LUIZA ZALEWSKA[1], JOANNA HORBACZEWSKA[1], GRZEGORZ ZALEWSKI[1], ADAM FAŁKOWSKI[2], KRZYSZTOF WŁOCH[2], PIOTR KSIĄŻEK[2]

Exposure to drugs, medications and stress during pregnancy

Abstract

Introduction. Literature provides much evidence of negative effects of alcohol, nicotine, or drugs in pregnancy. There are also data indicating the relationship of stress and physical work with many complications during this period.

Aim. The aim of the study was to assess the exposure of pregnant women to tobacco smoking, alcohol, stress, exercise, medications, and analysis of their awareness and knowledge on the subject, indicating the high-risk groups.

Material and methods. The study was conducted in August and September 2012 in gynecology and obstetric clinics in Lublin with 138 pregnant women. A questionnaire containing 26 questions was a proprietary research tool.

Results. In the study group, 25.3% of women were exposed to harmful tobacco compounds in the first trimester. Smoking was observed statistically more often among young women and the women exposed to high stress. Every fifth woman has abnormal knowledge of alcohol use observed significantly more often among women with unplanned pregnancy, young and under high stress level. Fifty per cent of economically active participants were performing physical work during pregnancy and 20.2% were exposed to high stress, which correlated significantly with higher education and performed "desk job". Every fourth respondent among half of the respondents who use the self-treatment in case of complaint would apply NSAIDs.

Conclusions. Lack of knowledge and awareness of pregnant women make them reach for harmful substances. Some pregnant women perform heavy physical work as well as are exposed to stress, which results in more frequent recourses to drugs. Some drugs are often seen as safe and accepted by pregnant women without consulting a doctor.

Keywords: attitudes of pregnant women, alcohol, smoking, drugs, stress, work conditions.

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INTRODUCTION

Maternity begins in pregnant women and requires the elimination of all factors that may harm an unborn baby. Literature provides much evidence of negative effects of alcohol, nicotine, and drugs in pregnancy. There are also many data indicating the relationship of stress and physical work with many complications during pregnancy [1]. Despite the fact that knowledge of the harmful substances contained in tobacco smoke is increasing, many people ignore the warnings and bans on smoking [2]. This habit is a risk factor for pregnancy problems such as premature birth, intrauterine growth retardation and neonatal weight loss [3]. The most serious consequence is the intrauterine death of the child and an increased risk of Sudden Infant Death Syndrome (SIDS) [4]. Children of smoking mothers are more susceptible to disease and early childhood infancy. The child later in life is associated with abnormal mental development, poor academic performance, criminal behavior, increased risk of attention deficit hyperactivity disorder (ADHD) [5]

There is still no evidence for the existence of a safe dose of alcohol that can be consumed during pregnancy, therefore pregnant women should strictly avoid it. However, there are still babies born exposed to alcohol in their prenatal life. The most serious consequences of its consumption are FAS (Fetal Alcohol Syndrome), the less expressive variety FAE (Fetal Alcohol Effect) and Alcohol Related Neurodevelopment Disorder (ARND) [6].

Another problem discussed in this study is self-medication care because it is a fundamental principle, that pregnant women should avoid all drugs. Many of them given to the mother are absorbed to the child bloodstream through the placenta; moreover, some of the substances achieve a greater concentration in a baby's organism than in the mother's organism [7]. Thus, medication intake without consulting a doctor increases the risk of abnormal fetal development and other complications during pregnancy.

By law, a pregnant woman should neither perform strenuous work nor harmful to health [8]. This is due to the fact that heavy exercise and stress can lead to premature birth or even miscarriage and is associated with low birth weight baby in relation to gestational age [1].

[1] Students Scientific Society at the Department of Public Health, Medical University of Lublin, Poland
[2] Department of Public Health, Medical University of Lublin, Poland

AIM

The aim of the study was to assess the exposure of pregnant women to tobacco smoke, alcohol, stress, exercise, and medication, and analysis of their awareness and knowledge on the subject, indicating the high-risk groups.

