ORIGINAL ARTICLES

Stress at work and attitude to health
in open urban male population: prevalence and associations

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Objective. *To study association between the prevalence of certain stress parameters at workplace and attitude to medical care in men aged 25–64 years of open urban population in Tumen.*

Materials and methods. *The representative sample of 1000 people was taken from the electoral lists of men aged 25–64 years (the response amounted to 85.0 %.) Stress at work and attitude to medical care were determined using the WHO MONICA psychosocial questionnaire "Knowledge and attitude towards their health".*

Results. *By studying the awareness and attitude to medical care, we can determine the level of participation in preventive programs, the initial preventive examination, and adherence to certain practical recommendations. Elderly patients have decreased positive health self-esteem. Over the last 12 months the fourth part of the Tyumen male population has changed their workplace (the third part in 25–34 years age group), 34.0 % of Tyumen*

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men increased workload, 44.7% increased responsibility at work. Load and responsibility increase were noted mainly among young people.

High-risk groups, including people who changed specialty and workload in the workplace over the past 12 months, were associated with low health self-esteem. People with negative attitude to work did not differ significantly by low and high health self-esteem.

Conclusion. *The results of obtained in this study conducted in unorganized population of Tyumen may be used as the scientific basis for organizing complex socially oriented preventive programs in other moderately urbanized Siberian cities with the main focus on the needs of risk groups — men who underwent stress at workplace.*

Key words: *stress at work, open urban population, men, health self-esteem.*

Stress at work is one of the most significant social problems in Russia and developing countries [1]. Psychosocial risk factors can be divided into two main categories: chronic stress factors (social factors) and emotional stress factors (psychological factors). Chronic stress factors including family status, stress at work and at home, low social support, low socio-economic status (education, profession) [2]. Russian and foreign studies have shown that during socioeconomic reforms, the requirements for all workers became changed: massive job cuts, high requirements for employees, work/leisure imbalance, high professional skills demands and low salary, low safety measures at workplace, etc. All these factors lead to stress at work, and to labor resources decrease (disability, admissions) [3, 4].

Positive attitude to healthcare can be reached by gaining knowledge on healthy lifestyle and possible risk factors. The importance of health self-esteem is growing, since it causes psychological difficulties at work and has negative impact on male population [5, 6, 7].

The analysis of Russian and foreign literature showed number of studies on health self-esteem and various parameters of stress at the work [9, 10].

At the same time, the association between these parameters haven't been studied enough yet and the results obtained the Tyumen city model can serve as the scientific basis for organizing complex socially oriented preventive programs in other moderately urbanized cities.

Objective

To study the association between the prevalence of certain stress parameters at workplace and attitude to medical care in men aged 25–64 years of open urban population in Tumen.

Materials and methods

Epidemiological study was done using strictly standardized epidemiological methods on representative sample of open urban population that was formed from the electoral lists of one of the central administrative districts of Tyumen. The studied group initially included 1000 people each age group by age decades and the response of participating in cardiological screening amounted to 85.0%.

The cardiological screening included questioning of participants using WHO-MONICA psychosocial questionnaire "Knowledge and attitude towards their health". The study analysis included data on chronic social stress parameters (stress at work) and one of objective-subjective health parameter (health self-esteem) [2].

WHO-MONICA psychosocial questionnaire "Knowledge and attitude towards their health" included 33 questions on health self-esteem, attitude to medical care and preventive measures, behavioral risk factors, family stress and stress at workplace, associations between which were statistically significant in Tyumen population.

Statistical analysis was done using IBM SPSS Statistics. Direct standardization method and the structure of 25–64 years Russian Federation urban population (census data) were used in order to standardize indicators by age. Pearson's chi-squared test (X^2) was used to determine the statistical significance of the results between different groups $(p \leqslant 0.05)$.

Results

By studying healthcare awareness, we can determine population attitude to participate in preventive programs, examination and certain practical recommendations.

Table 1 presents the health self-assessment in men of Tyumen population depending on their age group.

Table 1. **Health self-esteem in men of Tyumen depending on age**

Question/attitude	Age group											
	25–34		35–44		45–54		55–64		25–64		◊
	Abs.	%	Abs.	%	Abs.	%	Abs.	%	Abs.	%	%
1. How do you estimate your health											
1.1. Absolutely healthy	6	3.4	5	2.2	4	1.7	5	2.3	20	2.4	2.4
1.2. Good health	34	19.2	32	14.0	22	9.5**	12	5.6***..	100	,,11.8**	13.0
1.3. Healthy	92	52.0	111	48.7	85	36.8**..	39	***18.2...	327	38.5**	41.8
1.4. Not completely healthy	43	24.3	73	32.0	107	46.3***..	120	*56.1***...	343	...40.4***	37.4
1.5. Sick	2	1.1	7	3.1	13	5.6*	38	***17.8***...	60	7.1**	5.4

Comment: statistically significant differences between parameters are signed with (*) in the upper right corner of the table cell between 25–34 age group and other age groups; in the lower right corner of the table cell — between 35–44 age group and other groups; in the upper left corner of the table cell — between 45–54 age group and other age groups; in the lower left corner of the table cell — between 55–64 and 25–64 age groups: * p<0,05; ** p<0,01; *** p<0,001; ◊ age-standardized variable.

