Background. The aim of our study was to evaluate Vilnius and Vilnius Region women's knowledge about sexual intercourse during pregnancy.

Materials and methods. The study included 94 women who were in the Center Affiliate of VUH Santariskiu Clinics after delivery. The women were interviewed using a questionnaire. They were divided in three groups by levels of education.

Results. The study showed that 83% of pregnant women had sexual intercourse during pregnancy. 55.1% had coitus several times a month. The first trimester was the most frequent period of sexual intercourse (52.6%). 22.6% of pregnant women were at high risk of miscarriage and 61.9% of them had sexual intercourse. The frequency of miscarriage in the sexually active group was 17.9% and in the non-active group it was 50% (p < 0.05). All women who reported frequent sexual intercourse were not at threat for miscarriage compared to incidence of miscarriage of those 13 (22%) women who reported infrequent intercourse (p = 0.019). 79.8% of pregnant women were concerned about the adverse effects of sexual intercourse on pregnancy outcomes. 20.2% of the women thought that intercourse during pregnancy was safe. 63.8% of pregnant women were not asked by doctors during pregnancy about their sexual life.

Conclusions. The majority (79.8%) of pregnant women were concerned about the adverse effects of sexual intercourse on pregnancy outcomes but even 83% of pregnant women had sexual intercourse during pregnancy. There were no statistical differences between women with different education level. Pregnant women were rarely asked by doctors about their sexual life.

Key words: pregnancy, sexual intercourse, sexual life, miscarriage, sexual education

INTRODUCTION

All men and pregnant women are interested if they can continue sexual life during pregnancy. Each couple is trying to find a solution: while some continue with their normal sexual life, other couples suspend it. Pregnancy is an exceptional period in the life of women with physical, hormonal and psychological changes which, together with social and cultural factors, affect women's sexuality and sexual life of partners (1–6). Hormonal changes (increased estrogen, progesterone, and prolactin) cause nausea and breast tenderness, which together with fatigue, weakness, exhaustion and anxiety may determine
difficulty of the sexual life (4, 7). This reinforces the role of pregnancy as a stimulus for partners to search for new ways to enhance mutual emotional connection, intimacy and physical affinity (8). Different studies showed that 86–100% of couples remained sexually active during pregnancy but experienced reduction in sexual activity, especially in the third trimester (1–3, 9–16). Previously, sexual activity of pregnant women was graphically represented as a parabola: sexual desire decreases in the first trimester, increases in the second, and decreases in the third trimester again (17, 31). However, last studies determined that sexual intercourse frequency declined as pregnancy progressed (18, 19). According to the literature, pregnant women are not certain about their new, unknown state. The refusal of sexual intercourse is explained by the fear of damaging the fetus, miscarriage or premature labor (4).

Sexual intercourse during pregnancy is a specific topic, which is widely discussed on different forums, social networks but very rarely in the doctor’s office. Various studies showed that 10–30% of women discussed sexual intercourse with their doctors during pregnancy (1, 3). Both the women and their partners have concerns about risk of sexual intercourse during the pregnancy (1, 2, 10).

In medical data bases no studies concerning women’s knowledge of sexual intercourse during pregnancy in Lithuania have been found, so it was decided to learn about it during this study. It was decided to rate the fear of sexual intercourse, to find out the link between the education of women and their knowledge of sexual life during pregnancy, to analyze what sources of information had been used by pregnant women with different education and to find out if doctor or obstetrician overseeing the pregnancy had raised this topic.

MATERIALS AND METHODS

This was a cross-sectional observation study. After analyzing other studies about sexual intercourse during pregnancy, a questionnaire was made. The questionnaire included four sections: 1) sociodemographic questions: age, education degree; 2) common questions that evaluate women’s knowledge and opinion about sexual intercourse during pregnancy; 3) obstetric history: pregnancy and labor number, the risk of miscarriage, bleeding; 4) questions about sexual life during pregnancy. It was also noted if doctors overseeing the pregnancy had asked and/or tried to clear things up about sexual intercourse during pregnancy. Women who attended the Center Affiliate of VUH Santariskiu Clinics from December to March were invited to participate in the study. During the three months of the study 220 pregnant women gave birth in this hospital. The study included 94 (42.7% of all women who gave birth) randomly picked women who were in the hospital after delivery. The majority of those women refused to answer the question about the features of sexual intercourse. Women whose sexual partners lived away from them during pregnancy were excluded from the study. The study represents the situation in Vilnius and Vilnius Region. The risk of the miscarriage was assessed from bleeding. The women were divided into three groups by levels of education: the first group consisted of women with secondary education, the second group had higher than secondary education (but not university or college) and the third group was with a university degree.

