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MOBILE HEALTH TECHNOLOGY: ORGANIZATIONAL, MEDICAL AND PHARMACOEPIDEMIOLOGICAL APPROACHES FOR CSD PREVENTION IN PRE-PRIMARY CARE

Abstract

Objective: to evaluate the innovative organizational, medical and pharmacoepidemiological approaches for the prevention of circulatory system diseases in pre-primary care using mobile health technologies.

Materials and methods: 3,694 people went through preventive consultation (questionnaires, anthropometry, body fat and blood pressure evaluation, electrocardiography, glucose and blood cholesterol) at equipped medical sites in shopping centers and rural health posts.

Results. Among the surveyed, there were both healthy people and patients cardiovascular diseases and diabetes mellitus. Behavioral (insufficient consumption of fruits and vegetables, adding more salt without trying food, physical inactivity, smoking and alcohol abuse) and nutritional (obesity, hypertension, hypercholesterolemia and glycaemia) risk factors of chronic non-communicable diseases were detected that contribute to high mortality from circulatory system diseases in the Tver region. This is associated with low adherence to drug therapy and its lack of efficacy in patients with hypertension, ischemic heart disease and cerebrovascular diseases.

Conclusion: to assess the effectiveness of CSD prevention in pre-primary care, it is possible to use mobile medical sites in shopping centers and rural health posts.

Key words: *prevention of circulatory system diseases, mobile health, shopping centers*

Conflict of Interests

The authors declare no conflict of interests

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mHealth — mobile health technologies, CSD — circulatory system diseases, RF — risk factors, NCDs — noncommunicable diseases, EH — essential hypertension, DM — diabetes mellitus, IHD — ischemic heart disease, CVDs — cerebrovascular diseases, BP — blood pressure, ECG — electrocardiogram

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Introduction

In Russia, CSD mortality [1] despite its decline significantly exceeds the one in European countries, which requires the introduction of effective programs for the prevention and treatment of circulatory system diseases (CSDs) [2, 3]. This includes the Tver Region, which for many years has been an outsider in terms of both overall and CSD mortality. At the same time, low detection of risk factors (RF) of noncommunicable diseases (NCDs) is noteworthy. According to the data of the Ministry of Health of the Tver Region for January–May 2016, during regular check-up of the population the following RFs were registered: low physical activity in 143 patients (16%) out of 8,933; smoking in 95 (13%) out of 7,316 patients; overweight in 167 patients (17%) out of 9,811; hypertension in 765 (12%) of 6 373 patients; hypercholesterolemia in 344 (10%) out of 3,444 patients, and hyperglycemia in 45 (3%) out of 1,487 patients. This raises the need exist to develop new organizational, medical and pharmacoepidemiological approaches to the prevention of CSDs and ways to assess their effectiveness, including the use of mobile health technologies (mHealth). mHealth allows to deliver medical care even outside the medical institution. At the same time, the conditions of care are determined by the actual location of a patient [4]. mHealth requires the use of mobile devices (phones, gadgets, wireless medical devices for monitoring the functional body state, personal handheld computers, etc.) [5], which makes it a good platform for assisting in the implementation of healthcare programs [6]. This allows quick monitoring of the main parameters of the patient's health, change in RF, correct implementation of the doctor's recommendations, and the use of innovative technologies for both creating a healthy lifestyle among the population and increasing adherence of patients with CSDs to secondary prevention.

Accordingly, the "Mobile Health in Tver" project was developed and tested though the efforts of the staff of the Federal State Budgetary Institution of Higher Education "Tver State Medical University" of the Ministry of Health of the Russian Federation (TSMU) and the Ministry of Health of the Tver Region.

The Objective was to assess the use of innovative organizational, medical and pharmacoepidemiological approaches for CSD prevention in pre-primary care.

Materials and Methods

From November 2015 to December 2018, 3,686 people went through preventive consultation at equipped medical sites in shopping centers and rural health posts.

