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COMPARISON OF REPRODUCTIVE CHARACTERISTICS OF WOMEN FROM CHERNIVTSI AND SIMFEROPOL

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Abstract. Reproductive characteristics were calculated for the residents of Chernivtsi and the residents of Simferopol of post-productive age according to the data of the obstetric-gynecologic anamnesis. The average number of pregnancies and their outcomes for the representatives of these cities were count for two generations. Statistical differences between populations were found by the percentage of women who had medical abortions, miscarriages and stillbirths. Significant difference was found for the percentage of artificially interrupted pregnancies and the realized zygotes.

Key words: reproductive characteristics, population, generation, Chernivtsi, Crimea.

Introduction. In the modern world due to improvement of the quality of medicine, as well as the socio-cultural aspects of everyday life, number of offspring decreases because survival of individuals have been increased. [Kurbatova, Pobedonostseva 2012; Atramentova, Meshherjakova, Filipcova 2013]. Nevertheless, some nationalities retain a more ancient way, where the importance is assigned to the number of descendants [Mustafaeva, Kozak 2014, Antsupova, Kozak, Kuritsina 2017].

The reproductive behavior of women changes in different communities of people because of various factors, such as religion, education, material status, etc. [Altuhov 2004: 340]. Thus, the Crimean Tatars belongs to the Muslim religion, whose influence leads to a change in their reproductive behavior and corresponds to the extended type of reproduction, due to the large number of children in families. In Slavs, on the contrary, in modern society, there are global trends in reducing fertility, respectively, a small number of descendants in families [Atramentova, Fedchun, Povolockij 1993:522].

Object: comparison of reproductive behavior of Crimean Tatars living in the territory of Simferopol AR Crimea, and Chernivtsi who are mostly Slavs, Ukraine.

Object-matter: Reproductive characteristics of women of post-reproductive age.

Subject-matter: Anonymous questioning of women in post-productive age (from 45 to 90 years) was conducted. Totally 262 Crimean Tatar women from Simferopol were surveyed, from which 44 were attributed to the first generation and 218 to the second. 216 questionnaires were collected from Chernivtsi, 49 of which were attributed to the first generation, 167 for the second. The first generation includes older women; the second generation has younger ones. The division into generations approximately corresponds to the length of the human generation. The time interval for one generation was 20 years.

Tasks: The following general statistics were calculated: arithmetic mean (\bar{x}), standard deviation (s), median (Me), mode (Mo). A comparison of the arithmetic mean for normally distributing variables was carried out using Student's t-test. The percentages were compared after the ϕ -transformation using the criterion F. The conclusion regarding statistical null hypotheses was assumed at the significance level of 0.05 [Atramentova, Utevskaia 2008; Gosudarstvennyj komitet statistiki Ukrainy].

Materials and methods: Data were collected in 2013 in the women's clinic of the Crimean Republican Institution "Medical Center for Serving the Deported Peoples", Simferopol. And also, in 2016 in the gynecological department of the City Clinical Maternity Hospital No. 2, Chernivtsi. The questionnaire included questions about the year of the birth of a woman, her nationality, as well as the nationality of her parents. Ethnicity, recorded by self-identification, was checked by the pedigree. The number of pregnancies and their outcomes was taken into account: medical and spontaneous abortions, ectopic pregnancies, number of stillbirths and live births.

Discussion and Results: Women of the first generation from given cities have almost the same average number of pregnancies – 4.7 for Chernivtsi and 4.2 for Simferopol; births (2.0 and 2.9, respectively) and live births (2.0 Chernivtsi and 2.8 Simferopol, Table 1.). But the women of Chernivtsi resorted to medical abortions three times more often than the Crimean Tatars (0.8 and 2.4 abortions respectively). On the contrary spontaneous abortions occurred 2.5 times more often among Crimea residents (0.5 miscarriages per woman on average) compared with Chernivtsi residents (0.2 miscarriages, $p>0.05$). Ectopic pregnancies

were indicated only by one woman from these samples, which for Chernivtsi was 0.08, and for Simferopol 0.02. Stillbirths were indicated by two Crimean Tatar women, whereas Chernovtsy women with this problem, apparently, did not get into the sample.