All statistical analyses were performed using the Statistical Package for Social Sciences for Windows Version 17.0 (SPSS 17.0). Age is presented as the mean and standard deviation (SD). Categorical data are presented as percentage. Statistical analysis was performed using the Chi-Square and ANOVA tests. Statistical significance was considered as $p < 0.05$.

RESULTS

Ninety four women, aged between 17 and 41 years with a mean age of 28.2 (SD ± 5.22) years, were analyzed. The women were divided into three groups by levels of education: the first group consisted of 29 (30.9%) women with secondary education, the second group was 16 (17%) women with higher than secondary education (but not university or college) and the third group was 49 (52.1%) women with a university degree. There were no statistical differences between the ages of the women with different levels of education (Table 1). 42 (44.7%) women gave birth for the first time, while 52 (55.3%) women gave birth not for the first time.

83% (n = 78) of the pregnant women had sexual intercourse during pregnancy. There were no statistical differences between the women with different levels of education ($p > 0.05$) (Table 2). There were no statistical differences between the women who gave birth for the first time and not for the first
Features of the sexual life during pregnancy

Almost 25% of the women from this study (n = 19) had frequent sexual intercourse (in this study it is several times a week), 55.1% of the women (n = 52) had rare sexual intercourse – several times a month and 20.5% of the women (n = 16) had sexual intercourse several times during the whole pregnancy.

Table 1. Women age distribution

<table>
<thead>
<tr>
<th>Level of education</th>
<th>Group 1 (secondary education) n = 29</th>
<th>Group 2 (higher than secondary education) n = 16</th>
<th>Group 3 (university degree) n = 49</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average age (years ± standart deviation)</td>
<td>28 ± 6.97</td>
<td>29.1 ± 4.34</td>
<td>28.1 ± 4.25</td>
<td>0.785</td>
</tr>
</tbody>
</table>

Table 2. The rate of sexual intercourse

<table>
<thead>
<tr>
<th>Level of education</th>
<th>Group 1 (n = 29)</th>
<th>Group 2 (n = 16)</th>
<th>Group 3 (n = 49)</th>
<th>P</th>
<th>χ²</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual intercourse:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>had</td>
<td>75.9%</td>
<td>87.5%</td>
<td>85.7%</td>
<td>0.465</td>
<td>1.531</td>
<td>2</td>
</tr>
<tr>
<td>did not have</td>
<td>24.1%</td>
<td>12.5%</td>
<td>14.3%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3. The rate of sexual intercourse among women who gave birth for the first time and not for the first time

<table>
<thead>
<tr>
<th>Gave birth for the first time n = 42</th>
<th>Gave birth not for the first time n = 52</th>
<th>P</th>
<th>χ²</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual intercourse:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>had</td>
<td>83.3%</td>
<td>82.7%</td>
<td>0.934</td>
<td>0.007</td>
</tr>
<tr>
<td>did not have</td>
<td>16.7%</td>
<td>17.3%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure. The duration of the pregnancy and the frequencies of sexual intercourse
91.5% (n = 86) of the women thought that it was allowed to have sexual intercourse during pregnancy. This group consisted of women with higher than secondary education (n = 16), almost all women with a university degree (n = 48; 98%) and two thirds (n = 22; 75.9%) of women with secondary education. 24.1% of the women with secondary education had no opinion on this matter. Only 2 women (2.1%) from Groups 1 and 2 said that it was forbidden to have sexual intercourse during pregnancy. 6 women (6.4%) from Group 1 had no opinion on this matter.

