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# SATISFACTION OF THE POPULATION OF THE REPUBLIC OF KAZAKHSTAN WITH THE ACCESSIBILITY OF MEDICAL CARE

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**ABSTRACT.** Currently one of the main scientific and practical problems in the field of public health and healthcare is the availability of medical care aimed at increasing public satisfaction with medical services. At the same time “blind” optimization and decision-making management on the level of pure intuition cannot be more effective compared to scientifically based approaches to solving the problem of accessibility of medical care. In this regard relevance of studying the criteria for accessibility of medical care to the population in subjective assessments, taking into account the regional component in countries with a large territorial extent becomes obvious. The data for this study were obtained by including 1,500 people living in the northern (n=500), western (n=500) and southern (n=500) regions of the Republic of Kazakhstan. To assess the availability of medical care, a questionnaire developed by N.V. Yurgel et al. was used. The data obtained revealed the need of a systematic assessment of the availability of medical care to the population through a survey. The above analysis based on certain criteria of accessibility of medical care to the population of the Republic of Kazakhstan has shown that a differentiated approach is required in determining strategic priorities for providing health services to the population. The identified regional features of the survey data indicate the need to adapt any federal health programs to the specifics of the region, especially in countries with a large territorial extent.

**KEYWORDS:** accessibility of medical care, regional healthcare, the Republic of Kazakhstan

# УДОВЛЕТВОРЕННОСТЬ НАСЕЛЕНИЯ РЕСПУБЛИКИ КАЗАХСТАН ДОСТУПНОСТЬЮ МЕДИЦИНСКОЙ ПОМОЩИ

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**РЕЗЮМЕ.** В настоящее время одной из главных научных и практических проблем в области общественного здоровья и здравоохранения является повышение доступности медицинской помощи населению. При этом «слепая» оптимизация и интуитивное принятие управленческих

решений не могут быть эффективными. В связи с этим требуются научно обоснованные подходы, направленные на повышение доступности медицинской помощи населению. По этой причине становится очевидной актуальность изучения критериев доступности медицинской помощи населению в субъективных оценках с учетом регионального компонента в странах с большой территориальной протяженностью. Данные для настоящего исследования получены путем анализа результатов опроса 1500 человек, проживающих в северных ( $n=500$ ), западных ( $n=500$ ) и южных ( $n=500$ ) регионах Республики Казахстан. Для оценки доступности медицинской помощи использована анкета, разработанная Н.В. Юргель и соавт. Полученные данные позволили выявить, что систематическая оценка доступности медицинской помощи населению путем опроса является необходимой. Приведенный анализ по некоторым критериям доступности медицинской помощи населению Республики Казахстан показал, что требуется дифференцированный подход в определении стратегических приоритетов обеспечения населения услугами здравоохранения. Выявленные с помощью проведенного опроса региональные особенности свидетельствуют о необходимости адаптации любых федеральных программ здравоохранения под специфику региона, особенно в странах с большой территориальной протяженностью.

**КЛЮЧЕВЫЕ СЛОВА:** доступность медицинской помощи, региональное здравоохранение, Республика Казахстан

## INTRODUCTION

Currently, one of the main scientific and practical problems in the public health and health care is the accessibility of medical care focused on increasing the population's satisfaction with medical services [1]. Many countries seek to improve the accessibility of medical care to the population through a wide range of activities aimed at improving the integration and coordination of production and technological processes in the medical organization, improving the regulatory and legal framework. The experience of "blind" optimization and intuitive management decision-making has determined the need to use science-based approaches to solve the problem of accessibility of medical care. This requires the analysis of a number of parameters that allow for the detailed elaboration of tasks, measures and resulting indicators within the framework of the overall problem. In this regard, the relevance of studying the criteria of accessibility of medical care to the population becomes obvious.

## AIM

The aim is to assess the availability of medical care to the population living in the regions of the Republic of Kazakhstan.

## MATERIALS AND METHODS

The data for this study were obtained by analyzing the results of a survey of 1,500 people

living in the northern ( $n=500$ ), western ( $n=500$ ) and southern ( $n=500$ ) regions of the Republic of Kazakhstan. The questionnaire developed by N.V. Yurgel et al. was used for this purpose [2]. The questionnaire included blocks that allowed to assess the possibility of free choice of medical organization and doctor, availability of specialist doctors, possibility to pay for medical services, satisfaction with the conditions and results of medical care, awareness of various issues, the main reasons for seeking medical care, reasons for refusal, complaints about various aspects of medical care.