Table 1. The average number of pregnancies and their outcomes per woman of the first generation

Indicator	Generations				<i>p</i>
	<i>f₁ Chernivtsi</i>		<i>f₁ Simferopol</i>		
	$\bar{x} \pm s_{\bar{x}}$	<i>s</i>	$\bar{x} \pm s_{\bar{x}}$	<i>s</i>	
Pregnancy	4,7±0,37	2,6	4,2±0,4	2,6	>0,05
Medical abortions	2,4±0,30	2,1	0,8±0,1	1,3	>0,05
Spontaneous abortions	0,2±0,08	0,5	0,5±0,08	0,9	>0,05
Ectopic Pregnancy	0,08±0,08	0,6	0,02±0,003	0,1	>0,05
Childbirth	2,0±0,29	2,1	2,9±0,2	1,3	>0,05
Stillbirths	0,00	0	0,07±0,01	0,3	>0,05
Live births	2,0±0,29	2,1	2,8±0,4	1,4	>0,05

Table 2. The average number of pregnancies and their outcomes per woman of the second generation

Indicator	Generations				<i>p</i>
	<i>f₂ Chernivtsi</i>		<i>f₂ Simferopol</i>		
	$\bar{x} \pm s_{\bar{x}}$	<i>s</i>	$\bar{x} \pm s_{\bar{x}}$	<i>s</i>	
Pregnancy	3,7±0,15	1,9	3,8±0,3	2,1	>0,05
Medical abortions	1,5±0,11	1,4	0,9±0,06	1,4	>0,05
Spontaneous abortions	0,3±0,06	0,8	0,3±0,02	0,6	>0,05
Ectopic Pregnancy	0,01±0,008	0,1	0,01±0,001	0,1	>0,05
Childbirth	1,9±0,07	0,9	2,6±0,07	1,0	>0,05
Stillbirths	0,03±0,02	0,3	0,09±0,01	0,3	>0,05
Live births	1,8±0,07	0,9	2,5±0,2	1,1	>0,05

Notes: *f₂* - second generation, \bar{x} - arithmetic mean, $s_{\bar{x}}$ - statistical error of the arithmetic mean, *s* - standard deviation, *p* - level of significance of the difference between groups

Table 3. Proportion of women of different generations with different outcomes of pregnancies

Indicator	Generations					
	<i>f₁ Ch.</i>	<i>f₁ S.</i>	<i>p</i>	<i>f₂ Ch.</i>	<i>f₂ S.</i>	<i>p</i>
Number of women (n):	49	44		167	218	
not having pregnancies,%	4,1	4,5	>0,05	3,6	5,5	>0,05
not giving birth,%	4,1	4,5	>0,05	3,6	5,5	>0,05
who had medical abortions,%	83,7	34,1	<0,05	69,5	45,4	<0,05
who had spontaneous abortions,%	14,3	31,8	<0,05	23,4	33,5	<0,05
having ectopic pregnancies,%	2,0	0,3	>0,05	1,2	0,9	>0,05
who had stillbirths,%	0,0	4,5	<0,05	1,8	9,2	<0,05
<i>Artificially interrupted pregnancies,%</i>	50,9	18,4	<0,05	39,5	24,3	<0,05
<i>Realized zygotes,%</i>	43,0	68,6	<0,05	49,8	66,8	<0,05

Notes: *p* - the level of significance of the difference between generations, *Ch.* - Chernivtsi, *S.* - Simferopol

