

## MEDICAL AND SOCIAL REPRODUCTIVE HEALTH ISSUES FACED BY TODAY'S SCHOOLGIRLS

Solovyova YuV 


National Medical Research Center for Children's Health, Moscow, Russia

Protection of the schoolgirls' reproductive health that often depends on many factors, one way or another associated with low awareness of the issue, is a global priority in modern society. The study was aimed to assess the factors that affect reproductive health of the school-age girls. An online questionnaire survey of 100 girls aged 15–18 aimed at detecting reproductive health problems was carried out in Moscow. The average age of menarche was  $12.3 \pm 1.2$  years, however, there were girls, who had menarche at the age of 10 years (10%), and those, who had menarche after the age of 14 (7%), among schoolgirls. Blood spotting between periods was observed in 21% and pelvic pain in 44% of schoolgirls; 81% had severe pain. Irritability, aggression, easy crying, rapid fatigue, and faintness before and during the periods were reported by 98%; swelling, weight gain, abdominal distension, constipation, diarrhea, breast engorgement and soreness were reported by 73%; headache, vertigo, nausea, vomiting, insomnia, increased sensitivity to smell and sound were noted by 50%; high blood pressure, heart-related pain, increased heart rate, panic attacks were reported by 21%; menstrual disorders were observed in 16% of school-age girls. The study showed that 60% of schoolgirls demonstrated medium awareness, 28% showed high awareness, and 12% had insufficient knowledge about reproductive health. The schoolgirls' insufficient awareness of the reproductive health-related issues is a major medical and social challenge that can negatively affect the schoolgirls' reproductive health and cause not only various reproductive system disorders, but also reproductive losses and even infertility later in life.

**Keywords:** reproductive health, preventive care, schoolgirls, awareness, menstrual disorder

**Author contribution:** Solovyova YuV — literature review, manuscript writing.

**Compliance with ethical standards:** all schoolgirls submitted the informed consent to study participation.

 **Correspondence should be addressed:** Yulia V. Solovyova  
Lomonosovsky prospect, 2, bld. 1, Moscow, 119296, Russia; yula\_24@mail.ru

**Received:** 18.02.2023 **Accepted:** 14.03.2023 **Published online:** 04.04.2023

**DOI:** 10.24075/rbh.2023.065

## МЕДИКО-СОЦИАЛЬНЫЕ ПРОБЛЕМЫ РЕПРОДУКТИВНОГО ЗДОРОВЬЯ СОВРЕМЕННЫХ ШКОЛЬНИЦ

Ю. В. Соловьева 


Национальный медицинский исследовательский центр здоровья детей, Москва, Россия

Одной из основных глобальных задач современного общества является охрана репродуктивного здоровья школьниц, которое часто зависит от многих факторов, так или иначе связанных с низким уровнем информированности в этой сфере. Целью исследования было оценить факторы, влияющие на репродуктивное здоровье девочек школьного возраста. В г. Москве было проведено онлайн-анкетирование 100 девочек 15–18 лет, направленное на выявление проблем с репродуктивным здоровьем. Средний возраст начала менструации составил  $12,3 \pm 1,2$  лет, однако среди школьниц были девочки, у которых первая менструация наступила в 10 лет (10%), а также девочки, у которых она наступила после 14 лет (7%). Появление кровянистых выделений в период между менструациями наблюдалось у 21%, боли внизу живота — у 44% школьниц, при этом у 81% были выраженные боли. Раздражительность, агрессивность, плаксивость, быстрая утомляемость, слабость перед началом и во время менструации наблюдались у 98%, отеки, увеличение массы тела, вздутие живота, запоры, поносы, нагрубание и болезненность молочных желез — у 73%, головные боли, головокружение, тошнота, рвота, бессонница, повышенная чувствительность к запахам и звукам — у 50%, повышение артериального давления, боли в сердце, учащение сердцебиения, наличие панических атак — у 21%, а проблемы с менструальным циклом — у 16% девочек школьного возраста. Исследование показало, что среди школьниц 60% имеют средний уровень осведомленности, 28% — высокий уровень осведомленности, а 12% — недостаточные знания в области репродуктивного здоровья. Недостаточная осведомленность девочек-школьниц по вопросам репродуктивного здоровья представляет собой одну из основных медико-социальных проблем, которая может отрицательно сказаться на репродуктивном здоровье школьниц и в дальнейшем стать причиной не только различных заболеваний репродуктивной системы, но также репродуктивных потерь и даже бесплодия.