All applicants filled a questionnaire to identify behavioral and nutritional RF of NCDs [7]. The first included the consumption of fruits and vegetables (less than 400 g); adding more salt without trying food; smoking; low physical activity (walking less than 30 minutes a day); alcohol abuse (over 20 g/day for males, and over 10 g/day for females). The second were overweight (BMI is 25–29.9 kg/m^2); obesity (BMI 30 kg/m^2 or higher); hypertension (140/90 mm Hg or higher); hyperglycemia (blood glucose level 7.8 mmol/L and higher two hours after meals); and hypercholesterolemia (5.0 mmol/L and higher). In addition, previously diagnosed essential hypertension (EH), diabetes mellitus (DM), ischemic heart disease (IHD) and cerebrovascular diseases (CVDs) were considered. Genetic predisposition to the development of IHD, DM, and use of hypotensive and lipid lowering therapy two weeks before preventive consultation were considered.

In all of the applicants, anthropometry (height, weight) was carried out, body mass index (Quetelet index) was calculated, the measurement of blood pressure (BP) and I-lead electrocardiography (ECG) in the patient seated using virtual technologies were performed. Two grades were used in the evaluation of ECG: normal and pathology (disorders of ventricular repolarization and cardiac rhythm disorders). Blood glucose and blood cholesterol levels were determined in some of the examined persons using test strips.

In-depth preventive consultation lasted no less than 40 minutes. It involved detailed information on the detected NCD risk factors, methods and the need for their timely correction to perform adequate

primary, secondary and tertiary NCD prevention in every patient. Specially trained 5th- and 6th-year students of the Departments of General Medicine and Pediatrics of TSMU, as well as students of medical colleges under the supervision of the teacher conducted the interviews. After the in-depth preventive consultation, leaflets containing a summary of recommendations on the correction of NCD risk factors were given to all patients. For the same purpose, the use of a personal medical online account was suggested to every patient, which was demonstrated at the medical site (website: https://своездоровье.рф; demo login: pat3, password: pat31111).

If follow-up was required, patients were referred to medical institutions in Tver (TSMU Diagnostic Center, Tver Regional Cardiology Hospital, and Regional Outpatient Clinic) and the Tver Region (outpatient departments of Central District Hospitals).

Statistical processing of the study results was carried out using the WinPepi statistical software package (using Fisher's and χ^2 tests).

Study design: single-point, cross-sectional study of a convenience sample [8]. It enrolled everyone interested in preventive consultation at mobile medical sites in shopping centers and rural health posts.

Results and Discussion

Over the last decade, much attention was paid to mHealth worldwide [5, 6]. mHealth enables delivery of new forms of medical care: within walking distance care, including through offline clinics and distance learning programs that will increase awareness of the population about health and its determinants, which will improve morbidity and premature mortality [2].

Among the 3,686 examined at medical sites in shopping centers and rural health posts, there were half as many men as women (1,206 (33%) and 2,480 (67%), respectively). The analysis of age groups showed that older women (from 46 years old) were more likely to refer to the medical site. In contrast, in men, the highest rate of this parameter was between the ages of 20 and 35 years. This phenomenon in men requires further study to analyze its possible causes: onset of health problems, lack of time to visit a doctor, wives' concern, etc. In general, it should be noted that 69.9% of those who came to the medical site were people of working age (from 20 to 60 years), which confirms its relevance among the working-age population.

Among the adult visitors to the shopping centers and rural health posts of Tver and the Region, the following behavioral RFs of NCDs were most often detected: inadequate intake of fruits and vegetables (2,161; 58.6%); physical inactivity (2,103; 57.1%) was less common; alcohol abuse (1,197; 32.5%), adding more salt without trying food (922; 25.0%) and smoking (768; 21.3%) were even less common. Detectability analysis of behavioral RFs depending on gender and age allowed us to establish the following.