For the second generation of women, the data for the average indicators of different outcomes of pregnancies, as well as for women of the first generation, do not have statistically significant differences (Table 2), however, it should be noted some features between different populations the majority of whose inhabitants belong to different ethnic groups. Residents of Chernivtsi from the second generation, as well as the first, make medical abortions more often than Crimean Tatars. In the second generation of Chernivtsi, this indicator is 1.7 times higher (1.5 abortions per a woman) than among women of Simferopol (0.9 abortion). On average, there are 2.6 births for one Crimean Tatar of the second generation. It is 1.4 times

more than for the Chernivtsi woman (1.9 births). The live birth rates are approximately at the same level as the births in both cities (2.5 and 1.8, respectively). Stillbirths were noted by 17 Crimean Tatars of the second generation, while only 3 of Chernivtsi woman indicated have it. They were 0.09 and 0.03 respectively. Pregnancies of both groups are on the same level and are 3.7 for Chernivtsi and 3.8 for Tatars. Spontaneous abortions and ectopic pregnancies in these samples do not differ. The average number of miscarriages for both cities was 0.3, and the ectopic pregnancy was 0.01.

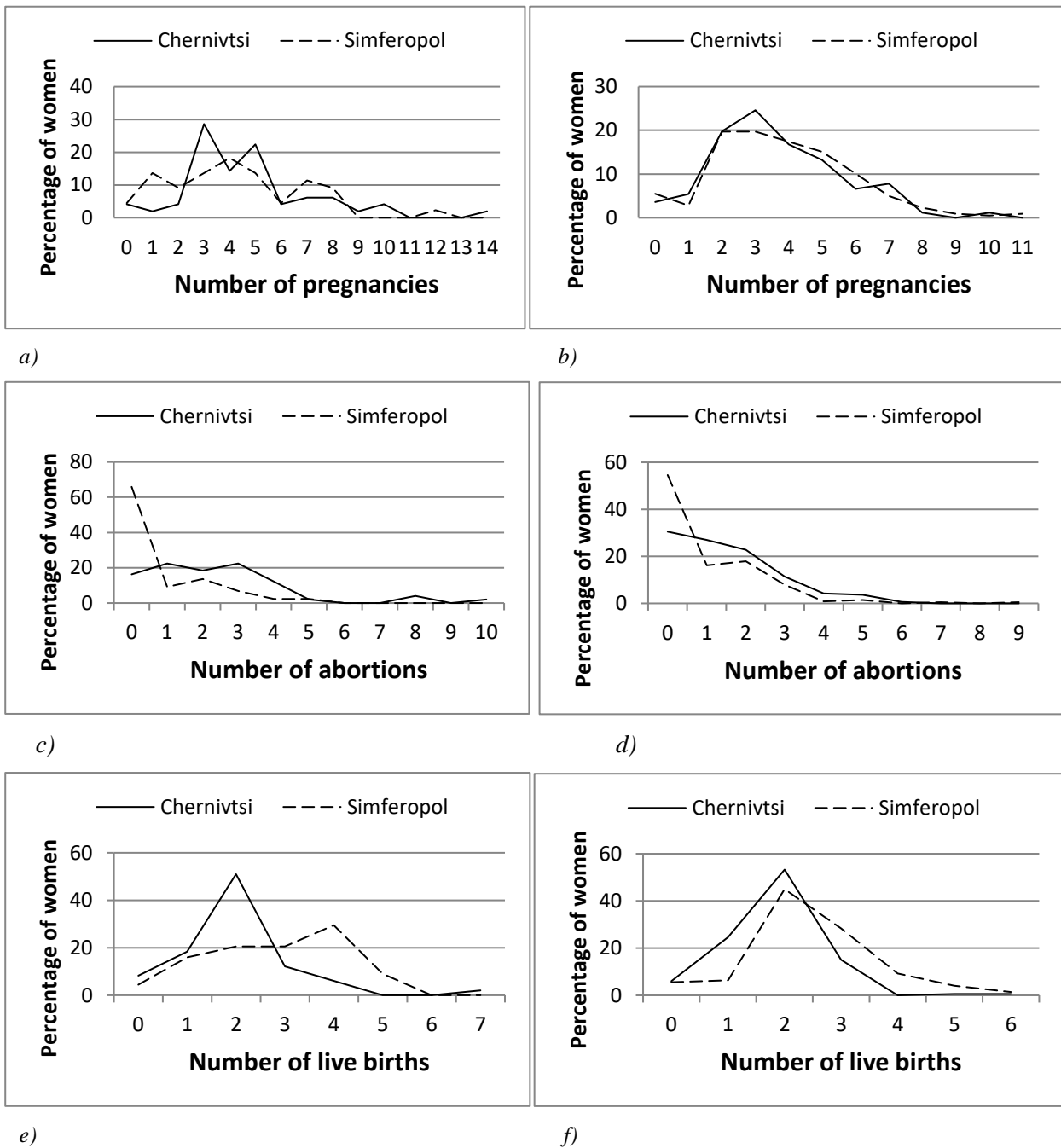


Fig.1. Distribution of the number of pregnancies and their outcomes in two generations (a, c, e - first generation, b, d, f - second generation)

The proportion of women who did not have pregnancies and did not give birth was not significantly different in the first generation and averaged 4.3% (Table 3). Among second generation, the residents of Chernivtsi invested more in the gene pool of the population than the inhabitants of Simferopol. The percentage of women who did not give birth was 1.5 times higher for Crimean Tatars (5.5%) than for Chernivtsi women (3.6%). The percentage of women in the first and second generation for medical abortion has no statistically difference. Chernivtsi woman of the first generation do abortions 2.5 times more often (83.7%) than Simferopol Crimean Tatars (34.1%, $p < 0.05$).

In the second generation this figure declined in the Chernivtsi, while in the Tatars it increased, but nevertheless, Chernivtsi women make abortions more often in 1.5 times (69.5% and 45.4%, $p < 0.05$). The share of spontaneous abortions is 2.2 times higher among female residents of Simferopol of the first generation (31.8%) than in Chernivtsi (14.3%, $p < 0.05$). For the second generation, the difference is almost one and a