.7 \pm 1.9\%$ of women used emergency contraception at least once in their lifetime, 1% of the interviewed patients used emergency contraception as the main or single method of contraception. Of the total number of women who used emergency contraception at least once in their lifetime, about 68% turned to this method because of unprotected sexual contact, 18% because they did not have a permanent method, and 12% reported the failure of other contraceptive methods used (tearing, condom slipping).

Regarding women's satisfaction with contraceptive methods, $58.3 \pm 2.8\%$ of the women reported that they were totally satisfied with the chosen contraceptive method, $25.0 \pm 2.5\%$ were partially satisfied and $3.0 \pm 1.0\%$ were not satisfied with the family planning method used. Based on the obtained data, there was tracked a positive correlation between the patients' satisfaction with the chosen contraceptive method and whether the patients discuss the family planning methods with their partners (Pearson correlation 0.228 **, $p < 0.05$). Regarding the women with unmet, or partial satisfaction with the chosen contraceptive method, $13.3\% \pm 1.9\%$ of the respondents argued that they were afraid that the chosen method could fail, $5.0 \pm 1.3\%$ of the women mentioned that the method was inconvenient in use, and in $3.7 \pm 1.0\%$ of cases the women's partners did not like the chosen method.

C. At this stage of the analysis, we proposed to divide women into two groups: those who had not planned the pregnancy, but once they learnt they were pregnant, they chose not to interrupt the pregnancy and to give birth - Group #1, and those who became pregnant due to planning - Group #2. Group #2 included 326 women, representing $54.4 \pm 2.9\%$ of the women who were planning pregnancy, and the use of contraception was consciously abandoned.

Group #1 study cases, that make up 274 ($45.6 \pm 2.9\%$) of the women are of special interest (Table 3). Despite the fact that the present pregnancy was not planned, only 1% of women believe that the contraceptive method used had failed. It is worth mentioning that 2 patients who abandoned postpartum children were included in the study, in both cases the women had not used any contraceptive method, and in one case the patient had been deprived of parental rights over her older child.

In the studied group of 274 women who did not plan pregnancy 26.7% used modern contraception methods and 25.2% used traditional methods of contraception (Table 3). Given the high Pearl index of modern contraceptive methods, the use of the method was probably sporadic or incorrect. On the other hand, according to the results of the study, a more commonly used contraceptive method is the male condom, which has an efficacy of 15–18 pregnancies per 100 women in the first year of use, according to World health organization (WHO) data. To that end, unintended pregnancies could be explained by the fact that most of the women included in the study chose a method with moderate efficacy [9]. The most effective methods are long-term reversible contraception methods, namely IUDs and implants that have an efficacy of less than 1 per 100 women in a year of use. Since the implant is not available in the RM, the IUD remains the only long-term reversible contraceptive method, which a small number of women have chosen.

Table 3
Use of contraceptive methods before pregnancy occurred: women from Group #1 and Group #2 (%).

Group of the study	Use of FP methods	%
Group #1: Women who did not planned a pregnancy, but remained pregnant 45.6%	Did not use any FP method	47.1%
	Used modern contraception methods	26.7%
	Used traditional methods of contraception	25.2%
	The failure of a modern contraception method	1%
Group #2: Women who planned a pregnancy 54.4%	Did not use any FP method	14.1%
	Abandoned modern contraception methods	55.9%
	Abandoned traditional contraception	30%

One of the objectives of the study was to determine the reasons for not using contraception despite the fact that they wanted to avoid a pregnancy. In this study, we did not use the classical methods of calculating the unmet need for contraception by questioning fertile women, but decided to analyse the situation from a different angle, from the perspective of women who recently gave birth and admit that pregnancy was not planned and has occurred spontaneously, following the non-use of a contraceptive method. Therefore, the analysis of the unmet need in this study is limited to the women who have recognized that they did not used any contraceptive method. Thus, women in the study responded with no contraception in 47.1% (129 women), and $24.1 \pm 2.2\%$ of them (31 women) never used any contraceptive method.

Analysis of the data from Group #1 showed that 47.1% (129 women) of women did not consistently use contraceptives in the last year, although they did not plan a pregnancy. Some of them mentioned that they had sporadically used a contraceptive method, at the same time confirming that they had unprotected sexual contacts.