In men (Table 1), at the age of 20–35 years, 36–45 years, 46–69 years and older than 60 years, compared with persons aged 20 years and younger, insufficient intake of fruits/vegetables was detected. In contrast, physical inactivity increased with age, while smoking was more common in young adults compared with elderly people. In men, there were no differences in age with regard to both alcohol abuse and adding more salt without trying food.

In women (Table 2), the age-related difference in the insufficient intake of vegetables/fruits and physical inactivity was not detected. However, they were more likely to abuse alcohol at the age of 20 to 45 years; less likely to add more salt without trying food at the age of 36–60 years; and 20 to 45 y. o. women were more likely to smoke compared to other age groups.

Against the background of the presence of a rather large amount of behavioral RFs of NCDs, the surveyed also had nutritional RFs. Among the latter, hypercholesterolemia was most often (567 of 996; 56.9%); then hypertension (in 1,555 of 3,676; 42.3%), more rarely — obesity (in 1,000 of 3,518; 28.4%) and hyperglycemia was rare (in 51 of 954; 5.7%). Analysis of the detection of nutritional RFs depending on gender and age allowed us to establish the following.

Table 1. *Detection of behavioral risk factors in men depending on age (abs. and %)*

Risk factor	Age (years)										Total		Total surveyed
	<20		20 — 35		36 — 45		46 — 60		>60				
	Yes	Not	Yes	Not	Yes	Not	Yes	Not	Yes	Not	Yes	Not	
Inadequate consumption of fruits and vegetables (χ^2 = 10,7; ρ = 0,030)	35 44,3%	44 55,7%	255 61,3%	161 38,7%	116 63,7%	66 36,3%	201 62,6%	120 37,4%	132 63,5%	76 36,5%	733 60,8%	473 39,2%	1206
Hypodynamia (χ^2 = 18,4; ρ = 0,001)	60 67,4%	29 32,6%	259 60,8%	167 39,2%	93 48,7%	98 51,3%	141 50,0%	141 50,0%	119 54,6%	99 45,5%	672 55,7%	534 44,3%	1206
Alcohol abuse (χ^2 = 7,2; ρ = 0,124)	24 30,8%	54 69,2%	171 41,1%	245 58,9%	88 48,4%	94 51,6%	133 41,3%	189 58,7%	87 41,8%	121 58,2%	503 41,7%	703 58,3%	1206
Add food without tasting it (χ^2 = 2,5; ρ = 0,643)	20 26,3%	56 73,7%	115 27,6%	302 72,4%	61 33,7%	120 66,3%	91 28,4%	230 71,6%	63 28,5%	148 71,5%	350 29,0%	856 71,0%	1206
Smoking (χ^2 = 22,2; ρ = 0,000)	31 39,7%	47 60,3%	145 34,9%	270 65,1%	67 36,8%	115 63,3%	103 31,7%	221 68,3%	39 18,8%	168 81,2%	385 31,9%	921 68,1%	1206

Table 2. *Detection of behavioral risk factors in women depending on age (abs. and %)*

Risk factor	Age (years)										Total		Total surveyed
	<20		20 — 35		36 — 45		46 — 60		>60				
	Yes	Not	Yes	Not	Yes	Not	Yes	Not	Yes	Not	Yes	Not	
Inadequate consumption of fruits and vegetables (χ^2 = 5,7; ρ = 0,223)	50 54,9%	41 45,1%	293 61,0%	187 39,0%	201 57,3%	150 42,7%	485 58,6%	342 41,4%	399 54,6%	332 45,4%	1428 57,6%	1052 42,4%	2480
Hypodynamia (χ^2 = 3,1; ρ = 0,541)	49 53,8%	42 46,2%	278 57,6%	205 42,4%	197 56,4%	152 43,6%	467 56,5%	359 43,5%	440 60,2%	291 39,8%	1431 57,7%	1049 42,3%	2480
Alcohol abuse (χ^2 = 70,5; ρ = 0,000)	15 16,5%	76 83,5%	173 35,8%	310 64,2%	138 39,3%	213 60,7%	227 27,6%	597 72,4%	141 19,3%	590 80,7%	694 28,0%	1786 72,0%	2480
Add food without tasting it (χ^2 = 10,9; ρ = 0,028)	24 26,4%	67 73,6%	120 25,0%	361 75,0%	73 20,8%	278 79,2%	164 19,9%	660 80,1%	191 26,1%	542 73,9%	572 23,1%	1908 76,9%	2480
Smoking (χ^2 = 157,0; ρ = 0,000)	20 22,0%	71 78,0%	135 27,9%	349 72,1%	83 23,9%	264 76,1%	119 14,4%	709 85,6%	28 3,8%	702 96,2%	383 15,4%	2097 84,6%	2480

