Assessment of Risk Factors Affecting the Reproductive Health of Men Living in Uzbekistan

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Abstract Medico-biological and socio-hygienic factors were studied in 300 men who sought medical help for problems with conception and the manifestation of pathological changes in the spermogram, as well as 300 men with normal spermogram parameters (control group). The data of both groups were compared and the odds ratio was estimated. As a result of the study, it was found that the leading risk factors that negatively have an effect on the male reproductive system are unfavorable living conditions, low material security, low physical activity, bad habits, poor nutrition, promiscuity, overweight or obesity, mumps and the presence of a varicocele.

Keywords Reproductive health, Infertility, Male infertility, Spermogram, Risk factors

1. Introduction

Currently, human health is affected by many endogenous and exogenous factors. The reproductive system is particularly vulnerable to factors that adversely affect health. In recent years, there has been a decline in the quality of human sperm. Studies show that this problem of reproductive health is becoming more relevant among men in different countries [3,8].

Despite evidence of declining sperm counts worldwide and an increasing prevalence of male infertility, documentation of potential causes and risk factors for male infertility is limited [4].

It is conditionally possible to group all factors influencing the male reproductive system into uncontrollable (age, congenital and genetic factors) and controllable (lifestyle, working conditions, environmental factors). When determining the risk of developing the disease, the interaction of these factors should also be taken into account, since in most cases in male infertility, an interaction of 2-3 or more factors can be observed [1,3,6].

More research in recent years has demonstrated the negative impact of environmental and lifestyle factors on male fertility. In particular, smoking, diabetes, psychological stress, drug or alcohol, endocrine disruptors, and nutrition have been shown to have detrimental effects on sperm parameters [7,9].

The negative impact of numerous potential risk factors

that can impair male fertility may well be largely overcome through behavioral change and better lifestyle choices, as well as improved health education [4].

An examination of the literature review indicates the limited knowledge of the actual causes of male infertility in published studies. Gaps in knowledge have been noted that need to be addressed in order to better understand the actual causes of male infertility. Researchers believe that a better understanding of the causes of male infertility will help determine more effective methods for the primary prevention and treatment of male infertility [2,3,5].

2. Aim

Study and evaluation of socio-hygienic and biomedical risk factors affecting male reproductive health.

3. Materials and Methods

By questioning the medical, biological and socio-hygienic characteristics of 300 men (main group) who had pathological changes in the spermogram and 300 men with normal spermogram parameters (control group) who applied to the Republican Specialized Scientific and Practical Medical Center of Obstetrics and Gynecology for problems with childbearing were studied and analyzed. The results obtained were compared (odds ratio) and their significance was assessed (p, Student's t-test, chi-square test).

4. Results and Discussion

Age is one of the important factors affecting male

reproductive health. The average age of men who sought medical help for infertility and identified changes in spermogram was 30.9±0.33 years, for men with normospermia -29.7±0.31 years. The average duration of childlessness was 2.85±0.14 years. According to the results of our research, the average age of marriage for men was 25.1±2.0 years, and for women 21.2±2.0 years. the majority of men (58%) started a family at the age of 24-29, and women at the age of 21-25 (63%). The age at which men started a family was almost 4 years higher than that of women.

The analysis of the obtained data on the social status and living conditions of the respondents is presented in the following table (Table 1).