The survey was conducted in strict compliance with the rules based on standard sociological practices, as well as in accordance with the clear fulfilment of sampling requirements. Determination of the sample size for conducting the survey in the regions of the Republic of Kazakhstan was carried out according to the tabular method of K.A. Otdelnova [3]. The minimum sample size for studies of increased accuracy at the planned level of statistical significance  $p=0.05$  should be 400 people according to that method. The sample size of 500 people for each group was taken taking into account the possibility of receiving incomplete or incorrect answers.

Statistical analysis of the obtained data was carried out by calculating relative values: intensive and extensive indicators. The level of statistical significance of differences between groups was determined using Pearson's  $\chi^2$  criterion. Differences were considered statistically significant at  $p < 0.05$ .

## RESULTS AND DISCUSSION

The analysis of the study showed that in 60.6% of cases residents of the Republic of Kazakhstan got medical care in polyclinics. There were statistically significant differences ( $p < 0.001$ ) in the frequency of treatment depending on the place of residence. Thus, residents of the southern regions (99.8%) applied for medical help to polyclinics as often as possible, and almost the same number of respondents from the same region (98%) applied to private medical organizations. This fact can probably be related to the fact that, having failed to receive timely assistance in state medical organizations, the population of the southern regions had to turn to private medical organizations. At the same time, the population's turnover to private medical organizations in the western and northern regions of the

Republic of Kazakhstan was only 10.4–15.4%. The maximum number of people who practiced self-treatment was also recorded in the southern regions (19.8%), which is 9.9–14.2 times higher than in the northern and western regions (Fig. 1).

Every third resident of the Republic of Kazakhstan needed consultative (39.5%) and therapeutic and diagnostic (35.5%) medical care. At the same time, the maximum number of the population in need of counselling was found in the southern regions (58.8%). Here and additionally in the western regions, 41% of the population also needed therapeutic and diagnostic medical care. It is noteworthy that in the southern regions only 0.2% of the population needed preventive care, whereas in the northern and western regions the number of residents with such a request for medical care was 42.8 and 31.8%, respectively (Table 1). The revealed

