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## Narażenie kobiet ciężarnych na używki, leki oraz stres

## Exposure to drugs, medications and stress during pregnancy

### Streszczenie

**Wstęp.** Literatura podaje liczne dowody negatywnego wpływu alkoholu, nikotyny, czy leków w ciąży. Wiele danych wskazuje na związek stresu oraz pracy fizycznej w ciąży z licznymi jej powikłaniami.

**Cel.** Celem badania była ocena narażenia kobiet ciężarnych na dym tytoniowy, alkohol, stres, wysiłek fizyczny oraz leki oraz analiza ich świadomości i wiedzy na ten temat, ze wskazaniem grup wysokiego ryzyka.

**Materiał i metody.** Badanie przeprowadzono w sierpniu i wrześniu 2012 roku w przychodniach ginekologiczno-położniczych w Lublinie wśród 138 kobiet ciężarnych. Narzędziem badawczym był kwestionariusz ankiety zawierający 26 pytań.

**Wyniki.** W badanej grupie 69.6% ciężarnych nigdy nie paliło papierosów, natomiast 25.3% narażało swe nienarodzone dziecko na szkodliwe związki tytoniu w I trymestrze ciąży. Palenie zaobserwowano statystycznie częściej m.in. wśród kobiet młodych oraz narażonych na wysoki stres. Niepokojący jest fakt, iż co piąta badana kobieta posiada nieprawidłową wiedzę na temat spożywania alkoholu w ciąży. Znacząco częściej były to ciężarne nieplanujące dziecka, narażone na wysoki stres, stosujące samoleczenie w ciąży oraz korzystające z Internetu, jako głównego źródła informacji na temat zdrowia w tym okresie. Połowa ankietowanych aktywnych zawodowo wykonywała pracę fizyczną. Narażenie na wysoki stres odczuło 20.2% kobiet; korelował on istotnie statystycznie z wykształceniem wyższym oraz z wykonywaną pracą umysłową. Niemal połowa badanych zastosowałaby samoleczenie i byłyby to głównie leki dostępne bez recepty, gdzie preparaty z grupy NLPZ zaznaczyła co czwarta respondentka.

**Wnioski.** Brak rzetelnej wiedzy i świadomości ciężarnych sprawia, że sięgają w czasie ciąży po szkodliwe substancje. Znaczna część ciężarnych aktywnych zawodowo wykonuje pracę fizyczną ciężką lub jest narażona na stres, który powoduje częstsze sięganie po używki. Leki sprzedawane bez recepty są często postrzegane, jako bezpieczne i przyjmowane przez ciężarne bez porozumienia z lekarzem.

### 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.

**Słowa kluczowe:** postawy kobiet ciężarnych, alkohol, palenie, leki, stres, warunki pracy.

**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].

## 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  $\chi^2$  or independence  $\chi^2$  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.

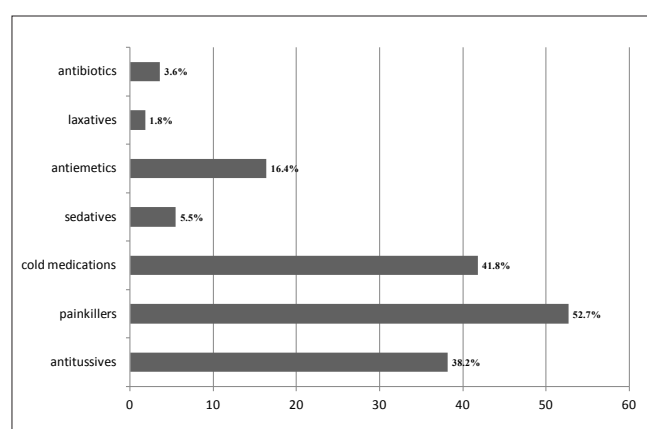
Work stress level	Type of work (n=89)		
	Mental (n=48; 54%)	Light physical (n=24; 27%)	Heavy physical (n=17; 19%)
Low (n=9; 10.2%)	4 (4.5%)	3 (3.4%)	2 (2.2%)
Medium (n=63; 70.8%)	31 (34.9%)	19 (21.4%)	13 (14.6%)
High (n=17; 19%)	13 (14.6%)	2 (2.2%)	2 (2.2%)



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.

## 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



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

**TABLE 3.** Alcohol consumption among the respondents in selected groups.

Examined factors		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%)
$\chi^2=6.93788$ , $df=2$ , $p=0.03$			
High stress level	Yes (n=28)	13 (46.43%)	15 (53.57%)
	No (n=110)	14 (12.73%)	96 (87.27%)
$\chi^2=16.10780$ , $df=1$ , $p=0.00006$			
Planned pregnancy	Yes (n=101)	10 (9.9%)	91 (90.1%)
	No (n=37)	17 (45.95%)	20 (54.05%)
$\chi^2=22.35653$ , $df=1$ , $p=0.00000$			
Self-treatment	Yes (n=55)	16 (29.09%)	39 (70.91%)
	No (n=83)	11 (13.25%)	72 (86.75%)
$\chi^2=5.27264$ , $df=2$ , $p=0.03$			
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%)
$\chi^2=7.29448$ , $df=1$ , $p=0.006$			

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 [1]. 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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