half times, for Crimean Tatars 33.5% and 23.4% for Chernivtsi women. A big genetic burden in Crimean Tatar families can be connected with the spread of consanguineous marriages among Muslims, which is reflected in embryonic losses. The percentage of ectopic pregnancies does not have obvious differences and in average for the first generation is 2.2%, and for the second 1.1%. Stillbirths, as well as miscarriages, are also more common among representatives of the Muslim faith. In the first generation 4.5% of Crimean Tatars indicated stillbirths, while none of the women from Chernivtsi who were in the sample had stillbirths. In the second generation of the inhabitants of Simferopol, this indicator increased to 9.2%, which is 5 times higher than that of residents of the city of Chernivtsi - 1.8% ($p < 0.05$). But, the share of artificially interrupted pregnancies is 2.8 times higher for Chernivtsi women (50.9%) than for Crimean Tatars (18.4%, $p < 0.05$). In the second generation of women from Chernivtsi, this indicator decreased (39.5%), but still remains more than 1.5 times higher than in women from Simferopol (24.3%, $p < 0.05$). Based on the above data became visible the share of realized zygotes, which is higher among representatives of the Muslim religion. In the first generation of Crimean Tatars this indicator is 1.6 times higher than that of Ukrainians (68.6% and 43%, respectively). In the second generation, the trend remains about the same level and is 66.8% for residents of Simferopol and 49.8% for residents of Chernivtsi.

The graphs show the percentage of women with different numbers of pregnancies, medical abortions and live births (Fig. 1a-f). Modal pregnancy classes for first-generation women were 3.0 for Chernivtsi and for female residents of Simferopol (Fig. 1a). In the second generation, the difference was reduced due to a decrease in pregnancy mode in Crimean Tatars (2.5), while the modal class of the Chernivtsi residents remained 3.0 (Fig. 1b). In the first generation of Chernivtsi women, the bimodality of the distribution of the number of medical abortions was noted, peaks accounted for 1 and 3 abortions, respectively, while in Crimean Tatars the modal abortion class was 0 (Fig. 1c). In the second generation both samples have the same modal class = 0 (Fig. 1d). By birth and live births the mode of Chernivtsi women in both generations is 2.0, whereas in the Crimean Tatars in the first generation the indicator was 4.0, and in the second generation 2.0 (Fig. 1e, f). The remaining modal classes for the two samples of the first and second generations are equal to 0.