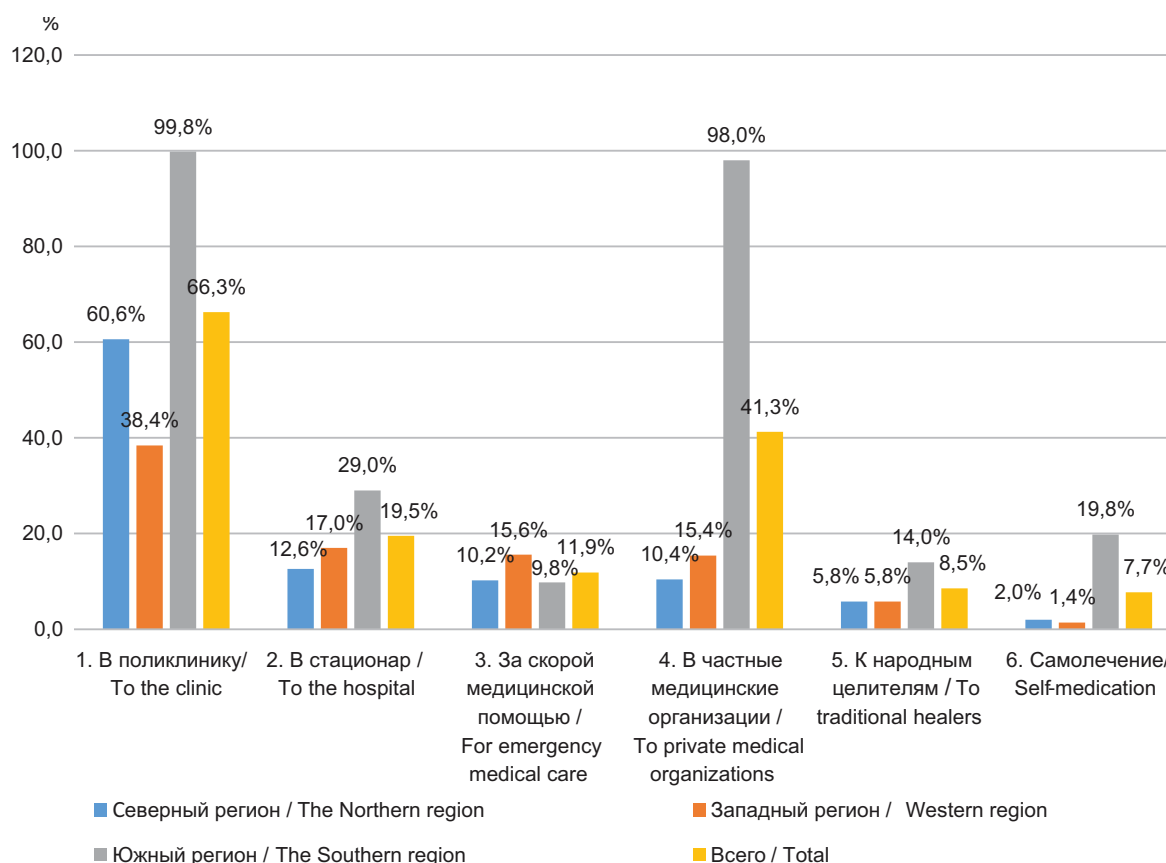


Fig. 1. Distribution of respondents taking into account the need for medical care. 1 —  $\chi^2$  Pearson = 432.4,  $cc=2$ ,  $p < 0.001$ ; 2 —  $\chi^2$  Pearson = 45.8,  $cc=2$ ,  $p < 0.001$ ; 3 —  $\chi^2$  Pearson = 10.0,  $cc=2$ ,  $p < 0.05$ ; 4 —  $\chi^2$  Pearson = 998.6,  $cc=2$ ,  $p < 0.001$ ; 5 —  $\chi^2$  Pearson = 28.7,  $cc=2$ ,  $p < 0.001$ ; 6 —  $\chi^2$  Pearson = 153.2,  $cc=2$ ,  $p < 0.001$

Рис. 1. Распределение респондентов с учетом обращаемости за медицинской помощью. 1 —  $\chi^2$  Пирсона = 432,4,  $cc=2$ ,  $p < 0,001$ ; 2 —  $\chi^2$  Пирсона = 45,8,  $cc=2$ ,  $p < 0,001$ ; 3 —  $\chi^2$  Пирсона = 10,0,  $cc=2$ ,  $p < 0,05$ ; 4 —  $\chi^2$  Пирсона = 998,6,  $cc=2$ ,  $p < 0,001$ ; 5 —  $\chi^2$  Пирсона = 28,7,  $cc=2$ ,  $p < 0,001$ ; 6 —  $\chi^2$  Пирсона = 153,2,  $cc=2$ ,  $p < 0,001$

Table 1

Distribution of the population, taking into account the purpose of seeking medical care (%)

Таблица 1

Распределение населения с учетом цели обращения за медицинской помощью (%)

Контингент населения / The population contingent	Цель обращения / The purpose of the appeal		
	профилактическая / preventive	консультативная / advisory	лечебно-диагностическая / medical and diagnostic
Все регионы / All regions	24,9	39,5	35,5
Северные регионы / Northern regions	42,8	32,6	24,6
Западные регионы / Western regions	31,8	27,2	41,0
Южные регионы / Southern regions	0,2	58,8	41,0

Note:  $\chi^2$  Pearson = 293.6,  $ss=4$ ,  $p < 0.001$ .Примечание:  $\chi^2$  Пирсона = 293,6,  $cc=4$ ,  $p < 0,001$ .

differences are statistically significant (Pearson's  $\chi^2=293.6$ ,  $SS=4$ ,  $p < 0.001$ ).

Endocrine system diseases (15.3%) were in the first place in the frequency of the causes of visits among citizens of the Republic of Kazakhstan, and in the last place — diseases of musculoskeletal system and connective tissue (6.6%) and diseases of nervous system (6.6%) (Table 2). At the same time the frequency of the reasons of population's appeals with regard to the region of residence differed ( $p < 0.05$ ). Thus, the first place in the northern regions of the Republic of Kazakhstan was occupied by endocrine system diseases, and the last place was occupied by eye diseases (3.4%). In the southern regions, the first place was taken by eye diseases (19.8%), and the last place was taken by diseases of the musculoskeletal system and connective tissue (0.2%). Based on the peculiarities of the frequency of population turnover, it becomes obvious, whether the region requires strengthening of medical care in the required profile.