**Ключевые слова:** репродуктивное здоровье, профилактика, школьницы, осведомленность, нарушения менструального цикла

**Вклад авторов:** Ю. В. Соловьева — анализ литературных данных, написание статьи.

**Соблюдение этических стандартов:** все школьницы подписали добровольное информированное согласие на участие в исследовании.

 **Для корреспонденции:** Юлия Валерьевна Соловьева  
Ломоносовский проспект, д. 2, стр. 1, г. Москва, 119296, Россия; yula\_24@mail.ru

**Статья получена:** 18.02.2023 **Статья принята к печати:** 14.03.2023 **Опубликована онлайн:** 04.04.2023

**DOI:** 10.24075/rbh.2023.065

Currently, the schoolgirls' reproductive health protection is a global priority. Since the birth rate is low, the first and foremost task now is to minimize reproductive losses, both fetal and maternal, that is why it is necessary to develop and improve the measures aimed at preventing reproductive system disorders in girls as early as school age, before the onset of menarche [1–9].

The measures to preserve the schoolgirls' reproductive health should include primary and secondary prevention, including prevention of cancer. Among these are vaccination of girls and women of childbearing age against human papillomavirus within the established time frame, and hygienic

measures focused on reproductive health preservation, such as lack of hypothermia, stress elimination, timely and seasonal prevention and treatment of respiratory and urinary tract disorders, omitting piercing and tattoos in this part of the body, omitting the same-sex sexual contacts, frequently changing partners or having multiple sexual partners, frequent change of underwear and bed linen, preference for cotton underwear, careful choice of contraceptive method for girls. It is important to adhere to the correct diet, since gut microbiota alterations usually result in alterations of urogenital microbiota as well. Thus, for example, the study involving women with nonspecific vulvovaginitis revealed the increased abundance

of gut microbiota (*Escherichia coli*, *Klebsiella spp.*, *Enterobacter spp.*, *Proteus mirabilis*, *Morganella morganii*), which could be due to inflammatory disease of the gastrointestinal tract, individual structural features or poor personal hygiene [10, 11]. The other researchers proved that the increased abundance of staphylococci and streptococci in the urogenital tract could cause endometriosis, urogenital tract infection and spontaneous abortion later in life [11, 12].

Early sexual initiation, unintended pregnancy, and, consequently, abortions in girls can promote the development of cervical diseases, such as cervical ectopion, and even cause neoplasms later in life [11, 12].

The schoolgirls' psychological health and a favorable psychological climate both at school and in the family (timely referral to a psychologist, adherence to sleep and rest regime aimed at eliminating psychoemotional load) are important [11, 12].

Physical development is a major criterion of health. Today's schoolchildren more and more often show advance in the rate of growth and sexual maturation compared to schoolchildren, who lived in early 20<sup>th</sup> century [13–15]. The earlier maturation of organs and systems, including the reproductive system, contributes to earlier sexual initiation in schoolgirls, earlier sexual contacts, earlier pregnancy and delivery, and earlier development of various reproductive system disorders.

The reproductive system disorders observed in girls include dysmenorrhea (menstrual disorder), disorders of sex development, delayed puberty, various abnormalities of the vagina and uterus, inflammatory diseases of the pelvic organs, ovarian tumors and cysts. The untimely detected reproductive system disorders may seriously affect the girls' physical, psychological and even mental health [16].

It must be remembered that in adolescence the amounts of gonadotropic hormones, especially the luteinizing hormone, increase progressively over a year, which results in the gradually increasing production of sex hormones at the onset of puberty. The growth rate increases to reach its maximum 2–3 years after the start of puberty. Girls usually mature almost two years faster than boys. Today's girls enter puberty at the age of 9–10 years. During this period the body is affected by estrogens actively produced by the ovary: pubic hair and breasts grow, the body shape changes (hips become wider), the amount of subcutaneous fat increases, and the fat is distributed in a certain way. The schoolchildren's growth rate reaches its maximum by the age of 12. The normal menarche age in girls is 11–13 years. Later the growth rate gradually slows down [17]. The closure of growth zones in girls is accompanied by cessation of growth by the age of 18 [3].