45 women (47.9%) found recommendations on sexual intercourse during pregnancy in popular medical literature, 28 women (29.8%) looked for information on the Internet, 13 participants (13.8%) found out about this while attending classes for pregnant women, 30 women (31.9%) received this information from their doctor and the other 15 women (16%) found out about this from peers and friends. 63.3% of the women with a university degree usually find out about sexual intercourse during pregnancy in popular medical literature (p < 0.05) and the women with secondary education trust their friends’ opinion and their own feelings (p < 0.05) (Table 4).

79.8% of the women feared the adverse pregnancy course and also added that sexual intercourse during pregnancy could cause negative consequences: miscarriage – 42.6%, bleeding during pregnancy – 37.2%, harm of fetus – 12.8%, genital tract infections – 41.5%, infection of fetus – 12.8% and only 20.2% of the women claimed that sexual intercourse during pregnancy was not dangerous. There was no specific statistical difference between the women with different education (p > 0.05) (Table 5). Women who gave birth for the first time were more afraid that sexual intercourse could cause miscarriage and genital tract infections (Table 6).

The answers to the question about advantages of the sexual intercourse during pregnancy were as follows: gave positive feelings – 62.8%, enhanced partner’s connection – 50.0%, prepared delivery paths – 25.5%, contraception was not required – 24.5%, strengthened muscles of genital tract – 12.8%. 7.5% of the women thought that sexual intercourse had absolutely no advantages and 2.1% did not have any opinion on this matter. There was no specific statistical difference between the women with different education (Table 7).

Table 4. The source of information on sexual intercourse during pregnancy

<table>
<thead>
<tr>
<th>Source of information</th>
<th>Level of education</th>
<th>p</th>
<th>χ²</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Group 1 (n = 29)</td>
<td>Group 2 (n = 16)</td>
<td>Group 3 (n = 49)</td>
<td></td>
</tr>
<tr>
<td>Popular literature</td>
<td>34.5%</td>
<td>25%</td>
<td>63.3%</td>
<td>0.006</td>
</tr>
<tr>
<td>Internet</td>
<td>20.7%</td>
<td>25%</td>
<td>36.7%</td>
<td>0.293</td>
</tr>
<tr>
<td>Pregnancy classes</td>
<td>3.5%</td>
<td>25%</td>
<td>16.3%</td>
<td>0.103</td>
</tr>
<tr>
<td>Doctor</td>
<td>27.6%</td>
<td>37.5%</td>
<td>38.8%</td>
<td>0.592</td>
</tr>
<tr>
<td>Other sources</td>
<td>27.6%</td>
<td>6.3%</td>
<td>8.2%</td>
<td>0.035</td>
</tr>
</tbody>
</table>

Table 5. Women's opinions on the harm from the sexual intercourse to pregnancy

<table>
<thead>
<tr>
<th>Type of harm</th>
<th>Level of education</th>
<th>p</th>
<th>χ²</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Group 1 (n = 29)</td>
<td>Group 2 (n = 16)</td>
<td>Group 3 (n = 49)</td>
<td></td>
</tr>
<tr>
<td>Miscarriage</td>
<td>34.5%</td>
<td>43.8%</td>
<td>46.9%</td>
<td>0.558</td>
</tr>
<tr>
<td>Bleeding</td>
<td>44.8%</td>
<td>31.3%</td>
<td>34.7%</td>
<td>0.578</td>
</tr>
<tr>
<td>Harm to fetus</td>
<td>17.2%</td>
<td>10.7%</td>
<td>6.1%</td>
<td>0.212</td>
</tr>
<tr>
<td>Genital tract infections</td>
<td>44.8%</td>
<td>68.8%</td>
<td>57.1%</td>
<td>0.283</td>
</tr>
<tr>
<td>Infection of fetus</td>
<td>6.9%</td>
<td>25%</td>
<td>10.2%</td>
<td>0.174</td>
</tr>
<tr>
<td>Sexual intercourse during pregnancy is not dangerous</td>
<td>17.2%</td>
<td>12.5%</td>
<td>24.5%</td>
<td>0.521</td>
</tr>
<tr>
<td>Do not have any opinion on this matter</td>
<td>6.9%</td>
<td>0</td>
<td>0</td>
<td>0.101</td>
</tr>
</tbody>
</table>
22.6% of the participants had a threat of miscarriage. More than half of the pregnant women (61.9%) had sexual intercourse. The rate of threat of miscarriage in the group of pregnant women who had sexual intercourse is 17.9% and in the group that did not have sexual intercourse this rate is 50% (p < 0.05). No threat of miscarriage was observed in the pregnant women, who had frequent sexual intercourse (n = 19), and 22% (n = 13) of the women, who had rare sexual intercourse (n = 59), had a threat of miscarriage (p = 0.019).