Table 2. **Stress at work in men aged 25–64 years**

Question/attitude	Age group											
	25–34		35–44		45–54		55–64		25–64		ASV
	Abs.	%	Abs.	%	Abs.	%	Abs.	%	Abs.	%	%
1. Did your specialty change over the last 12 months?											
1.1. Yes	84	47.7	99	43.4	81	35.1	77	36.0	341	40.2	41.2
1.2. No	92	52.3	129	56.6	150	64.9	137	64.0	508	59.8	58.8
2. Did your workload change over the last 12 months?											
2.1. I started doing additional work	72	40.9	87	38.3	74	32.0	35	***16.4***...	268	...31.6	34.0
2.2. It didn't change	71	40.3	98	43.2	130	56.3**..	100	46.7	399	47.0	47.1
2.3. I stopped or started doing less additional work	33	18.8	42	18.5	27	11.7	79	***36.9***...	181	...21.3	19.5
3. Do you like your job?											
3.1. I don't like it at all	1	0.6	1	0.4	0	0.0	4	1.9	6	0.7	0.6
3.2. I don't like it	7	4.0	9	3.9	5	2.2	8	3.7	29	3.4	3.4
3.3. Moderate	60	34.1	77	33.8	86	37.2	70	32.7	293	34.5	34.6
3.4. I like it	86	48.9	121	53.1	114	49.4	109	50.9	430	50.6	50.6
3.5. I really like it	22	12.5	20	8.8	26	11.3	23	10.7	91	10.7	10.8

Comment:.statistically significant differences between parameters are signed with (*) in the upper right corner of the table cell between 25–34 age group and other age groups; in the lower right corner of the table cell — between 35–44 age group and other groups; in the upper left corner of the table cell — between 45–54 age group and other age groups; in the lower left corner of the table cell — between 55–64 and 25–64 age groups:
* p<0,05; ** p<0,01; *** p<0,001; ASV — age-standardized variable.

Thus, 47.4 % of men said that they are "not completely healthy" or "sick". 73.8 % of men aged 55–64 years claimed that they were "not completely healthy" or "sick". The number of "perfectly healthy" men were low in all age groups. The amount of "good health" and "healthy" answers naturally decreased in older age groups. The answer "not completely healthy" in the age categories 25–34 and 35–44 years was much less common in younger age groups compared with older patients. The answer "sick" had similar prevalence (Table 1).

The results of the study on stress at the work in the male population of Tyumen are presented in table 2. 41.2 % of men said that their «specialty changed over the last 12 months». The change in specialty did not depend on age. 47.1 % of men did not start doing additional work over the last 12 months, 34 % started doing additional work, 19.5 % stopped or started doing less additional work. Men aged 55–64 years (16.4 %) started doing less additional work compared with other age groups. The most stable work load was determined in the 45–54 years age group and had significant differences compared with younger age groups — 25–34 and 35–44 years (56.3 % — 40.3 %, p <0.01 and 56.3 % — 43.2 %, p <0.01, respectively). Men aged 55–64 years stopped or started doing less additional work more common compared with other age groups and general population (36.9 % — 21.3 %,

Table 3. **How do you estimate your health?**

Question/attitude Abs, %	n=850									
	Absolutely healthy m=20 abs. m=2.4%		Good health m=100 abs. m=11.8%		Healthy m=327 abs. m=38.5%		Not completely healthy m=343 abs. m=40.4%		Sick m=60 abs. m=7.1%	
	м abs..	м %	м abs.	м %	м abs.	м %	м abs.	м %	м abs.	м %
1. Did your specialty change over the last 12 months?										
1.1. Yes	13	65.0	37	37.0	135	41.3	136	39.7	21	35.0
1.2. No	7	35.0	63	***63.0	192	***58.7	207	***60.3	39	***65.0
2. Did your workload change over the last 12 months?										
2.1. I started doing additional work	13	65.0	35	35.0	114	34.9	99	28.9	7	11.7
2.2. It didn't change	7	35.0	51	51.0	152	**46.5	167	***48.7	24	40.0
2.3. I stopped or started doing less additional work	0	0.0	14	***14.0***	61	***18.7***	77	22.4***	29	***48.3
3. Do you like your job?										
3.1. I don't like it at all	0	0.0	0	0.0	0	0.0	5	1.5	1	1.7
3.2. I don't like it	0	0.0	3	3.0	8	2.5	14	*4.1	3	5.0
3.3. Moderate	3	15.0	29	29.0***	116	35.5***	124	***36.2***	21	***35.0***
3.4. I like it	6	30.0	57	...57.0***	163	...49.8***	174	...***50.7***	32	***53.3***
3.5. I really like it	11	..55.0	11	..11.0...	40	...12.2***...	26	...***7.6...	3	...5.0...