Pubertal development results in the maximum increase in the size of the ovary, labia minora, and the uterus, and contributes to the increase in the vaginal wall thickness [18]. It should be noted that the maximum growth of internal reproductive organs is observed at the age of 10–14 years. Girls have their first ovulatory cycles 10–12 months after menarche. The rate of ovulatory cycles reaches 80% within about 1.5–2 years, however, in 25% of girls the cycles can still be anovulatory or show the corpus luteum insufficiency during the first 3–5 years. Puberty normally ends at the age of 14–17 years. It is interesting to note that the gap between the onset of puberty and sexual maturity is approximately 6–7 years [3, 4, 19].

The reproductive system disorders that require immediate response from the specialists and are dangerous for reproductive health are the diminished functional activity of the gonads (female hypogonadism), delayed puberty, menstrual disorder, precocious puberty, virilism, urinary tract infections, urination disorder [6, 20].

The study was aimed to assess factors that affect the schoolgirls' reproductive health.

## METHODS

A total of 100 schoolgirls aged 15–18 were enrolled in the study performed in an online questionnaire format in the Comprehensive Secondary School № 2065 (Moscow) contracted to implement the scientific and methodical cooperation. The inclusion criteria were as follows: availability of the correctly filled questionnaire, availability of the informed consent, belonging to appropriate age and gender group. The questionnaire survey was performed from 2021 to 2022.

The questionnaire consisted of several items that included questions about the respondent's age and age of menarche, questions related to various menstrual disorders (increased or reduced duration of menstrual cycle, late periods, blood spotting between periods, pelvic pain between periods, type of pelvic pain). Furthermore, the symptoms of vegetative dystonia were assessed before and during the periods.

The schoolgirls' awareness of the reproductive health issues was assessed using the 0–3 rating scale, where score 0 corresponded to lack of awareness and score 3 corresponded to good knowledge about reproductive health.

A 10-point rating scale was used to assess the period pain: score 0 corresponded to no pain, score 1–3 to mild pain, score 4–6 to moderate pain, score 7–9 to severe pain, and score 10 to extremely severe pain.

Statistical data processing was performed using Excel 2016 (Microsoft; USA) and the Statistica 10 software package (Statsoft; USA). When performing data processing, the results obtained were previously tested for normality. Descriptive statistics, i.e. the mean (M) and standard deviation (σ), were used.

## RESULTS

The average age of menarche was  $12.3 \pm 1.2$  years, however, there were girls, who got their first period at the age of 10 years (10%), and those, who got their first period after 14 years (7%), among schoolgirls. Menstrual disorders included the increase in the duration of the menstrual cycle up to 35 days or more in 6%, and the decrease in the cycle length to less than 21 days in 3% of the respondents. The more than nine days late periods were observed in 25%, and the less than nine days late periods in 48% of schoolgirls. In 21% of cases, the girls noted blood spotting between periods. Pelvic pain between periods was noted by 44% of schoolgirls, while severe pelvic pain during the periods were reported by 81% of girls. According to the pain assessment, 25% of respondents had severe pain, 16% had moderate pain, while 4% had extremely severe pain.

Irritability, aggression, easy crying, rapid fatigue, and faintness before and during the periods were reported by 98% of respondents. Swelling, weight gain, abdominal distension, constipation, diarrhea, breast engorgement and soreness before and during the periods were reported by 73% of schoolgirls. Headache, vertigo, nausea, vomiting, insomnia, increased sensitivity to smell and sound before and during their periods were noted by 50% of school-age girls. High blood pressure, heart-related pain, increased heart rate, panic attacks before and during the periods were reported by 21% of respondents. Menstrual disorders were reported in 16% of cases.

Assessment of the schoolgirls' awareness of reproductive health issues has shown that 60% of today's school-age girls demonstrate moderate awareness, while 28% demonstrate

high awareness. However, 12% of girls have insufficient reproductive health-related knowledge and skills. Girls often do not notice the first symptoms of disorders due to lack of awareness.

## DISCUSSION

The study has made it possible to reveal various reproductive health problems in schoolgirls and assess the girls' awareness of reproductive health issues. According to the results, today's schoolgirls generally demonstrate medium knowledge, however, 12% of them have insufficient knowledge, which represents not only medical, but also social challenge related to the schoolgirls' reproductive health.