Table 1. Odds ratio of male infertility by social factors

Factors	Gradation of factors	Patospermic group (%) n= 3 00 (P1)	control group (%) n= 3 00 (P2)	Odds Calculation P=P1/P2	odds ratio
Education	Medium	61.7± 2.81	65.3± 2.75	0.94	2.08
	Medium special	32.3± 2.70	25.0± 2.50	1.29	
	Higher	6.0± 1.37	9.7± 1.71	0.62	
Social status	Employee in a government agency	5.0± 1.26	8.7± 1.62	0.58	1.95
	Employee in a private institution	29.7± 2.64	32.3± 2.70	0.92	
	Worker	39.7± 2.82	35.3± 2.76	1.12	
	Student	1.3± 0.66	2.0± 0.81	0.67	
	Temporarily unemployed	24.3± 2.74	21.7± 2.38	1.12	
Delayed visit to the doctor due to financial difficulties	Draws in time	11.3± 1.83	28.7± 2.61	0.40	4.1
	Dealing with a delay	38.3 ± 2.81 _	23.7± 2.45	1.62	
	Sometimes drawn late	50.4 ± 2.89 _	4 7 , 7 ± 2.88	1.06	
living conditions	Bad	9.0± 1.65	5.0± 1.26	1.80	2.1
	Partially Satisfactory	36.7±2.78	33.0± 2.71	1.10	
	Satisfactory	26.0± 2.53	30.0± 2.71	0.86 _	
	Good ones	28.3±2.60	32.0±2.69	0.88	
Balanced diet	Always respects	8.7± 1.62	10.7± 1.78	0.81	2.1
	Usually observed	79.3± 2.34	82.3± 2.20	0.96	
	Virtually non-compliance	12.0± 1.88	7.0± 1.47	1.71	
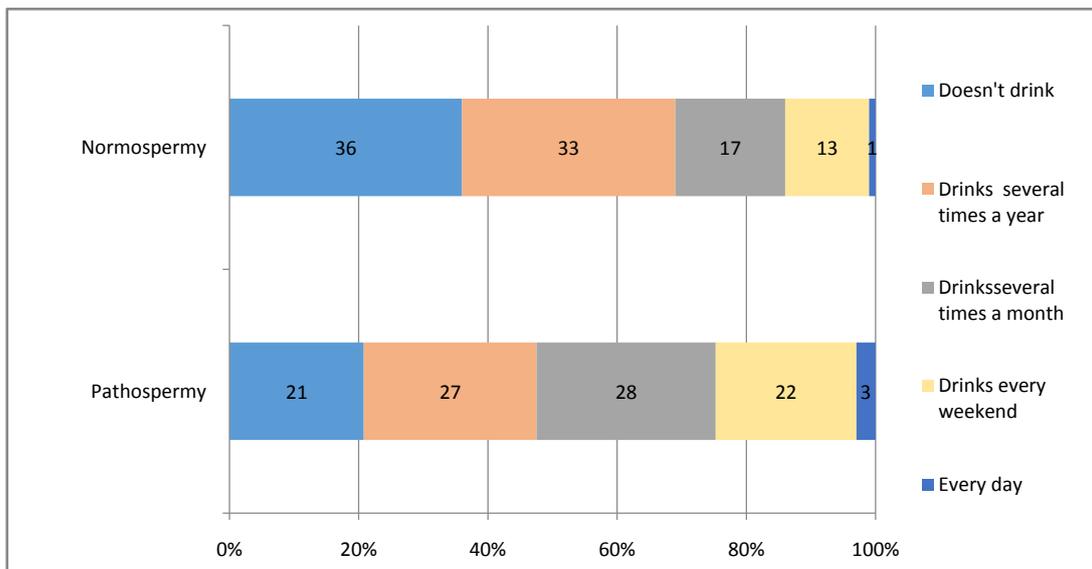
Figure 1. Alcohol consumption by respondents

In both study groups, men with secondary and secondary specialized education made up the majority of the respondents. Among men diagnosed with pathospermia, there were 1.61 times fewer people with higher education than men with normospermia, and 1.3 times more people with secondary specialized education. No statistically significant relationship was found between the level of education and infertility (n'=2, χ^2=5.706, p=0.058). In turn, no statistical relationship was found between social status and pathospermia/normospermia (p=0.297).