When asked about the reasons for not using permanent contraception, about 50% of the women did not provide any reason, either because of feeling uncomfortable to answer the question of the kind or because they did not have well-defined reproductive plans. Thus, $5.8 \pm 0.8\%$ claimed

they did not have enough knowledge about different methods of contraception, 14.6% were afraid of adverse effects, $8.8 \pm 0.8\%$ of the respondents reported the increased cost of contraception, $6.6 \pm 1.1\%$ considered family planning methods inconvenient to use, in $2.2 \pm 0.8\%$ the partner did not want to use contraception, while 1.4% of the women did not use contraception for religious reasons. Comparing the results of the present study with those of the Guttmacher report, the reasons listed by women in the Republic of Moldova did not reveal the rare sexual intercourse and the fear of social disapproval, especially for unmarried women, this being determined by the socio-cultural context of the country [6]. At the same time, it is interesting to observe that in the RM the role of a partner and his opinion is very important for a woman, and rarely, in $2.2 \pm 0.8\%$ of cases, women accuse the partner of non-contraception.

Identifying these reasons is crucial because these unmet needs must be met, and national health and educational programmes must be specifically geared towards removing barriers and motives listed by the women in the socio-economic context of the country.

D. Another section of the study was to analyse the future use of birth control methods in both groups (N = 600). Thus, 274 ($46.0 \pm 2.8\%$) women plan a pregnancy, of which 56.9% - over 1–3 years, and 34.3% over the next 4–8 years. Interestingly, not a single woman plans a pregnancy within next 12 months. International estimates of the unmet need for postpartum contraception are up to 62% in the first year after birth [10]. Thus, the gap between pregnancies is important for women, and should be considered during consulting on contraceptive methods. According to WHO, after birth per vias naturales, the recommended interval until the next pregnancy is at least 24 months to reduce the risks of maternal, perinatal and infant negative effects [11].

At the same time, despite the fact that $54.0 \pm 2.9\%$ of the women under study no longer plan a pregnancy, 10.4% of them do not want to use any contraceptive method. However, other women plan to use one of the following methods: male condom – $33.2 \pm 2.7\%$, IUD – $24.5 \pm 2.5\%$, COC – $15.8 \pm 2.0\%$, as well as FP methods after current birth. Male condom remains one of the most popular methods used by the women included in the study, being a modern method with lesser efficacy though than other contraceptive methods such as IUD or hormonal methods. Among the advantages of using this method of contraception we can mention the protection of sexually transmitted infections.

Analysing the correlation between pre-pregnancy contraceptive methods and the use of contraceptives after the current birth, we can conclude that the majority of the women included in the study will use the same postpartum contraceptive method as before (Pearson correlation 0.240 **, $p < 0.05$). However, some women plan to change the contraceptive method. We analysed the male condom use data because, according to the questionnaire, it is considered to be the most requested method for the women in the study. Thus, out of 218 women, who used male condoms before pregnancy, 124 women (56.8%) stated they will continue using the method, 40 women (18.3%) will change it for IUD, 36 women (16.5%) will use COC, 2 women (0.9%) - the vaginal ring, and 2 women (0.9%) have already chosen female sterilization during birth (caesarean section).

When asked about an unintended pregnancy, despite the fact that $54.0 \pm 2.9\%$ no longer planned a pregnancy, $82.6 \pm 2.3\%$ of the women in the study responded that they would accept an unwanted pregnancy and would give birth.

The postpartum period is an ideal time to access contraceptive services, as women are certainly not pregnant, motivated to initiate contraception and receive qualified health care from providers. It is necessary to take into account women's desire for a gap between pregnancies, their preferences for contraceptive options, breastfeeding at the moment [10].

Discussion

In the Multiple Indicator Cluster Survey (MICS), undertaken in Moldova in 2012, women were offered a set of questions to assess the level of knowledge about family planning, access to and use of contraceptive methods, which in turn allows to exercise sexual reproductive rights. Women aged 15–49 were interviewed. The most common modern method of family planning is male condom (99%), followed by COC and IUD – 96% in both cases. Among the traditional methods, the most well-known is withdrawal (85%). Young (15–24 year old) women use contraception less often than older women, except for those aged 45–49 years.

Only 45% of women 15–19 years-old and 55% 20–24 years-old are currently using a contraceptive method compared to 63–70% of women aged 25–44 years. The current use of contraceptive methods was reported by 60% of women in partnership, the most popular method being the IUD, which is used by 20% of married women, followed by the withdrawal (13%). Five percent of women reported the use of COCs and 12% mentioned male condom use. A small number of women use periodic abstinence (3%), female sterilization (4%), spermicides (less than 1%). Also, 10% of women in Moldova reported unmet contraceptive needs. The need to space births is at a higher level in urban areas – 29% compared to rural ones – 21%, while the need for “limitation” is higher in rural areas – 40% compared to urban ones – 29% [12].