Today's schoolgirls who show insufficient awareness of their reproductive health may fill the knowledge gaps with the help of teachers, parents, and medical professionals both at school and through extracurricular activities and open lessons involving experts in this area (pediatricians, pediatric gynecologists, family and school physicians). Schoolchildren should be provided up-to-date information about their reproductive health that should be discussed in biology and physical education classes, as well as during extracurricular activities. Today, decreasing the incidence of reproductive system disorders among girls is a priority in reproductive health protection.

Considering the fact that medical and social aspects of the girls' reproductive health constitute one of the urgent issues of reproductive health protection, and joint efforts of the system of medical institutions and teachers are the main method of the reproductive system disorder prevention, only cooperation would help to solve the medical and social

problems of the today's schoolgirls' reproductive health in terms of early detection, treatment, and preventive measures aimed at shaping healthy lifestyle and habits related to reproductive health. There is evidence in the literature about effective implementation of various preventive measures related to reproductive health protection in school-age girls [20].

## CONCLUSIONS

Assessment of factors affecting reproductive health of today's schoolgirls has shown that insufficient awareness of the reproductive health-related issues in the 15–18-years-old girls is a major factor. Thus, it was estimated that only 28% of girls showed high awareness of reproductive health issues, 12% showed lack of knowledge, while the bulk of the study participants (60%) showed medium awareness. Furthermore, in 10% of cases the early onset of menarche was reported, while 7% of girls had late menarche; menstrual disorders represented by the increased or decreased menstrual cycle length, pelvic pain between the periods, as well as the symptoms of vegetative dystonia were also noted. Insufficient knowledge about reproductive health negatively affects not only the schoolgirls' health, but also overall health in both 15–18-years-old girls and future generations. Schoolgirls should be provided up-to-date information about reproductive health that should be made a part of educational process at school. Furthermore, school-age girls need up-to-date information from contemporary sources (mass media, internet, etc.) provided by the leading experts in prevention of reproductive system disorders: pediatricians, family physicians, gynecologists, urologists, fertility specialists, endocrinologists, neurologists, cardiologists.