In men (Table 3), obesity and hypertension increased with age, while hypercholesterolemia and hyperglycemia did not depend on age. In women (Table 4), obesity, hypertension, hypercholesterolemia, and hyperglycemia increased with age.

When conducting preventive counseling in crowded areas and at rural health posts, it was also found that only in 2,028 (54.9%) of the patients no changes were registered on the ECG, while the rest of them reported impaired repolarization

Table 3. *Detection of alimentary-dependent risk factors in men depending on age (abs. and %)*

Risk factor	Age (years)										Total		Total surveyed
	<20		20 — 35		36 — 45		46 — 60		>60				
	Yes	Not	Yes	Not	Yes	Not	Yes	Not	Yes	Not	Yes	Not	
Obesity (χ^2= 105,7; ρ = 0,000)	3	73	50	343	59	117	126	184	75	123	313	840	1153
	3,9%	96,1%	12,7%	87,3%	33,5%	66,5%	40,6%	59,4%	37,9%	62,1%	27,1%	72,9%	
Arterial hypertension (χ^2= 226,2; ρ = 0,000)	9	80	95	331	94	97	181	101	150	68	529	667	1196
	10,1%	89,9%	22,2%	77,8%	49,2%	50,8%	64,2%	35,8%	68,8%	31,2%	44,2%	55,8%	
Hypercholesterolemia (χ^2= 7,2; ρ = 0,125)	3	4	11	26	12	12	42	34	39	35	107	111	218
	42,9%	57,1%	29,7%	70,3%	50,0%	50,0%	55,3%	44,7%	52,7%	47,3%	49,1%	50,9%	
Hyperglycemia (χ^2= 3,7; ρ = 0,451)	1	7	0	36	1	21	4	74	2	67	8	205	213
	12,5%	87,5%	0,0%	100,0%	4,5%	95,5%	5,1%	94,9%	2,9%	97,1%	3,8%	96,2%	

Table 4. *Detection of alimentary-dependent risk factors in women depending on age (abs. and %)*

Risk factor	Age (years)										Total		Total surveyed
	<20		20 — 35		36 — 45		46 — 60		>60				
	Yes	Not	Yes	Not	Yes	Not	Yes	Not	Yes	Not	Yes	Not	
Obesity (χ^2= 229,8; ρ = 0,000)	1	85	32	425	69	266	299	489	286	413	687	1678	2365
	1,2%	98,8%	7,0%	93,0%	20,6%	79,4%	37,9%	62,1%	40,9%	59,1%	29,0%	71,0%	
Arterial hypertension (χ^2= 491,5; ρ = 0,000)	1	90	33	447	88	263	347	480	468	263	1026	1454	2480
	1,1%	98,9%	6,7%	93,2%	25,1%	74,9%	42,0%	58,0%	64,0%	36,0%	41,4%	58,6%	
Hypercholesterolemia (χ^2= 19,50; ρ = 0,001)	2	7	30	47	33	53	139	127	188	136	392	370	762
	22,2%	77,8%	39,0%	61,0%	38,4%	61,6%	52,3%	47,7%	58,0%	42,0%	51,4%	48,6%	
Hyperglycemia (χ^2= 10,2; ρ = 0,037)	0	9	2	75	2	86	11	239	28	289	43	698	741
	0,0%	100,0%	2,6%	97,4%	2,3%	97,7%	4,4%	95,6%	8,8%	91,2%	5,8%	94,2%	