Since the number of women using modern methods of contraception is suboptimal, unintended pregnancies remains a persistent problem in Moldova. However, the number of abortions in the Republic of Moldova decreased from 14511 in 2013 to 10830 in 2018 [13].

Pregnancy interruption among teenagers is of great interest, and is an important indicator of sexual education and contraceptive use among young women and men. Figure 6 shows the total number of abortions in adolescents of different age groups. It was determined that in the age group of

"less than 15 years" and "15–17 years" the number of abortions remained almost constant, while in the 18–19 age group there is a tendency of decrease in number of abortions.

Although there exist potential pregnancy risks, regardless of the mother's age, adolescent pregnancies are associated with higher obstetric and perinatal risks, especially for those under the age of 15. A prospective study in the Republic of Moldova (2013–2017), on a group of 126 pregnant adolescents (under 18 years), showed that the average age of pregnant adolescents was 16.5 years. Adolescents began sexual life early, averaging 15.5 years, and had unprotected sexual contacts in 59.5% of cases. As a result, a high frequency of unplanned but psychologically acceptable pregnancies was determined – 69 ($54.8 \pm 4.4\%$, $p < 0.001$) and unwanted in 8 ($6.3 \pm 2.2\%$) cases. Adolescent pregnancies have evolved with a background of stress due to the insufficiency of neuropsychological development and the socially vulnerable status of mothers, at the same time associated with a statistically significant high level of neurotic and psychological states: depression – 55.9%, anxiety – 50.0%, etc. [14].

The results of the MICS study in the Republic of Moldova show that 7% of 15–19 year-old women have already started their sexual life, of which 5% have already given birth and 2% are currently pregnant with their first child. Less than 1% of the teenagers surveyed had a birth before the age of 15 [12].

The data from the Health behaviour in school-aged children (HBSC) Survey in 2014 report that most adolescents use male condom and withdrawal as contraceptive methods followed by combined oral contraceptives – COC as the third option. According to the aforementioned report, the difference in girls' and boys' answers can be explained by over-reporting by boys of sexual experience and the view that the girl will take responsibility for choosing the contraceptive method [15].

Based on the analysis of the data of the Confidential Survey on maternal deaths, 49 maternal deaths were registered in the Republic of Moldova during 2009–2013, of which 2 occurred in the early pregnancy. In previous report (2006–2008) – 3 deaths occurred in early pregnancy (extra-hospital abortions) which were included in the "Obstetric haemorrhages" and "Sepsis" section of the given research. Considering the fact that deaths occurred in women with unintended pregnancies (extra-hospital abortions), we can assume that the use of a contraceptive method by these women could have changed the evolution of these cases [1, 16].

According to the definition of Reproductive Health, Family Planning involves a conscious choice of the number of children, the interval between pregnancies and the time of birth of the children in the family [17]. Therefore, in order to exercise this right, every person must have access to information and qualified family planning services, including modern contraception [17]. In the Republic of Moldova until 2014, contraceptives used to be donated by international organisations, such as the UN Population Fund (UNFPA). Only the 2014 Action Plan on offering free contraceptives for vulnerable population groups was approved, which provides for the development of contraceptive lists with cost estimates taking into account the needs of socially vulnerable groups [18].

Under the contraceptive insurance regulation, there are seven groups of contraceptive beneficiaries, registered at the family doctor's office who can receive free family planning methods. Those include: adolescents, people with low-income, HIV-positive, alcohol abusers, abusers of drugs or other psychotropic substances documented by narcologist (those registered in a narcological dispensary), persons with disability associated with mental disorders, victims of sexual abuse (for emergency contraception), women who had abortion during last year [18, 19]. At the same time, women, who are not included into the list of recipients, have to buy contraceptives by themselves. In most countries in Europe (France, United Kingdom, Portugal) contraceptives are provided free of charge to all reproductive age groups who require contraception [20].