To study the relationship between living conditions and the reproductive health of men, we used a form for assessing housing conditions developed by scientists in our country, summarizing the type of house, living space, provision with communal and sanitary and hygienic conditions, and hygienic condition (B. Mamatkulov, 2013). In accordance with it, the studied families were divided into poor, partially satisfactory, satisfactory and good groups. According to the results obtained, it was shown that in the group of pathospermia, people living in unfavorable living conditions are 1.8 times more likely than those with normospermia, and compared with people living in very good conditions, the probability of getting sick is 2.1 times higher (p=0.047).

Among the men of the normospermic group, the daily consumption of meat products was 1.3 times more common than in the pathospermic group. It has been established that in the group of pathospermia, persons who rarely consume meat products are found 1.5 times more often than in the group of normospermia. Sufficient consumption of meat products can have a positive effect on spermogram parameters (n'=3, χ^2=9.720, p=0.022). It was found that men of the normospermic group consume more fruits and vegetables (n'=3, χ^2=11.039, p=0.012).

In the study of smoking tobacco products, 38.67±2.81% of respondents from the pathospermic group and 30.67±2.66% of the normospermic group reported the presence of harmful inoculations as smoking. A statistically significant relationship was found between smoking and pathospermia (p=0.040). It should be noted that 84.62±2.50% of smokers also consume alcohol, while a combined effect of two harmful factors is observed.

The results of the study of harmful factors associated with the profession of the respondents are presented in the following figure (Fig. 2).

The absence of harmful factors associated with working conditions was reported by 52.0±2.88% of respondents in the pathospermia group and 69.7±2.73% in the normospermia group. Among the harmful factors associated with professional activity, a long sitting working posture attracts attention (21.0±2.35% in the pathospermia group and 10.3±1.76% in the normospermia group). Statistical analysis of the obtained data shows that occupational hazards can negatively affect reproductive health (OR = 2.03, p<0.01).

In the group of normospermia, 19.0±2.26% of the respondents stated that they go in for physical culture every day. In the group of pathospermia, this figure is 10.3±1.76% and is almost 2 times lower than in the group of normospermia. Regular exercise has a positive effect on the reproductive system. At the same time, the duration of physical culture lessons is also of great importance, the proportion of respondents who add 30 minutes to the duration of each workout was 65% in the normospermia group and 43% in the pathospermia group (p = 0.010).

In those who started sexual activity before the age of 18, the probability of pathological changes in the spermogram is 1.5 times higher than in those who started after 18 years (p=0.034). In the group of pathospermia 15.3±2.08% of respondents and in the group of normospermia 10.7±1.78% use the services of commercial sex several times a year, and their risk of developing pathospermia is 1.8 times higher than it used to be. we use these services.

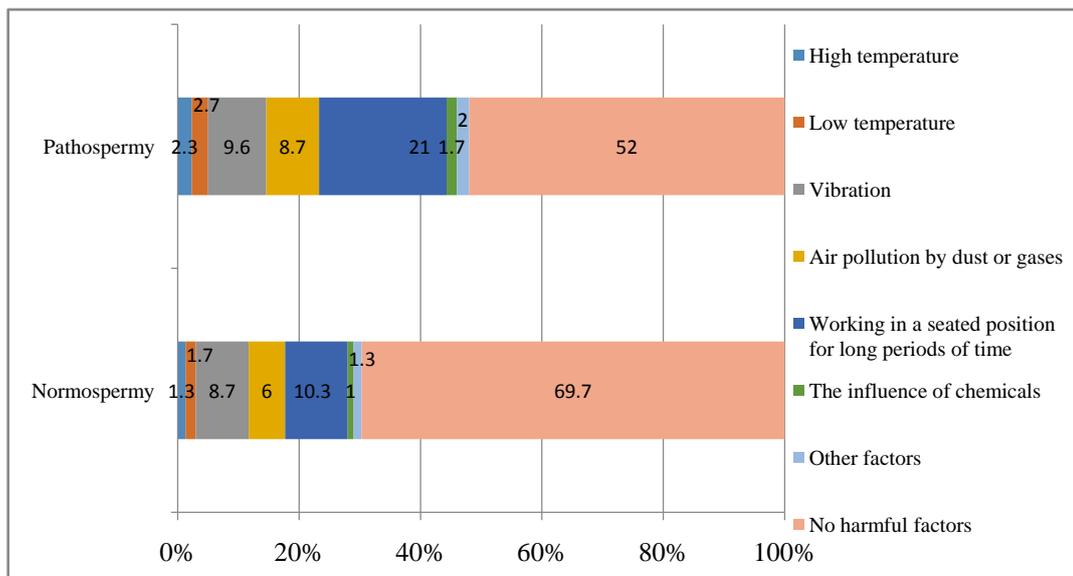Data on the medical and biological status of the respondents is presented in the following table (Table 2).