In addition to the picture of the availability of medical care to the population, along with the frequency of reasons for the population's appeal presented above, there are survey data on the lack of specialists in the regions (Fig. 2).

Thus, according to the residents of the Republic of Kazakhstan, there is the least shortage of otorhinolaryngologists (5.7%), and the most lack of ophthalmologists. Most often residents noted the shortage of ophthalmologists (21.6%) and district therapists (22.2%) in the northern

regions; endocrinologists (20.4%) in the western regions and the shortage of dentists (29.8%) and endocrinologists (28.8%) in the southern regions.

The results of analyzing the comparison of the frequency of reasons for treatment and shortage of specialists within one region became interesting. Thus, the maximum frequency of treatment due to endocrine system diseases in the northern region (17.6%) revealed the minimum share of population answers that there is a shortage of endocrinologists in the region (4.8%), which may indirectly indicate that there is sufficient staffing in this profile in this region. Another situation was also revealed when comparing the frequency of the reasons for treatment for eye diseases, which was minimal (3.4%), with every fifth resident of the northern regions noting a shortage of ophthalmologists. It becomes obvious that the low rate of seeking medical help to an ophthalmologist is probably caused not by the lack of complaints about this nosology in the population, but by the lack of a specialist to whom one can address these complaints. This assumption can also be confirmed by the fact that in the same region up to 72.4% of respondents noted that they had been refused examination and treatment, which can probably be related to the lack of specialists or necessary equipment for examination. In the western regions, up to 59.8% of respondents were also refused examination and treatment, and only in the southern regions only 9.2% of cases were refused.

Table 2

The frequency of the population seeking medical care, taking into account the reasons for treatment (%)

Таблица 2

Частота обращаемости населения за медицинской помощью с учетом причин обращения (%)

Причина обращения / The reason for the appeal	Регионы / Regions			
	все / all	северный / northern	западный / western	южный / southern
Болезни органов кровообращения / Diseases of the circulatory system	8,5	10,6	10	4,8
Болезни органов дыхания / Respiratory diseases	8,8	13,6	11	1,8
Болезни костно-мышечной системы и соединительной ткани / Diseases of the musculoskeletal system and connective tissue	6,6	5,8	13,8	0,2
Болезни мочеполовой системы / Diseases of the genitourinary system	7,3	8,4	8,6	4,8
Болезни эндокринной системы / Diseases of the endocrine system	15,3	17,6	10,4	18,0
Болезни нервной системы / Diseases of the nervous system	6,6	8,0	9,8	2,0
Болезни глаза / Eye diseases	10,5	3,4	8,4	19,8