MATERIAL AND METHODS

The study was conducted in August and September 2012 in gynecology and obstetric clinics in Lublin among pregnant women waiting for a medical appointment. Questionnaire containing 26 questions was a proprietary research tool. The survey was divided into three thematic blocks. The first part included questions that allowed us to characterize the female. The questions in the second part concerned the assessment of knowledge and health behaviors related to exposure to harmful substances. In the third part, we asked women about the sources of information from which they gain knowledge at this particular time. The questionnaire was completed anonymously and voluntarily by 138 pregnant women.

The obtained study results were subjected to the statistical analysis. The analyzed parameters, measured on the nominal scale, were determined according to the number and percentage. To detect existing differences or dependence between analyzed qualitative features homogeneity χ^2 or independence χ^2 tests were used. Conclusive error of 5% was assumed and a connected with it significance level $p<0.05$ indicating statistically significant differences or relationships. STATISTICA 10 computer program (StatSoft, Poland) was used for carrying out the statistical analyses.

RESULTS

Study sample

Most women – 77 (55.8%) were in the age group of 21-30 years old, respectively 38 (27.6%) respondents over 30 years of age, 23 (16.6%) were up to 20 years old. The largest group consisted of married women – 104 (75.3%). Pregnant women living in the city accounted for 63% of all respondents, 62 (44.9%) women declared higher education, 55 (39.9%) secondary; other pregnant women reported to have a vocational education. Women when asked about planning the current pregnancy replied that they had planned it in 73.2%. The largest group were the pregnant women in the second trimester of pregnancy – 70 (50.7%), followed in the third – 45 (32.6%), and in the first trimester – 23 (16.7%).

Heavy physical work and high stress exposure during pregnancy

According to the analysis of the results of our survey, 89 (64.5%) pregnant women during pregnancy worked professionally. Disturbing is the fact that almost half of the respondents (46.1% of working women) performed physical work, the pregnant declared light – 27.0% and heavy physical work (loads exceeding 5 kg) – 19.0%. Exposure to high stress at work was felt by 17 (19.0%) pregnant women, mainly employed on intellectual posts (13 pregnancies). High work stress experienced by the surveyed patients significantly statistically correlated with higher education (p=0.004) and intellectual work (p=0.0000). It should also be noted that pregnant women exposed to high levels of stress significantly more often smoked tobacco (p=0.00006), and had incorrect knowledge about the dangers of alcohol consumption in pregnancy (p=0.02). Table 1 presents more data concerning exposure to stress and the type of work.

TABLE 1. Type of work during pregnancy and exposure to stress.

Work stress level		Type of work (n=89)					
		Mental (n=48; 54%)		Light physical (n=24; 27%)		Heavy physical (n=17; 19%)	
Low	(n=9; 10.2%)	4	(4.5%)	3	(3.4%)	2	(2.2%)
Medium	(n=63; 70.8%)	31	(34.9%)	19	(21.4%)	13	(14.6%)
High	(n=17; 19%)	13	(14.6%)	2	(2.2%)	2	(2.2%)

Cigarette smoking among the respondents

The level of knowledge about smoking in the society is increasing. However, many people ignore the warnings and bans on smoking [10]. Our analysis shows that 64 (46.4%) of pregnant women never had a smoking episode in their lives, while 32 (23.2%) did not smoke for a long time, 7 (5.1%) quit when had decided to have a baby, 23 (16.7%) surveyed stopped smoking far too late, when they found out about the pregnancy, and up to 12 (8.6%) women decided to continue their habit. Figure 1 presents the percentage analysis concerning smoking tobacco among our respondents. Thus, one in five pregnant women was exposing herself and her unborn child to the harmful effects of nicotine and other substances contained in tobacco during the first trimester of pregnancy.

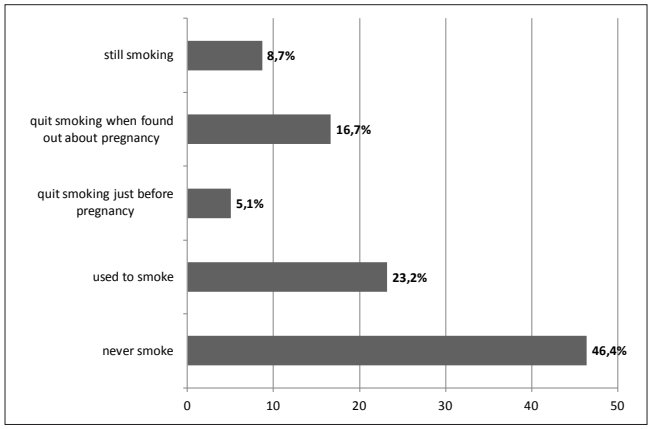

FIGURE 1. Tabacco abuse among the respondents.