Comment: statistically significant differences are signed with (*) in the upper left corner between 1.1 and 1.2; 2.1 and 2.2, 2.3; 3.1 and 3.2, 3.3, 3.4, 3.5, in the upper right corner between 2.2 and 2.3; 3.2 and 3.3, 3.4, 3.5, in the lower left corner between questions 3.3 and 3.4, 3.5, in the lower left corner between questions 3.4 and 3.5: ** p < 0,01; *** p < 0,001.

p < 0.001). Over 70% of the men of the Tyumen population liked their work by all five categories of answers, and age groups did not differ significantly (Table 2).

Men of open population with stress at work, who changed their specialty over the last 12 months felt less healthy ("not completely healthy" (39.7% — 60.3% p<0.001), "sick" (35.0% — 65.0% p<0.001)) compared with men without stress at work. Men who felt healthier ("healthy" (41.3% — 58.7% p <0.001) and "good health" (37.0% — 63.0% p<0.001)) did not change their specialty over the last 12 months.

Men with low health self-esteem ("sick") started doing less additional work over the last 12 months. Thus, men with low health self-esteem, reduced or stopped doing additional work more frequently than started doing additional work (11.7% — 48.3% p <0.001).

Men with high health self-esteem ("good health" (35.0% — 14.0% p <0.001); "healthy" (34.9% — 18.7% p <0.001) more frequently increased workload than reduced or stopped doing additional work.

Men who felt "not completely healthy" did not show significant changes in the work load over the last year.

Men who felt "sick" mostly answered "I like my job" to the question "Do you like your job?" compared with "I don't like my job" (53.3% — 5.0% p <0.001) or "I don't like my job at all" (53.3% — 1.7% p <0.001).

Men who felt "not completely healthy" more frequently answered "I like my job" compared with "I don't like my job" (50.7% — 4.1% p<0.001) and "I

don't like my job at all" (50.7% — 1.5% p < 0.001). This group also had statistically significant differences between men who answered "I really like my job" and "I don't like my job at all" (7.6% — 1.5% p < 0.001).

Men with high health self-esteem ("healthy") mostly liked (49.8% — 2.5% p < 0.001) or really liked (12.2% — 2.5% p < 0.001) their jobs.

Men with "good health" had statistically significant differences between the answers "I like my job" and "I don't like my job" (57.0% — 3.0% p < 0.001). (Table 3)

Discussion

2016 European recommendations for the prevention of cardiovascular diseases in clinical practice consider stress at work as one of chronic social stress factors in terms of risk factor correction for coronary heart disease (CHD) prevention [11]. The significance of stress at work as CVD risk factor in men was demonstrated in epidemiological studies using the WHO MONICA — PSYCHOSOCIAL algorithm in open populations [12, 2]. The analysis of Tyumen population data showed that men of open population of working age have high level of stress parameters at work in moderately urbanized Siberian city [12, 13]. The results of previous study on medical activity in Tyumen population confirm that attitude to health and its self-esteem have been studied fully. It was revealed that in open population of moderately urbanized Western Siberia city, 42.8% of men aged 25–64 years old consider themselves sick and do not care enough about

their health. At the same time, 55.2 % of people believe in serious diseases prevention. Positive health self-esteem decreases with age, and self-healthcare increases [5, 6, 7].

Data analysis showed that high-risk groups, including people who changed their specialty and workload over the last 12 months, associated with low health self-esteem.

At the same time, negative attitude to work did not differ significantly between groups with low and high health self-esteem. The results obtained on the association between attitude to work and health self-esteem in population are fair since negative attitude to one's work according to Novosibirsk researcher's data is seen in all population groups, regardless of subjective-objective health parameter [3]. Nevertheless, this parameter is extremely important in cardiovascular risk analysis and prognosis [11, 1].

Data on the association between health self-esteem and stress at work in the male population may be useful for organizing complex scientifically based preventive programs with main focus on high-risk groups among working-age men of moderately urbanized Siberian city. Socially oriented preventive programs such as (advanced training in public health, medical conferences on public health, tests on behavioral risk factors in order to assess profes-

sional skills of medical personnel, training doctors and nurses on prevention programs; training social workers on public health and measures for increasing physical activity in population) in working male population should be aimed, first of all, for studying attitude to health and its self-esteem, carried out using a high-risk strategy.

Conclusion

The results obtained in this study conducted in unorganized population of Tyumen may be used as the scientific basis for organizing complex socially oriented preventive programs in other moderately urbanized Siberian cities with the main focus on the needs of risk groups — men with stress at work.

Older age groups have significantly decreased positive health self-esteem in Tyumen population.

Over the last 12 months, the fourth part of Tyumen male population changed their job (at the age of 25–34 years — the third part), 34.0 % of Tyumen men increased workload, 44.7 % — responsibility at work, load and responsibility mainly increased among young people.

High-risk groups — men who changed specialty and workload over the last 12 months — were associated with low health self-esteem.

Conflict of Interest: None declared.

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