Conclusions. Comparison of the reproductive characteristics of Chernivtsi residents and Crimean Tatars from Simferopol from two adjacent generations showed on the whole their dynamics is in line with the global trends, manifested in a decrease in the birth rate due to its artificial regulation. Comparison of the reproductive characteristics of the representatives living in Chernivtsi with the data obtained for the Crimean Tatars from Simferopol a number of statistically significant differences were revealed. Most of them can be explained by cultural traditions and religious prohibitions in the sphere of posterity in representatives of different religious groups and nationalities. The main difference is that the narrowed type of reproduction is typical for Chernivtsy, and extended for the Crimean Tatars. These differences can affect the ethnic composition of Ukraine.

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THE ANTIBIOTICS CRISIS

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Abstract. This article considers the causes and mechanisms of the emergence of multidrug-resistant bacteria. The most dangerous antibiotic-resistant bacteria are highlighted and their features are analyzed. New methods of fighting with multidrug resistant bacteria have been identified and the need for rational use of antibiotics has been substantiated.

Key words: superbugs, horizontal gene transfer (HGT), antibiotics, multiple antibiotic resistance.

Introduction. In recent years there has been a lot of news about the impending antibiotics crisis, brought to a head by renewed awareness that we are running out of drugs to treat evolving superbugs, and with the startling revelation following the NDM-1 discovery, that microorganisms are also capable of sharing bits of themselves with each other to thwart even our most powerful last-line antibiotics.

Is this the beginning of the end of antibiotics, as some scientists are predicting, are we about to return to a pre-penicillin world where a common bacterial infection could be a death sentence? Or are we just at the cusp of a new wave of inventions that will spur a new generation of drugs that will keep us ahead of the evolutionary race against harmful microorganisms? What are the possible solutions of the problem we faced?

Object-matter. Antibiotic-resistant bacteria.

Subject-matter. Resistance to antibiotics.

Objective. 1) To study the most dangerous multidrug-resistant microorganisms and the reasons for their occurrence; 2) to demonstrate the link between the misuse of antibiotics and the occurrence of multidrug-resistant bacteria.

Tasks. 1) To study the existing literature data on multidrug-resistant bacteria;

2) to study methods of fighting with multidrug-resistant bacteria.

Materials. Scientific articles, educational literature, electronic resources.

Methods. Theoretical analysis of literary sources, scientific articles, electronic resources.

Discussion and Results.

Antibiotics and Microorganisms

Antibiotics are drugs that kill microorganisms like bacteria, fungi and parasites. Bacteria are very small creatures of usually only one cell, comprising internal cell structures but no distinct nucleus, surrounded by a cell wall. They can make their own proteins and reproduce themselves as long as they have a source of food.

Some bacteria cause no harm while they live in one part of the body, but then become potentially deadly once they enter the bloodstream. A good example is *Escherichia coli* (*E. coli*), which lives in the human gut and helps break down food, but if it enters the bloodstream, it can cause severe cramping, diarrhea, and even death from peritonitis if not treated promptly.

Antibiotics have made a big difference to mankind's fight against infectious microorganisms and have vastly improved the conditions and chances of success in many fields of medicine all over the world.

They work because they block a life-sustaining function in the unwelcome microorganism. Some stop the microorganism from being able to make or maintain a cell wall, while others target a particular protein that is vital for survival or replication.

How Antibiotic Resistance Arises

Microorganisms are always evolving. By chance, every now and again, a generation gives rise to offspring with slightly different genes to their forebears, and the ones whose variations confer a survival advantage, e.g. to make better use of a resource or withstand an environmental stress, get to produce more offspring. And the efforts of mankind – the production of antibiotics that are designed to kill off bacteria – is