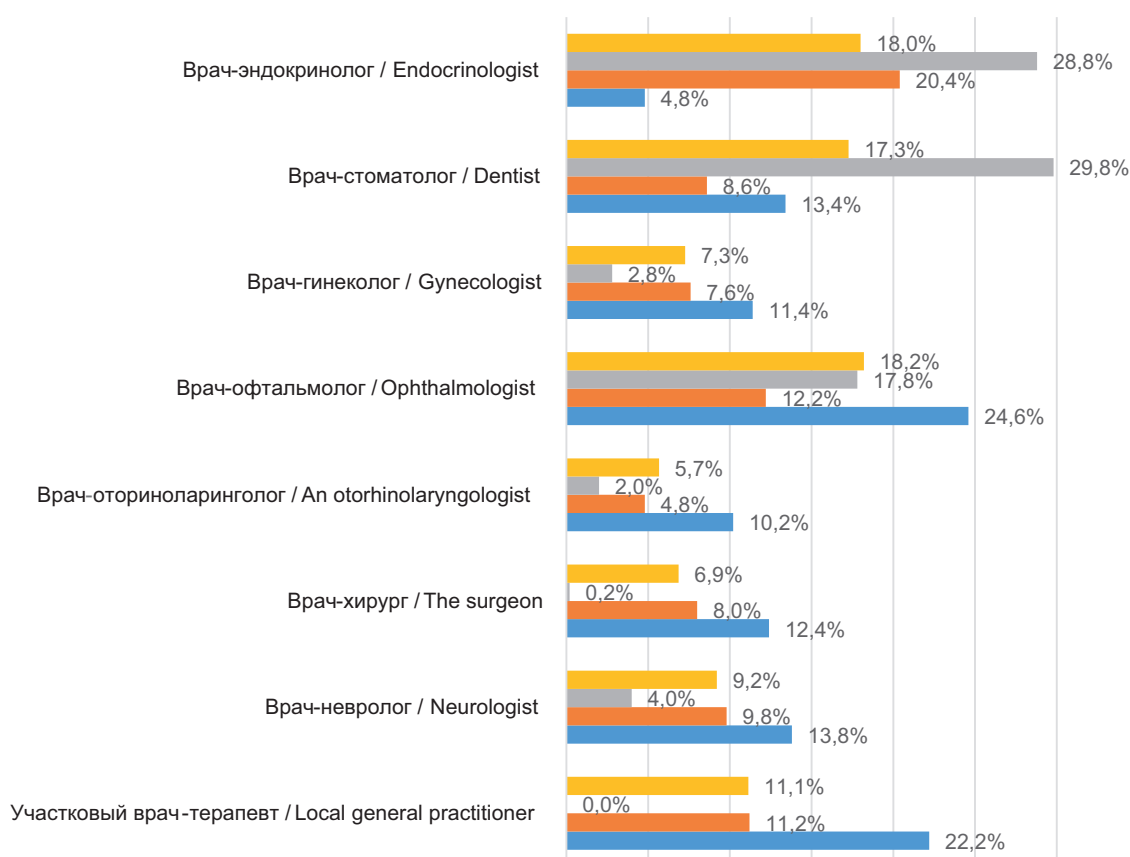


Fig. 2. Survey data on the fact of the absence of specialized specialists in medical organizations

Рис. 2. Данные опроса о факте отсутствия профильных специалистов в медицинских организациях