The worrying thing is that 50% of women who stopped smoking in 1st trimester are those planning the motherhood. Cigarette smoking during pregnancy was observed statistically more often among women: under 20 years of age (p=0.004), unmarried (p=0.02), with no pregnancy plans (p=0.01), under high stress level (p=0.02), also among women with wrong knowledge about alcohol use (p=0.02). Education level (p=0.4), monthly family income (p=0.2) and the place of residence (p=0.7) had no significance in this regard. Table 2 presents data concerning cigarettes smoking among pregnant women in selected groups.

TABLE 2. Ciggaretts smoking among pregnant women in selected groups.

Examined factors			Tabacco abuse									
			"Never smoke"		"Used to smoke"		"Quit smoking just before pregnancy"		"Quit smoking when found out I am pregnant"		"Still smoking during pregnancy"	
Age	<20	(n=23)	5	(21.74%)	8	(34.78%)	2	(8.7%)	3	(13.04%)	5	(21.74%)
	20-30	(n=77)	41	(53.25%)	13	(16.88%)	3	(3.9%)	18	(23.38%)	2	(2.6%)
	>30	(n=38)	18	(47.37%)	11	(28.95%)	2	(5.3%)	2	(5.26%)	5	(13.16%)
c2=21.69646, df=8, p=0.005												
High stress level	Yes	(n=28)	8	(28.57%)	9	(32.14%)	3	(10.71%)	4	(14.29%)	4	(14.29%)
	No	(n=110)	56	(50.91%)	23	(20.91%)	3	(2.73%)	20	(18.18%)	8	(7.27%)
c2=11.50333, df=4, p=0.02												
Planned pregnancy	Yes	(n=101)	54	(53.47%)	24	(23.76%)	6	(5.94%)	13	(12.87%)	4	(3.96%)
	No	(n=37)	10	(27.03%)	8	(21.62%)	1	(2.7%)	10	(27.03%)	8	(21.62%)
c2=17.66412, df=4, p=0.001												
Alcohol use during pregnancy	Yes	(n=27)	7	(25.93%)	8	(29.63%)	0	(0.0%)	7	(25.93%)	5	(18.52%)
	No	(n=111)	57	(51.35%)	24	(21.62%)	7	(6.31%)	16	(14.41%)	7	(6.31%)
c2=10.78197, df=4, p=0.02												

Knowledge about alcohol consumption during pregnancy

Scientists still do not know the critical concentration of alcohol, which determines the occurrence of fetal alcohol syndrome (FAS) and related neurodevelopment disorders [6]. We asked our respondents about the effects of alcohol consumption during pregnancy. One in five women believes that alcohol during pregnancy is not harmful: 19 (13.8%) claim that moderate amounts of alcohol are permitted; for up to 6 (4.4%) women a glass of wine (150 ml) per day is allowed, while 2 (1.5%) are convinced alcohol is not harmful during pregnancy, regardless of the amount. However, the rest of the respondents – 111 (80.3%) indicated that the smallest amount of alcohol that is harmful during pregnancy is not known; therefore it has to be avoided during this period. Wrong knowledge in this matter was observed statistically more often among women: young (p=0.03), with unplanned pregnancy (p=0.00000), under high stress level (p=0.00004); also women who perform self-medication care during pregnancy (p=0.02) and use Internet as a source of medical knowledge (p=0.05). Neither education level (p=0.2), marital status (p=0.2) nor monthly family income (p=0.1) had statistical significance in this regard, although when analyzing percentage data we noticed that single women with vocational education and monthly income under 1000 PLN per capita had less knowledge in this matter. Table 3 presents results concerning knowledge about alcohol use among our respondents.

TABLE 3. Alcohol consumption in selected groups.