In order to facilitate access to family planning services in Moldova, taking as an example the developed countries, more than 300 urban and rural family doctors were trained in the use of contraceptive methods during in 2016. Thus, rural women can get a consultation about contraception at their family doctor and they no longer have to ask the gynaecologist for family planning. These changes have increased women's access to contraceptive services, but have also empowered family doctors by offering a wider range of services. Also, a number of standardized family planning protocols for family doctors and gynaecologists have been developed so far, based on the WHO Guidelines. These protocols contain medical eligibility criteria for the use of contraceptive methods, which makes it easier for a family doctor to choose a suitable contraceptive method without risk for couples. At the same time, some family doctors have been reluctant to offer FP services so far, because historically in the Republic of Moldova they have been offered only by gynaecologists. [8, 21, 22].

Conclusions

1. The results of the study showed that 50.6% of the respondents started their sexual life at the age of ≤ 18 but only 34.2% of the total number of these women started using a contraceptive method along with the onset of sexual life. In the age group of 15–18 years, it takes 4–5 years from the onset of sexual life to the time of initiation of using a contraceptive method, which indicates the absence of a program on sexual education at schools.
2. Although women would like a doctor to be a true source of information in the field of PF in 92%, the most popular source of information remains the Internet – 68%. Despite the fact that 92.6% of the women would like to be consulted by a doctor on of family planning methods, $62.3 \pm 2.8\%$ of them did not refer to him/her.

3. Most couples used a male condom ($36.2 \pm 2.7\%$), the second place goes to withdrawal ($14.1 \pm 2.1\%$), COC and IUD used by 8.7% and 5.4% of couples. In addition to the fact that the most commonly used method of contraception by women included in the study is male condom, it is considered to be the most effective method by most women – 39%, and 44% of women would recommend this method to a friend.
4. In 53.0%, the women used a modern method of contraception, 28.3% used a traditional method, and 18.7% never used contraception.
5. The results of the study showed that only 54.4% of the pregnancies were planned, and that in 45.6% cases the pregnancies were not planned, they occurred spontaneously, following the unused of contraceptive methods, but were accepted psychologically and ended with a birth. Among 45.6% of cases, in about $\frac{1}{2}$ of the cases pregnancies occurred unplanned in women who did not use any FP method, in about $\frac{1}{4}$ cases among women who used traditional contraceptive methods and in a 1% due to the failure of a modern contraceptive method.
6. The most frequently cited reasons for women not to use a contraceptive method when not planning pregnancy were: fear of side effects – 14.6%, insufficient knowledge of different methods of contraception – 5.8%, increased cost of contraception – 8.8%, inconvenience in use – 6.0%, the partner did not want to use contraception in 2.2% and 1.4% of women did not use methods of contraception for religious reasons.
7. After giving birth, $46.0 \pm 2.8\%$ (274 women) responded that they were planning a pregnancy in future, of which 56.9% are planning a pregnancy in 1–3 years and 34.3% for the next 4–8 years and no one was planning a pregnancy within next 12 months.
8. Besides the fact that $54.0 \pm 2.9\%$ of the women in the postpartum period were not planning a pregnancy, 10.4% of women responded that they would not use any contraceptive method after discharge from maternity. Thus, in the event of an unwanted pregnancy in the future, 17% of those women will do an abortion, and 82.6% will accept unwanted pregnancy and will give birth.

Abbreviations

COC: combined oral contraceptives; DHS: Demographic Health Surveys; FP: family planning; HBSC: Health behaviour in school-aged children; IUD: intrauterine device; LARC: long-term reversible contraception method; MICS: Multiple Indicator Cluster Survey; POP: pills containing progesterone alone; RM: Republic of Moldova; UNFPA: United Nations Population Fund; UNICEF: United Nations Children's Fund; USAID: United States Agency for International Development; WHO: World health organization.

Declarations

Ethics approval and consent to participate

All females provided informed written consent to participate in this study. Ethics approval was obtained from the Institutional review board of Municipal Hospital no.1 on 11.02.2019.

Consent for publication

Not applicable.

Availability of data materials

All data sets analyses during this study available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

IS perceived the study and helped in design, data analysis and interpretation. Analyzed and interpreted data and wrote the manuscript. OC and MC participated in planning, data collection and database preparation. OC helped in finalizing and editing the manuscript. All authors approved the final manuscript.