Figure 2. Leading risk factors associated with working conditions that affect reproductive health

Table 2. Data on the medical and biological status of the respondents

Factors	Gradation of factors	Patospermic group (%) n= 3 00 (P1)	control group (%) n= 3 00 (P2)	Odds Calculation P=P1/P2	odds ratio
BMI	Underweight < 18.5	2.3 ± 0.87	1.7 ± 0.74	1.40	2.2
	Normal >= 18.5 VA < 25:	36.3± 2.78	47.3± 2.88	0.77	
	Overweight >= 25 va < 30	57.3± 2.86	48.7± 2.89	1.18	
	Obesity >= 30	4.0± 1.13	2.3 ± 0.87	1.71	
Have you ever had parotitis (mumps)?	Yes	16.0± 2.12	8.7± 1.62	1.85	2.7
	Not	39.7± 2.82	57.0± 2.86	0.70	
	Don't know	44.3± 2.87	34.3± 2.74	1.29	
Have you ever had purulent discharge from the genitals?	Yes	87.3± 1.92	93.7± 1.41	0.93	2.1
	Not	12.7± 1.92	6.3± 1.41	2.00	
Ever been injured in the groin area?	Yes	11.0± 1.81	5.3± 1.30	2.06	2.2
	Not	77.3± 2.42	82.7± 2.19	0.94	
	I do not remember	11.7± 1.85	12.0± 1.88	0.97	
Have you ever had groin surgery??	Yes	20.7± 2.34	9.0± 1.65	3.89	2.6
	Not	79.3± 2.34	91.0 1.65	0.71	
Have you been diagnosed with a varicocele?	2 or 3 degrees	18.3± 2.23	5.7± 1.33	3.24	3.9
	1 degree	11.3± 1.83	9.7± 1.71	1.17	
	Not	70.3± 2.64	84.7 ± 2.08	0.83	

Diabetes mellitus was detected in 2 patients in the group of pathospermia and is 0.7±0.4%. Respondents with normospermia do not have diabetes mellitus.

Varicocele was detected in 29.7% of patients in the pathospermia group and in 15.3% in the normospermia group. Grade 1 varicocele occurred with almost the same frequency in both groups, but grade 2 varicocele was significantly more common in the pathospermia group than in the normospermia group (18.3% and 5.7%, respectively). In the group with normospermia, grade 3 varicocele was not detected. It can be said that varicocele remains one of the leading factors negatively affecting the male reproductive system (p<0.001).

5. Conclusions

1. There are a number of risk factors that can potentially affect male reproductive health. These include lifestyle factors, tobacco smoking, alcohol use, overweight and obesity, sedentary lifestyle, diet, sexual activity, varicocele, etc. Their negative impact can largely be overcome through behavior modification and better lifestyle choices.

2. The negative impact of each risk factor on male fertility varies in strength. According to the results of our studies, the leading factors are varicocele, financial difficulties, bad habits, promiscuous sex life, sedentary and sedentary lifestyle and work. The impact of these risk factors does not occur separately, but simultaneously, and each of them has a different duration and severity.

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