Examinated factore			Alcohol use in pregnancy			
			"Yes, I admit"		"No, never"	
Age	<20	(n=23)	9	(39.13%)	14	(60.87%)
	20-30	(n=77)	13	(16.88%)	64	(83.12%)
	>30	(n=38)	5	(13.16%)	33	(86.84%)
c2=6.93788, df=2, p=0.03						
High stress level	Yes	(n=28)	13	(46.43%)	15	(53.57%)
	No	(n=110)	14	(12.73%)	96	(87.27%)
c2=16.10780, df=1, p=0.00006						
Planned pregnancy	Yes	(n=101)	10	(9.9%)	91	(90.1%)
	No	(n=37)	17	(45.95%)	20	(54.05%)
c2=22.35653, df=1, p=0.00000						
Self-treatment	Yes	(n=55)	16	(29.09%)	39	(70.91%)
	No	(n=83)	11	(13.25%)	72	(86.75%)
c2=5.27264, df=2, p=0.03						
Internet as a main source of medical knowledge	Yes	(n=65)	19	(29.23%)	46	(70.77%)
	No	(n=73)	8	(10.96%)	65	(89.04%)
c2=7.29448, df=1, p=0.006						

Self-medication care among pregnant women

Self-medication seems to be more common. In our study, the question: "Would you take a drug in case of complaints without consulting your doctor" – was answered "YES" by 55 (40.0%) respondents. Among the different groups of drugs, women specified the medications in the following way: NSAIDs – 52.7 %, antitussives – 38.2%, medications against common cold (Vitamin C is not included) – 41.8%, antiemetics – 16.4%, sedatives – 5.5%, antibiotics – 3.6%, laxatives – 1.8%. In addition, some women also marked the drugs of several groups. These data are presented in Figure 2. The percentages describing this group of women let us note that these are women: under 20 years old, with low education level, although without statistically significance.

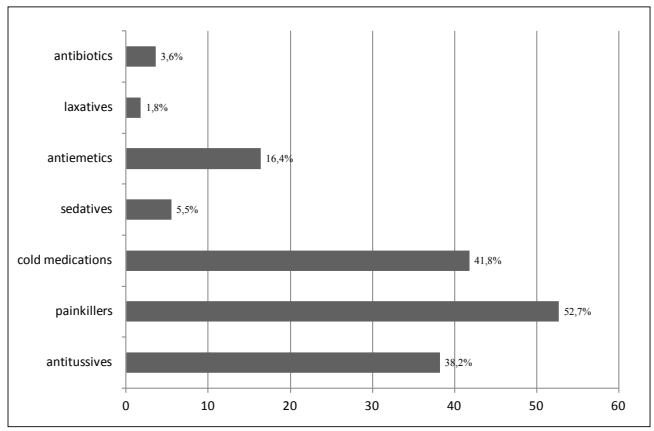

FIGURE 2. Type of medications used among pregnant women without consulting a physician.

DISCUSSION

Although the increased women's awareness of the procreation is observed, and although people talk more about conscious motherhood, drugs in pregnancy are still a big problem. In addition, the women being examined are exposed to factors such as stress and medications that could affect pregnancy – they are not mentioned as much as alcohol or nicotine. It is estimated that in Poland now 29% of the adult population smoke, which is about 9 million people [9]. Analysis of the data obtained in the survey among 7,286 women delivering children in 2000 showed that 9.5% actively smoked during pregnancy [10]. Our research shows the percentage of active smokers throughout pregnancy is 8.6%. However, it should be noted that in the first trimester of pregnancy, the number of smokers was twice as big. It shows us a high percentage of unborn children exposed to the harmful components of tobacco smoke in the most important period of their development. These smokers are statistically more frequently young, unmarried women, with a relatively low level of education and under high stress, also unaware of harmfulness of alcohol use in pregnancy. Other studies [11] similarly characterized a group of women who smoked during pregnancy. The need to intensify prevention and education of women of the risk groups in motivating smokers to stop abuse during pregnancy seems to be essential.