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Figures

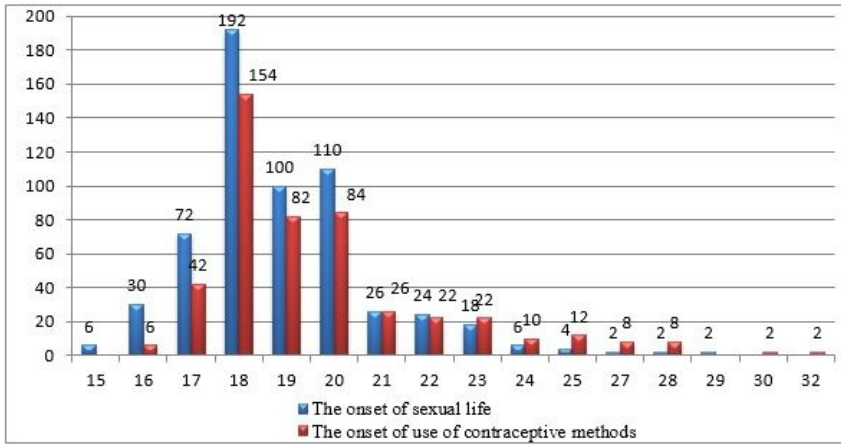


Figure 1

The onset of sexual life and the use of contraceptive methods (abs).

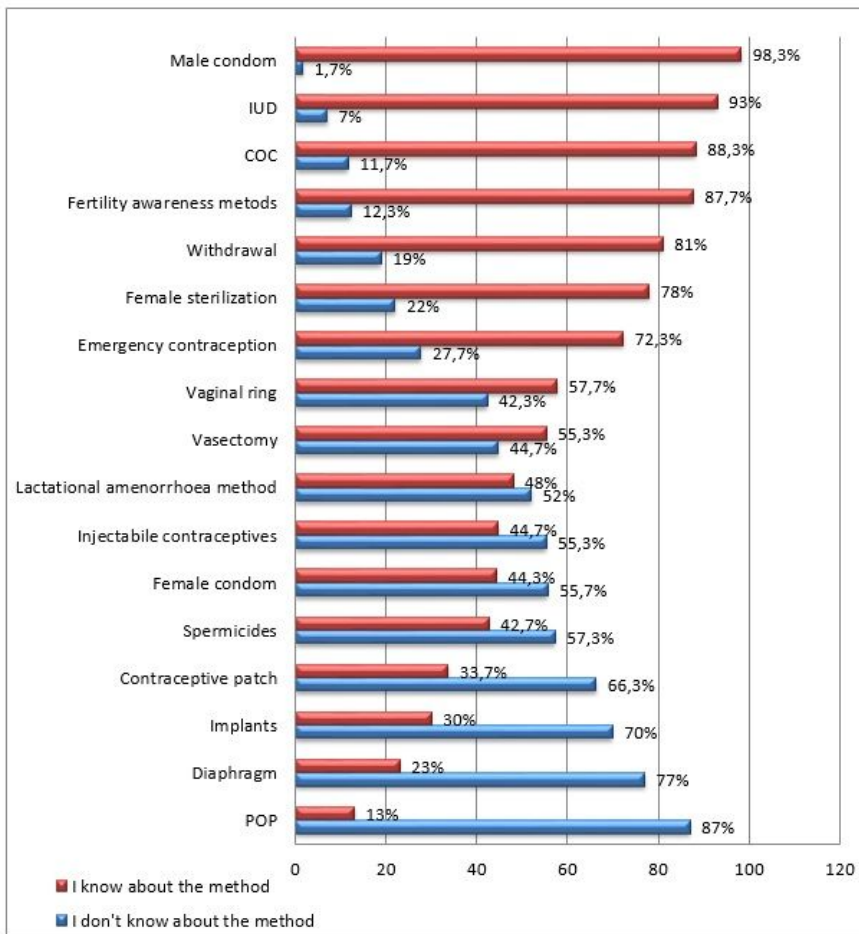


Figure 2

Assessing the level of patients' awareness of different methods of contraception (%).