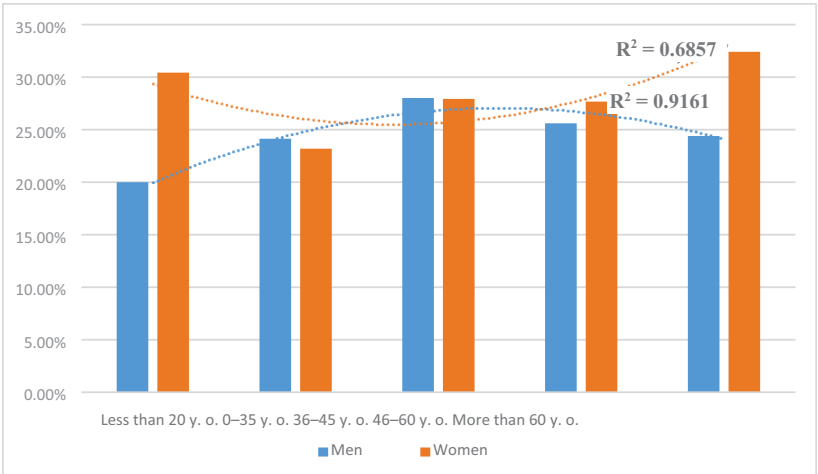

Figure 1. *Age-dependent incidence of repolarization process impairment in men and women*

processes (783; 21.2%), cardiac rhythm disorders (691; 18.7%) or in the form of their combinations (192; 5.2%). The incidence of ECG disorders depending on gender and age is presented in Fig. 1 and 2.

In men (Table 5), there was no age-related significant difference among repolarization processes, cardiac rhythm disorders and combined disorders. On the contrary, in women (Table 6), impairment of repolarization was more common in persons younger than 20 years and at the age of 60 years and older, while the incidence of cardiac rhythm and combined disorders was almost the same in persons of different ages.

Another positive point in the interest of the Tver population in mHealth at shopping centers and rural health posts is that among the surveyed, there were not only those with previously diagnosed EH (1,053; 28.5%), IHD (505; 13.7%) with its various signs and CVD (118; 3.2%), but also

Table 5. *Frequency of registration of changes in the electrocardiogram in men depending on age (abs. and%)*

ECG indicators	Age (years)										Total	
	<20		20 — 35		36 — 45		46 — 60		>60			
	Yes	Not	Yes	Not	Yes	Not	Yes	Not	Yes	Not	Yes	Not
Without pathology	28	27	182	192	66	98	138	151	96	97	510	565
	50,9%	49,1%	48,7%	51,3%	40,2%	59,8%	47,8%	52,2%	49,7%	50,3%	47,4%	52,6%
Disorders of repolarization processes (χ^2= 1,8; p = 0,769)	11	44	90	284	46	118	74	215	47	146	268	807
	20,0%	80,0%	24,1%	75,9%	28,0%	72,0%	25,6%	74,4%	24,4%	75,6%	24,9%	75,1%
Heart rhythm disorders (χ^2= 3,0; p = 0,555)	14	41	85	289	45	119	60	229	42	151	246	829
	25,5%	74,5%	22,7%	77,3%	27,4%	72,6%	20,8%	79,2%	27,8%	78,2%	22,9%	77,1%
Combined Disorders (χ^2= 1,4; p = 0,841)	2	53	12	362	6	158	13	276	5	188	38	1037
	3,6%	96,4%	3,2%	96,8%	3,7%	96,3%	4,5%	95,5%	2,6%	97,4%	3,5%	96,5%

Table 6. *Frequency of registration of changes in the electrocardiogram in women depending on age (abs. and%)*