## References

- Kiseleva EE. Social factors of a woman's reproductive health. *Young scientist*. 2015; 16 (96): 384–6 (in Rus.).
- Ziatdinov AI, Senek SA, Yarullina GR. "Shkolyi zdorov'ya" – novyy format obespecheniya zdorov'ya uchashchikhsya. *Prakticheskaya meditsina*. 2019; 17(5): 110–13 (in Rus.). DOI: 10.32000/2072-1757-2019-5-110-113.
- Starodubov VI, Melnikov AA, Rudnev SG. O polovom dimorfizme rosto-vesovykh pokazateley i sostava tela rossiyskikh detey i podrostkov v vozraste 5–18 let: rezul'taty massovogo populyatsionnogo skrininga. *Vestnik RAMN*. 2017; 72 (2): 134–42 (in Rus.). DOI: 10.15690/vramn758.
- Simakhodskiy AS, Ippolitova MF. Reproduktivnoe zdorov'e podrostkov: problemy sokhraneniya. *Rossiyskiy pediatricheskiy zhurnal*. 2016; 19 (6): 373–80 (in Rus.). DOI:10.18821/1560-9561-2016-19(6)-373-380.
- Bryuno VV. Riskovannoe seksual'noe povedenie sovremennykh podrostkov v Rossii. Chast' 1. *Sotsiologicheskaya nauka i sotsial'naya praktika*. 2018; 6 (4): 11729 (in Rus.). DOI:10.19181/snsp.2018.6.4.6089.
- Torshina IE, Vorobeva PI. Profilaktika infektsiy, peredavaemykh polovym putem, sredi detey i podrostkov kak osnova okhrany reproduktivnogo zdorov'ya naseleniya. *Reproduktivnoe zdorov'e detey i podrostkov*. 2017; (6): 30–39 (in Rus.).
- Dittus PJ, Michael SL, Becasen JS, et al. Parental monitoring and its associations with adolescent sexual risk behavior: a meta-analysis. *Pediatrics*. 2015; 136 (6): e1587–99. DOI:10.1542/peds.2015-0305.
- Moult K, Muller A. Navigating conflicting laws in sexual and reproductive health service provision for teenagers. *Curationis*. 2016; 39 (1): 1565. DOI:10.4102/curationis.v39i1.1565.
- Mikhaylin ES, Ivanova LA, Savitskiy AG, et al. Osobennosti reproduktivnogo zdorov'ya sovremennykh devochek-podrostkov (analiticheskiy obzor). *Reproduktivnoe zdorov'e detey i podrostkov*. 2015; (2): 63–72 (in Rus.).
- Shevelyukova TP, Folts NV, Khasanova VV, et al. Reproduktivnoe zdorov'e v podrostkovom vozraste. *Smolenskiy meditsinskiy al'manakh*. 2017; (4) :92–5 (in Rus.).
- Kupina AD, Petrov YuV, Ozdoeva IM. Kishechnyy i vlagalishchnyy mikrobiotsenoz i ego vliyaniye na reproduktivnoe zdorov'e zhenshchiny. *Doktor. Ru*. 2021; 20 (1): 73–7 (in Rus.). DOI:10.31550/1727-2378-2021-20-1-73-77.
- Shatalov AE, Kupina AD, Petrov YuA. Steril'nost' zhenshchin kak sledstvie vospalitel'nykh genitaliy Mezhdunarodnyy zhurnal priklad'nykh i fundamental'nykh issledovaniy. 2020; (2): 74–7 (in Rus.).
- Sazonova OV, Bogomolova ES, Kalyuzhnyy EA, et al. Comparative analysis of physical development in children living in Samara and Nizhny Novgorod. *Russian Bulletin of Hygiene*. 2021; (4): 4–7. DOI: 10.24075/rbh.2021.031.
- Skoblina NA, Skoblina EV. Vliyaniye sotsial'no-ekonomicheskikh faktorov na formirovaniye reproduktivnogo zdorov'ya zhen-shchin. *Zdorov'e molodezhi: novye vyzovy i perspektivy*. Tom 3. M.: Nauchnaya kniga, 2019: 98–117 (in Rus.).
- Popov VI, Ushakov IB, Levushkin SP, et al. Mnogoletnyaya dinamika fizicheskogo razvitiya detey v Rossii. *Ekologiya cheloveka*. 1022; 2: 119–28 (in Rus.). DOI: 10.17816/humeco96734.
- Mishina AI, Kazakova AV, Uvarova EV. Faktory riska anomal'nykh matochnykh krovotocheniy u devochek pubertatnogo perioda, prognozirovaniye i profilaktika. *Reproduktivnoe zdorov'e detey i podrostkov*. 2022; 18 (1): 47–55 (in Rus.). DOI: 10.33029/1816-2134-2022-18-1-47-55.
- Adamadze KB, Saliy MG, Nalimova IYu. Otsenka narusheniya reproduktivnoy funktsii s uchedom psikhovegetativnoy regulyatsii pri gipota-lamicheskoy disfunktsii pubertatnogo perioda u devochek-podrostkov. *Reproduktivnoe zdorov'e detey i podrostkov*. 2013; (4): 108–13 (in Rus.).
- Dedov II, Melnichenko GA, Chebotnikova TV, et al. Ozhirenie i polovoe razvitiye: epidemiologicheskoe issledovaniye detey i

- podrozkov moskovskogo regiona. Ozhirenie i metabolizm. 2006; 3(3): 14–20.
19. Kuchma VR, Skoblina NA, Milushkina OYu, et al. Sravnitel'nyy retrospektivnyy analiz fizicheskogo i biologicheskogo razvitiya shkol'nikov Moskvy. Gigena i sanitariya. 2012; 91 (4): 47–52 (in Rus.).
20. Laricheva EG, Salamatova TV, Meshcheryakov VV. Innovatsionnyy proekt "Shkola reproduktivnogo zdorov'ya" dlya podrozkov: effektivnost' realizatsii i gendernye osobennosti. Profilakticheskaya meditsina. 2020; 23 (1): 43–50 (in Rus.).