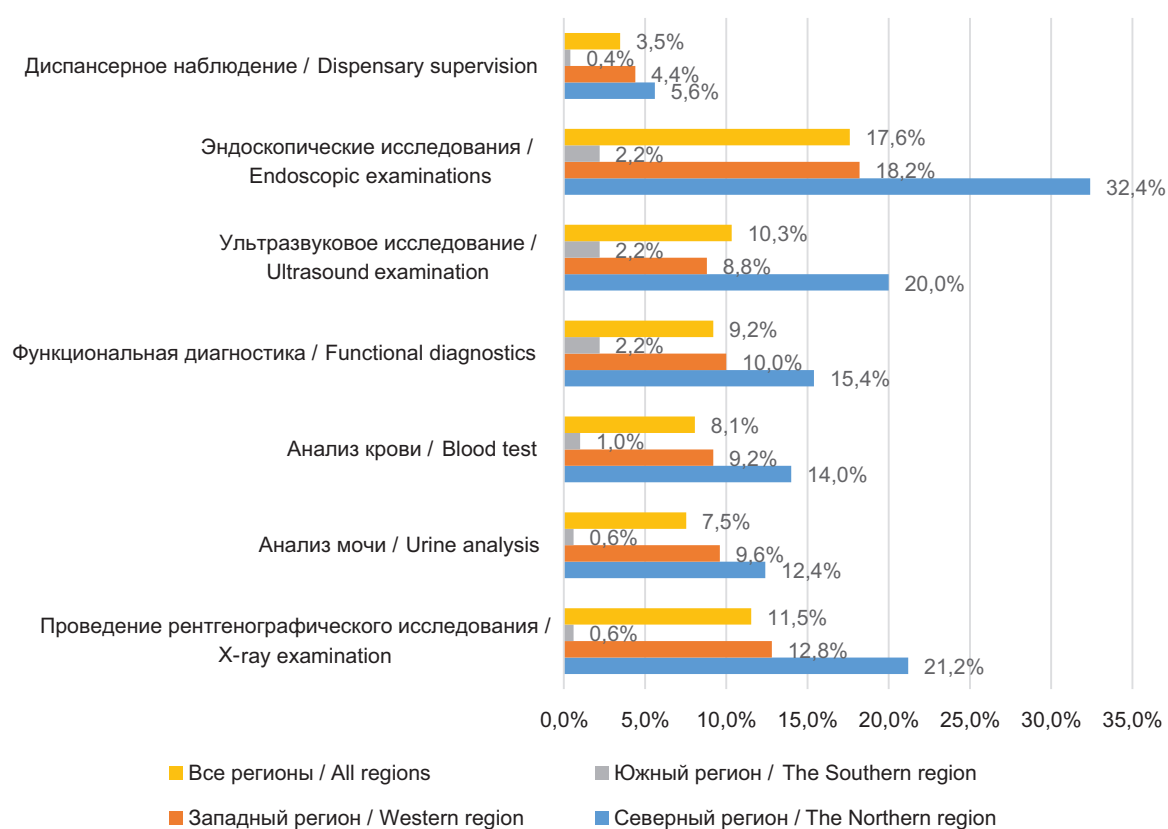


Fig. 3. Refusals to the population in various types of medical care

Рис. 3. Отказы населению в различных видах медицинской помощи

Refusal to examine the population can be associated with different reasons (Fig. 3). Thus, the population of the studied regions was most often denied endoscopic examinations (17.6%), and the least often denied medical follow-up. The frequency of refusals in medical care was the highest among the population of the northern regions of the Republic of Kazakhstan, and the lowest among the population of the southern regions.

Analyzing the survey data on the terms of planned hospitalization, it was found that only 26.5% of the surveyed residents of the Republic of Kazakhstan noted the absence of a waiting list, while the terms of planned hospitalization exceeding 7 days and more were noted in 0.6–10.0% of cases. The minimum frequency of waiting times of 7 days and more was noted by the population of the southern regions (0.4%). In the western regions the frequency of waiting for planned hospitalization from 7 to 14 days was 14.5%, up to 4 weeks it was 10.0%. In the northern regions, the frequency of planned hospitalization within these periods was lower by 1.8 and 3.3 times, respectively.

Taking into account the recommended duration of reception of one patient for different specialists, which ranges from 10 to 22 minutes, the waiting time for a doctor's appointment in the queue should also be within these limits. However, it has been established that this chronological regulation is not always observed (Table 3).

The frequency of answers about waiting for a district therapist for up to 15 minutes was revealed only for every second respondent. At the same time, every fifth resident of the Republic of Kazakhstan waited from 15 to 30 minutes to visit a doctor. No significant differences were revealed taking into account the region of residence.

A neurologist, according to the recommended norms, has up to 22 minutes for examination of one patient. At the same time, every fifth resident waited from 30 minutes to 1 hour for an appointment. The maximum number of residents (40.2%) who waited more than 30 minutes for a doctor's appointment lived in the southern regions, while in other regions the percentage of residents with such problems was 13.4–20.6%.



Table 3

Waiting time in the queue of a specialist doctor by the population (%)

Таблица 3

Время ожидания в очереди врача-специалиста населением (%)

Врач и контингент респондентов / The doctor and the contingent of respondents	Время ожидания в очереди / Waiting time in the queue				
	до 15 мин / up to 15 minutes	до 30 мин / up to 30 minutes	до 1 ч / up to 1 hour	до 2 ч / up to 2 hours	более 2 ч / more than 2 hours
<b>1. Участковый врач-терапевт / Local general practitioner</b>					
Все регионы / All regions	55,2	26,0	14,6	3,8	0,5
Северный регион / The Northern region	55,2	22,0	15,2	7,0	0,6
Западный регион / Western region	61,4	21,8	11,6	4,4	0,8
Южный регион / The Southern region	48,9	34,1	17,0	0,0	0,0
<b>2. Врач-невролог / Neurologist</b>					
Все регионы / All regions	25,8	52,4	19,2	2,3	0,2
Северный регион / The Northern region	25,7	51,2	20,6	2,1	0,4
Западный регион / Western region	25,1	58,4	13,4	3,0	3,0
Южный регион / The Southern region	29,9	29,9	40,2	0,0	0,0
<b>3. Врач-хирург / The surgeon</b>					
Все регионы / All regions	28,0	42,5	27,0	2,3	0,3
Северный регион / The Northern region	24,8	45,4	25,9	3,2	0,6
Западный регион / Western region	32,8	39,4	26,1	1,7	0,0
Южный регион / The Southern region	14,3	42,9	42,9	0,0	0,3
<b>4. Врач-оториноларинголог / An otorhinolaryngologist</b>					
Все регионы / All regions	30,7	42,6	23,4	3,2	0,2
Северный регион / The Northern region	28,3	42,7	25,9	2,8	0,2
Западный регион / Western region	32,2	42,2	21,2	4,2	0,2
Южный регион / The Southern region	34,7	43,9	21,4	0,0	0,0
<b>5. Врач-офтальмолог / Ophthalmologist</b>					
Все регионы / All regions	31,9	43,6	20,5	2,2	1,7
Северный регион / The Northern region	24,5	45,5	26,2	1,7	2,2
Западный регион / Western region	36,7	39,0	19,1	3,4	1,8
Южный регион / The Southern region	42,5	52,8	4,7	0,0	0,0
<b>6. Врач-гинеколог / Gynecologist</b>					
Все регионы / All regions	26,8	43,0	27,2	1,8	1,3
Северный регион / The Northern region	21,6	45,1	29,9	2,2	1,3
Западный регион / Western region	37,2	39,7	19,9	1,8	1,4
Южный регион / The Southern region	8,5	46,6	44,1	0,0	0,9