ECG indicators	Age (years)										Total	
	<20		20 — 35		36 — 45		46 — 60		>60			
	Yes	Not	Yes	Not	Yes	Not	Yes	Not	Yes	Not	Yes	Not
Without pathology	39	40	234	189	155	153	345	407	280	387	1053	1176
	49,4%	50,6%	55,3%	44,7%	50,3%	49,7%	45,9%	54,1%	42,0%	58,0%	47,2%	52,8%
Disorders of repolarization processes (χ^2= 11,3; p = 0,023)	24	55	98	325	86	222	208	544	216	451	632	1597
	30,4%	69,6%	23,2%	76,8%	27,9%	72,1%	27,7%	72,3%	32,4%	67,6%	28,4%	71,6%
Heart rhythm disorders (χ^2= 7,1; p = 0,131)	11	68	69	354	50	258	157	595	134	533	421	1808
	13,9%	86,1%	16,3%	83,7%	16,2%	83,8%	20,9%	79,1%	20,1%	79,9%	18,9%	81,1%
Combined Disorders (χ^2= 1,8; p = 0,780)	5	74	18	405	13	295	30	722	23	644	89	2140
	6,3%	93,7%	4,3%	95,7%	4,2%	95,8%	4,0%	96,0%	3,4%	96,6%	4,0%	96,0%

healthy individuals. The age of the surveyed with diagnosed CSD is of additional interest in terms of rapid assessment of the implementation of secondary prevention. Therefore, more detailed information on the gender- and age-dependent incidence of CSD in the medical history is provided in the Tables 7 and 8.

In men, the incidence of EH and IHD increased with age, while the CVD detection remained almost the same. In women, only the frequency of history of EH increased with age, while the incidence of IHD and CVD did not depend on age.

Another important piece of information was obtained on the mobile medical site regarding adherence to drug therapy. It turned out that only 75% of the examined patients with EH took antihypertensive drugs in the last two weeks, but 83% of them had elevated BP at the time of the examination. At the same time, only one in five (19.4%) of respondents with IHD or CVD took lipid lowering drugs in the last two weeks before preventive consultation, but target cholesterol values were detected only in a quarter (26.8%) of the examined patients. It should be added that almost half of those examined with diagnosed CSD had changes on the ECG, which indirectly indicated insufficient effectiveness of the follow-up of these patients.

Thus, not only behavioral, but also nutritional RFs of NCD are detected both in the surveyed men and women quite often. Their frequency is determined by both gender and age, which should be considered in preventive measures. At the same time, it is noteworthy that the detectability of RFs of NCD

Table 7. *Detection of diseases of the circulatory system in men depending on age (abs. And%)*

Circulatory system diseases	Age (years)										Total	
	<20		20 — 35		36 — 45		46 — 60		>60			
	Yes	Not	Yes	Not	Yes	Not	Yes	Not	Yes	Not	Yes	Not
Hypertonic disease	1	67	14	344	18	138	60	214	37	151	130	914
(χ^2= 63.037 P = 0.000	**1,5%**	98,5%	**3,9%**	96,1%	**11,5%**	88,5%	**21,9%**	78,1%	**19,7%**	80,3%	**12,5%**	87,5%
Coronary heart disease	2	66	15	343	7	148	16	255	20	168	60	980
(χ^2= 11.298 P = 0.023)	**2,9%**	97,1%	**4,2%**	95,8%	**4,5%**	95,5%	**5,9%**	94,1%	**10,6%**	89,4%	**5,8%**	94,2%
(χ^2= 3.353 P = 0.501)	0	68	2	355	1	154	1	270	3	183	7	1030
	0,0%	100,0%	**0,6%**	99,4%	**0,6%**	99,4%	**0,4%**	99,6%	**1,6%**	98,4%	**0,7%**	99,3%

Table 8. *Detection of diseases of the circulatory system in women, depending on age (abs. and%)*