## Литература

1. Киселева Е. Е. Социальные факторы репродуктивного здоровья женщины. Молодой ученый. 2015; 16 (96): 384–6.
2. Зиатдинов А. И., Сенек С. А., Яруллина Г. Р. «Школы здоровья» — новый формат обеспечения здоровья учащихся. Практическая медицина. 2019; 17 (5): 110–13. DOI: 10.32000/2072-1757-2019-5-110-113
3. Стародубов В. И., Мельников А. А., Руднев С. Г. О половом диморфизме роста-весовых показателей и состава тела российских детей и подростков в возрасте 5–18 лет: результаты массового популяционного скрининга. Вестник РАМН. 2017; 72 (2): 134–42. DOI: 10.15690/vramn758.
4. Симаходский А. С., Ипполитова М. Ф. Репродуктивное здоровье подростков: проблемы сохранения. Российский педиатрический журнал. 2016; 19 (6): 373–80. DOI:10.18821/1560-9561-2016-19(6)-373-380.
5. Брюно В. В. Рискованное сексуальное поведение современных подростков в России. Часть 1. Социологическая наука и социальная практика. 2018; 6 (4): 11729. DOI:10.19181/snsp.2018.6.4.6089.
6. Торшина И. Е., Воробьева П. И. Профилактика инфекций, передаваемых половым путем, среди детей и подростков как основа охраны репродуктивного здоровья населения. Репродуктивное здоровье детей и подростков. 2017; (6): 30–9.
7. Dittus PJ, Michael SL, Becasen JS, et al. Parenteral monitoring and its associations with adolescent sexual risk behavior: a meta-analysis. Pediatrics. 2015; 136 (6): e1587-99. DOI:10.1542/peds.2015-0305.
8. Mout K, Muller A. Navigating conflicting laws in sexual and reproductive health service provision for teenagers. Curatoris. 2016; 39 (1): 1565. DOI:10.4102/curatoris.v39i1.1565.
9. Михайлин Е. С., Иванова Л. А., Савицкий А. Г. и др. Особенности репродуктивного здоровья современных девочек-подростков (аналитический обзор). Репродуктивное здоровье детей и подростков. 2015; (2): 63–72.
10. Швелюкова Т. П., Фольц Н. В., Хасанова В. В. и др. Репродуктивное здоровье в подростковом возрасте. Смоленский медицинский альманах. 2017; (4): 92–5.
11. Купина А. Д., Петров Ю. В., Оздоева И. М. Кишечный и влагалищный микробиоценоз и его влияние на репродуктивное здоровье женщины. Доктор. Ру. 2021; 20 (1): 73–7. DOI:10.31550/1727-2378-2021-20-1-73-77.
12. Шаталов А. Е. Купина А. Д., Петров Ю. А. Стерильность женщин как следствие воспалительных гениталий. Международный журнал прикладных и фундаментальных исследований. 2020; (2): 74–7.
13. Сазонова О. В., Богомолова Е. С., Калюжный Е. А. и др. Сравнительный анализ физического развития детей г. Самара и г. Нижний Новгород. Российский вестник гигиены. 2021; (4): 4–7. DOI: 10.24075/rbh.2021.031.
14. Скоблина Н. А., Скоблина Е. В. Влияние социально-экономических факторов на формирование репродуктивного здоровья женщин. Здоровье молодежи: новые вызовы и перспективы. Том 3. М.: Научная книга, 2019: 98–117.
15. Попов В. И., Ушаков И. Б., Левушкин С. П. и др. Многолетняя динамика физического развития детей в России. Экология человека. 2022; (2): 119–28. DOI: 10.17816/humeco96734.
16. Мишина А. И., Казакова А. В., Уварова Е. В. Факторы риска аномальных маточных кровотечений у девочек пубертатного периода, прогнозирование и профилактика. Репродуктивное здоровье детей и подростков. 2022; 18 (1): 47–55. DOI: 10.33029/1816-2134-2022-18-1-47-55.
17. Адамадзе К. Б., Салий М. Г., Налимова И. Ю. Оценка нарушений репродуктивной функции с учетом психовегетативной регуляции при гипоталамической дисфункции пубертатного периода у девочек-подростков. Репродуктивное здоровье детей и подростков. 2013; (4): 108–13.
18. Дедов И. И., Мельниченко Г. А., Чеботникова Т. В. и др. Ожирение и половое развитие: эпидемиологическое исследование детей и подростков московского региона. Ожирение и метаболизм. 2006; 3 (3): 14–20.
19. Кучма В. Р., Скоблина Н. А., Милушкина О. Ю. и др. Сравнительный ретроспективный анализ физического и биологического развития школьников Москвы. Гигиена и санитария. 2012; 91 (4): 47–52.
20. Ларичева Е. Г., Саламатова Т. В., Мещеряков В. В. Инновационный проект «Школа репродуктивного здоровья» для подростков: эффективность реализации и гендерные особенности. Профилактическая медицина. 2020; 23 (1): 43–50.