More than half (63.8%) of the participants (61.9% of which had a risk of miscarriage) were not asked by their doctors about sexual intercourse during pregnancy.

**DISCUSSION**

The majority of other authors indicate a decrease in the frequency of sexual intercourse during pregnancy (1–3, 10–16). Our results confirm these findings: 83% (n = 78) of the pregnant women had sexual intercourse during pregnancy. The first trimester was considered the most frequent period of sexual intercourse (52.6%; n = 41), afterwards sexual intercourse frequency declined as pregnancy progressed. In a metaanalysis of 59 studies, von Sydow demonstrates that coital frequency did not change or changed only slightly in the first trimester, was quite variable in the second, and declined abruptly in the third trimester (20).
Masters and Johnson defined a decrease in the first trimester, an increase in the second, and a decline in the third trimester (17). The explanation is that during the first months of pregnancy woman’s libido is weak due to toxicosis, bad health, nausea, unstable emotions, the feeling of breasts extension. A woman feels totally different during the second trimester – the symptoms of toxicosis are gone, health is improving and libido is strengthening. The decrease of sexual activity during the third trimester is mainly related to the transformation of woman’s body; during this time a certain discomfort appears during the sexual intercourse. Also, during the last months of pregnancy, a woman starts to have a sense of fear while the labor approaches (4, 7). Solberg et al. reported that the sexual desire declined during pregnancy (21). Some of the researches say that most of pregnant women (61%) have no sexual intercourse one week before the delivery (18) and 20% of pregnant women have no sexual intercourse during the last four weeks of pregnancy (19). Our research showed that during the last trimester only 3.5% of the women had sexual intercourse.

Eryilmaz et al. pointed some reasons that might explain the decrease of sexual frequency during pregnancy such as exhaustion, fatigue, fear of harming the fetus, causing abortion, inducing preterm labor, and decrease of sexual desire. They also reported a positive correlation between changes in sexual life during pregnancy and the educational level (4). Al Bustan et al. in their study on 220 pregnant women reported declines in sexual intercourse as educational levels decreased (22), but our study suggested that there were no specific statistical difference between education and sexual activity. Although sexual intercourse during pregnancy does not increase preterm labor, premature rupture of membranes, low birth weight, or perinatal death (23–25), a considerable proportion (43.7%) of pregnant women believe that sexual intercourse during pregnancy could lead to problems. Our study showed that 79.8% of the participants were concerned about the adverse pregnancy course and also specified that sexual intercourse during pregnancy could cause different complications. The same percentage of concerned women was received by Thailand researchers in their study where they claimed that the main reason of fear (47%) was the possible damage to fetus (10, 19). Gökyildiz et al. demonstrated that the fear of sexual intercourse increased especially in the third trimester (2). In a study performed in Pakistan (27) and Nigeria (28) women were convinced that sexual intercourse during pregnancy widened the vagina and caused the premature labor. Fok et al. in their study on 298 pregnant women in China reported that 80% of women and their partners were concerned that sexual intercourse might harm the fetus (3). As pointed by other studies (1, 18, 27, 29), women often fear that sexual intercourse might harm the fetus, cause miscarriage or premature birth, some women are concerned about their partner’s worry (18). We investigated that pregnant women often feared the miscarriage, genital tract infections and bleeding and only 12.77% were afraid to harm the fetus.