It seems that nowadays women should be aware of the need to stop the consumption of alcohol in pregnancy because of the arising risks to intrauterine-developing child. According to our survey, one in five pregnant women is not aware of that. Studies of other authors suggest that these are mostly young women with lower education and lower income, also women with low self-esteem and smokers [12]. Our analysis adds to this group those women subjected to high stress and identifying the Internet as a major source of medical knowledge. It should also be noted that women who smoke, have incorrect knowledge about alcohol use and those reaching for drugs on their own during pregnancy are mostly the same group of women. Source of information on the use of drugs cannot be just the media, because both obstetricians and family, midwives and nurses should strive to identify pregnant women with this group and try to change their behavior, because otherwise they can suffer serious consequences of exposing the child to these substances simultaneously.

The use of drugs during pregnancy requires a careful analysis of the doctor, considering the risk-benefit relation of administering a specific drug; hence, the self-medication use among this particular group of women is very disturbing. The analysis of our study showed self-medication care phenomenon on a large scale. The fact that 40% of all respondents would take the medication without consulting a physician is alarming. These are mostly available over-the-counter (OTC) medications and perhaps, because pregnant women are not aware of the risks of their use in pregnancy. Almost every fourth woman admits taking NSAID class of drugs. The relationship between the incidence of cleft palate, heart defects, reduced birth weight, and the use of anti-inflammatory drugs in the embryonic period was found. Additionally, these drugs are contraindicated due to the abnormal physiology of fetal and perinatal complications during the third trimester of pregnancy [7]. Pharmacists play a vital role in giving reliable information about the risks of drugs in pregnancy to each woman buying drugs without a prescription. In addition, posters, or advertising information in the media about taking the medication during pregnancy by their own is of significance. In our study, some women used the drugs available only by prescription, those left after previous treatment at home, such as antibiotics or sedatives, which undoubtedly poses an even greater danger to the mother and child. One of the research companies working on behalf of the World Self-Medication Industry (WSMI) reports that 65% of the Internet users use the web pages related to health issues [13]. This is further evidence that the demand for information is huge.

In the Polish Labour Code the protection of women's rights associated with parenthood is contained in Chapter 8 relating to the rights of employees concerning parenthood (Articles 176-189). In accordance with Article 176, pregnant woman should not perform strenuous and harmful to health work [8]. In a study on a group of 3,050 pregnant women, the proportion of women engaged in physical work during pregnancy (carrying loads exceeding 5kg) was given at 13.4% [14]. Analysis of our study indicates a slightly larger percentage (19.1%). Summing up the results of 29 studies, it is estimated that aggravating physical work is significantly associated with preterm delivery [15]. The analysis of this study showed that another group of pregnant women working in adverse conditions is performing "desk job". They are exposed to high stress level. The research on this topic suggests the need to protect female workers against the health effects associated with psychosocial factors. Their presence should also be the reason for a temporary change of job of pregnant women, or at least a change in the scope of duties for the same job. The role of the physician attending a pregnant woman who works professionally should be to obtain information about the psychosocial working conditions. The physician should assess whether in a pregnant woman's work there are factors that may have an adverse effect on the pregnancy.

CONCLUSIONS

1. Lack of reliable knowledge and awareness of pregnant women makes these women reach for the substances that have a negative impact on a child development, and can even lead to the loss of pregnancy.
2. Many pregnant workers perform heavy physical work or they are exposed to stress, which results in more frequent recourse to drugs.
3. OTC drugs are often seen as a safe and accepted by pregnant women without consulting a doctor.

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Informacje o Autorach

Luiza Zalewska – studentka; Joanna Horbaczewska – studentka; Grzegorz Zalewski – student, Studenckie Koło Naukowe przy Katedrze i Zakładzie Zdrowia Publicznego, Uniwersytet Medyczny w Lublinie; mgr farm. Adam Fałkowski – asystent; dr n. med. Krzysztof Włoch – adiunkt; prof. dr hab. n. med. dr h.c. mult. Piotr Książek – kierownik, Katedra i Zakład Zdrowia Publicznego, Uniwersytet Medyczny w Lublinie.

Corresponding Author

Luiza Zalewska
ul. Sapiehy 2/20, 20-095 Lublin
tel. 660-582-632
E-mail: luizakamilazalewska@gmail.com