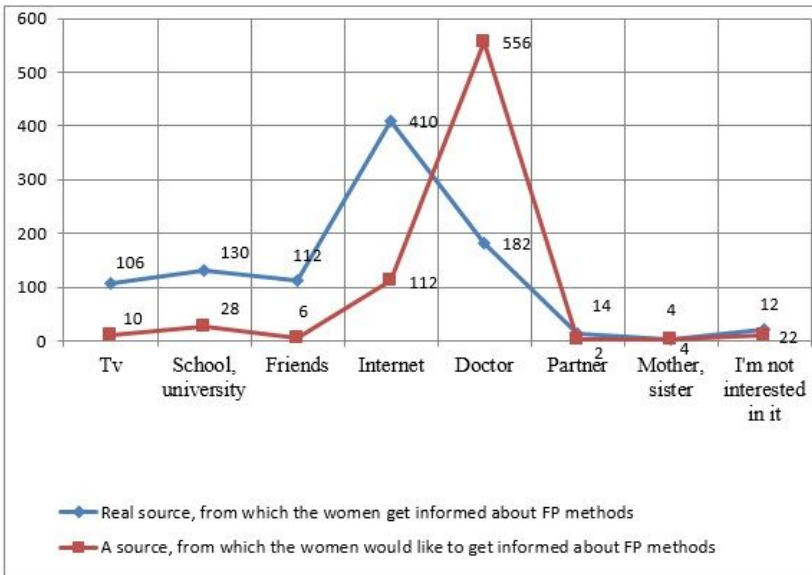


Figure 3

Information sources (abs).

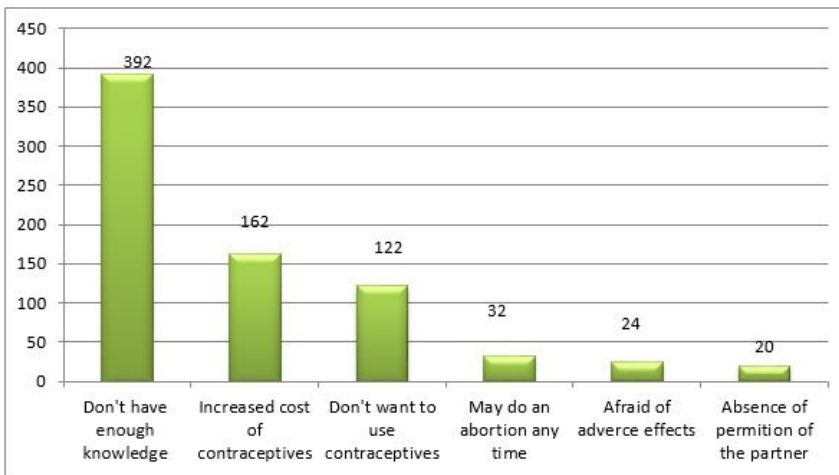


Figure 4

Patients' opinion about the cause of not using modern contraception methods in the RM (abs).

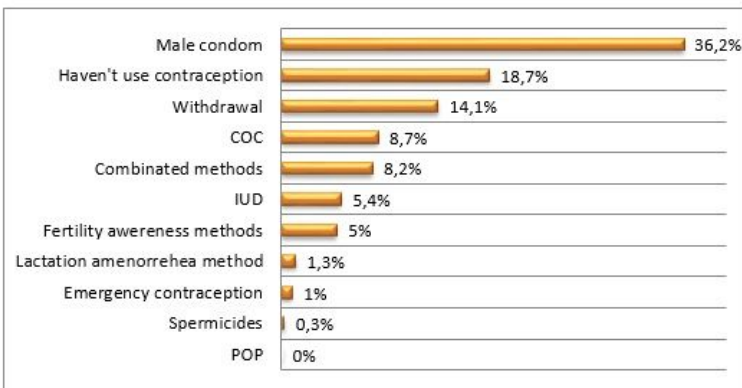


Figure 5

Use contraceptive methods during the last year before pregnancy (planned or unplanned) (%).

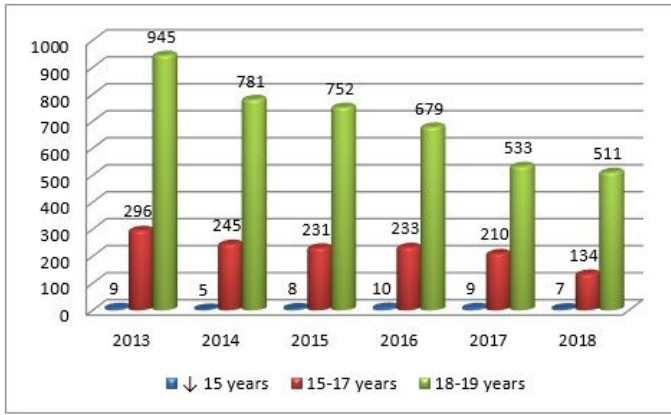


Figure 6

The number of abortions in adolescent pregnancy during 2013-2018 (abs).