Yost et al. found out that women who reported infrequent sexual intercourse during pregnancy had an incidence of spontaneous preterm birth of 28% compared with 38% to those women who reported some intercourse (p = 0.35). According to our study, all women who reported frequent sexual intercourse during pregnancy were not at risk for miscarriage compared to incidence of miscarriage for those 13 (22%) women who reported infrequent intercourse (p = 0.019). It is possible that women, who were at risk of miscarriage, were more careful and avoided sexual intercourse. It means that frequent sexual intercourse during pregnancy does not have any common connection to the risk of miscarriage.

Women find out about sexual life during pregnancy from books, friends and pregnancy classes (20). Almost half of the study participants found out about sexual life in popular medical literature, about one third of them looked for the information on the Internet, only 31.9% asked their doctor and 13.8% learned this information on pregnancy classes. Senkumwong et al. point out that 62% of pregnant women find out about sexual life during pregnancy from their doctors because doctors initiate these conversations (10). Other researchers report that 68–90% of women do not receive any information about the specifics of sexual life during pregnancy from their gynecologist (3, 18, 31). According to our study, 36.2% of the women had such conversation with their doctor. During this research, 22.6% of the women were at risk of miscarriage, but only 8 of them asked about sexual intercourse during pregnancy and 14.3% (n = 3) were asked on this matter by their doctor.
CONCLUSIONS

Our study shows that most of pregnant women were concerned about the adverse pregnancy course, however, even 83% of them have had sexual intercourse during pregnancy. Women with a university degree usually received information on sexual intercourse during pregnancy from different literature and women with secondary education asked for the opinion of their friends. 20% of women with secondary education did not know if they were allowed to have sexual intercourse during pregnancy. Only one third of pregnant women had a conversation on this matter with their doctor. We can make an assumption that a couple's sexual life during pregnancy would cause fewer problems if doctors overseeing the pregnancy consulted women about safe sexual life.

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Jelena Isajeva, Mindaugas Šilkūnas, Gražina Stanislava Drąsutienė, Daiva Bartkevičienė

LYTINIO GYVENIMO YPATUMAI NĖŠTUMO LAIKOTARPIU

Santrauka

Įvadas. Šio darbo tikslas – įvertinti Vilniaus miesto ir krašto moterų žinias apie lytinius santykius ir jų lytinio gyvenimo ypatumus nėštumo laikotarpiu.

Tyrimo medžiaga ir metodai. Į tyrimą buvo įtrauktos 94 VULSK CF gimdžiusios moterys, kurios atsakė į autorių sukurtą klausimyną. Tiriamosios buvo suskirstytos į grupes pagal išsilavinimą.

Rezultatai. Tyrimo metu nustatyta, kad lytinius santykius nėštumo laikotarpiu turėjo 83 % nėščiųjų, iš jų 55,1 % – kelis kartus per mėnesį, 52,6 % – dažniau pirmaują nėštumo trečdaliu. Persileidimo grėsmė buvo kilusi 22,6 % tiriamųjų, net 61,9 % jų turėjo lytinius santykius. Gresiančio persileidimo dažnis lytinius santykius turėjusiųjų grupėje siekė 17,9 %, o neturėjusiųjų – 50 % (p < 0,05). Nė vienai nėščiajai, kuri turėjo dažnus lytinius santykius (n = 19), nebuvo persileidimo grėsmės, o 13 moterų (22 %), kurios turėjo retus lytinius santykius (n = 59), tokia grėsmė buvo (p = 0,019). Dėl nepalankios nėštumo baigties baiminos net 79,8 % nėščiųjų, 20,2 % moterų manė, kad lytinius santykius nėščiai nėštumo laikotarpiu yra nepavojingi; 63,8 % apklausoje dalyvavusių moterų aptaria nėščiųjų gydytojas nesiteiravo apie lytinius santykius.

Išvados. Dauguma apklaustujų (79,8 %) baiminosi dėl nepalankios nėštumo baigties, tačiau net 83 % turėjo lytinius santykius nėštumo laikotarpiu. Skirtinga įsitkino į tūkstančius moterys vienodai dėlai pasirinkdavo tuos pačius atskymus. Gydytojai retai klausė nėščiųjų apie lytinius gyvenimą.

Raktažodžiai: nėštumas, lytinius santykius, lytinis gyvenimas, persileidimas, lytinis švietimas