Risk factor	Age (years)										Total	
	<20		20 — 35		36 — 45		46 — 60		>60			
	Yes	Not	Yes	Not	Yes	Not	Yes	Not	Yes	Not	Yes	Not
Hypertonic disease	1	77	7	411	31	252	136	539	166	463	341	1742
χ^2= 109.858 P = 0.000	**1,3%**	98,7%	**1,7%**	98,3%	**11,0%**	89,0%	**20,1%**	79,9%	**26,4%**	73,6%	**16,4%**	83,6%
Coronary heart disease	6	73	22	395	28	254	52	617	56	575	164	1914
χ^2= 6.397 P = 0.171	**7,6%**	92,4%	**5,3%**	94,7%	**9,9%**	90,1%	**7,8%**	92,2%	**8,9%**	91,1%	**7,9%**	92,1%
Cerebrovascular disease	0	78	4	413	2	277	6	659	5	619	17	2046
χ^2= 0.834 P = 0.934	**0,0%**	100,0%	**1,0%**	99,0%	**0,7%**	99,3%	**0,9%**	99,1%	**0,8%**	99,2%	**0,8%**	99,2%

in the visitors of shopping centers and rural health posts in the Tver Region was, on the one hand, significantly higher than detectability during health check-up of the population of the Tver Region in 2016, and, on the other, was comparable with the results of other authors [9]. Such dissonance in the RFs of NCD detection in conditions of pre-primary care and health check-up can be explained by the low effectiveness of the latter, which requires the use of additional organizational approaches for the correction of RFs of NCD. This is due to the fact that, according to the authors [10, 11, 12, 13], RFs contribute to high NCD prevalence and mortality. Concerning the latter, it should be noted that according to data for 2018 [14], CSD mortality rates in the Tver Region are the highest and remain 1.5 times higher than the national average. There is an opportunity to improve the situation in the Tver Region, since 79% of individuals who went through preventive consultation in shopping centers and rural health posts expressed the desire to correct the RFs of NCD. It is only necessary to improve organizational and medical approaches in the CSD prevention, including using mHealth.

Of course, within the framework of this study of the pharmacoepidemiological situation in the outpatient treatment of CSD it is difficult to determine the main reasons for its low effectiveness, but we can assume the following: doctors conduct insufficient explanatory work on the need to take antihypertensive and lipid lowering agent, and patients have low adherence to their intake.

The above unfavorable situation with the outpatient treatment of EH, IHD and CVD may have a negative impact on CSD mortality in the Tver Region. Taking into account the results of other studies [15], it can be assumed that a detailed analysis of the pharmacoepidemiological situation of outpatient treatment of EH, IHD and CVD in Tver and its subsequent correction will increase not only patient adherence to drug therapy, but also its effectiveness in terms of achieving target BP and cholesterol levels. As demonstrated [16], the latter circumstance is important in reducing CSD mortality.

To solve the identified problems during CSD prevention, a number of measures can be implemented. Firstly, perform in-depth preventive consultation not only in the outpatient clinic (prevention unit) as currently provided for in adult health check-up [7], but also in shopping centers, in order to increase adherence to the doctor's recommendations for correction of RFs of NCD, including antihypertensive and lipid-lowering therapy. Secondly, use information technology capabilities (patient's online account) for prolonged virtual contact with patients, thus increasing their adherence to the doctor's recommendations for correction of RFs of NCD. Moreover, the vast majority of visitors of shopping centers who went through preventive consultation expressed the desire to change their lifestyle for the better. Finally, introduce wide use of virtual ECG registration technologies in both outpatient and home conditions, in order to objectify the processes occurring in the myocardium under the influence of correction of the RFs of NCD.

Conclusions

1. More than half of the visitors at the mobile medical site were people of working age.
2. The majority of patients who underwent preventive consultation had both behavioral and nutritional RFs of NCDs; one-third had CSD.
3. The absolute majority of patients with CSD did not take antihypertensive or lipid lowering agents in the last two weeks before preventive consultation; in most cases, they did not achieve target BP and cholesterol levels.
4. In order to improve the effectiveness of NCD prevention, it is possible to use mobile health technologies in crowded places that allow not only to conduct in-depth preventive consultation outside medical institutions, but also to provide patients with an individual online account to self-monitor the correction of RFs of NCD.

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