Ending of the Table 3 / Окончание табл. 3

Врач и контингент респондентов / The doctor and the contingent of respondents	Время ожидания в очереди / Waiting time in the queue				
	до 15 мин / up to 15 minutes	до 30 мин / up to 30 minutes	до 1 ч / up to 1 hour	до 2 ч / up to 2 hours	более 2 ч / more than 2 hours
<b>7. Врач-стоматолог / Dentist</b>					
Все регионы / All regions	41,9	37,7	17,5	2,8	0,1
Северный регион / The Northern region	26,5	47,3	23,2	3,0	0,0
Западный регион / Western region	45,6	32,3	18,5	3,4	0,2
Южный регион / The Southern region	73,2	25,7	0,6	0,6	0,0

Taking into account that it is recommended to spend 26 minutes for a surgeon to see one patient, only 42.5% of the population of the Republic of Kazakhstan noted that they managed to get an appointment with this specialist within 30 minutes. 27% of respondents noted that the waiting time was from 30 minutes to 1 hour. The greatest number of residents waiting for a doctor's appointment for more than 30 minutes was also found in the southern regions.

In all regions there was almost the same number of respondents (from 21.1 to 25.9%) who noted that they waited for an otorhinolaryngologist's appointment for 30 minutes or longer, while the recommended standard is only 16 minutes.

Every third respondent waited 30 minutes or longer for an appointment with a gynecologist, while the recommended appointment time was 22 minutes. The maximum number of people who noted such waiting time was in the southern regions (45.0%), while in the western and northern regions the proportion of people who noted such waiting time was 23.1 and 33.4%, respectively.

The majority of respondents reported waiting times for dentists of up to 15 minutes and up to 30 minutes — from 37.7 to 41.9%. At the same time, no significant differences were found in the answers of respondents taking into account their place of residence.

The above comparison of the recommended norms of admission and the actual waiting time for appointments to various specialists revealed the directions among which doctors and in which regions this process needs to be regulated.

In addition to the fact that accessibility of medical care may be limited by long waiting times for appointments, another significant factor in reducing accessibility may be the convenience of appointment schedules for the working population. Every third respondent noted the inconvenience

of doctors' appointment schedules, with the maximum number of respondents indicating this fact in the western (47.6%) and northern (47.0%) regions.

The reasons for the inconvenience of doctors' appointment schedules for residents of the Republic of Kazakhstan in 36.4% of cases was the lack of opportunity to get an appointment before 15:00. In 33.4% of cases it was the lack of opportunity to get an appointment with a doctor on a weekend day. In 30.2% of cases it was the inconsistency of the doctor's appointment schedule with the working hours of the respondent. At the same time, the main and the only reason for the inconvenience of the doctor's appointment schedule in the southern regions was considered by the population to be the discrepancy between the doctor's schedule and their working hours (100%). In the northern regions, the leading reason for the inconvenience of the doctor's appointment schedule was considered by the population to be the inability to get an appointment before 15:00 (45.2%). In the western regions, the leading reason was the inability to get an appointment with a doctor at weekends (41.4%).

According to 39.4% of respondents, the decrease in the accessibility of medical care is associated with the increase in the volume of paid medical care. In the presented illustration (Fig. 4) about negative phenomena, the data of answers of the population of southern regions especially stand out, among which the maximum frequency was recorded for such criteria as increase in the volume of paid medical services (47.6%), high cost of medicines (44.0%), long queues for appointments (29.8%), decrease in the quality of service (22.6%) and poor equipment (20.6%) of medical institutions.

The above analysis of some criteria of accessibility of medical care to the population of the Republic of Kazakhstan has shown that a differentiated



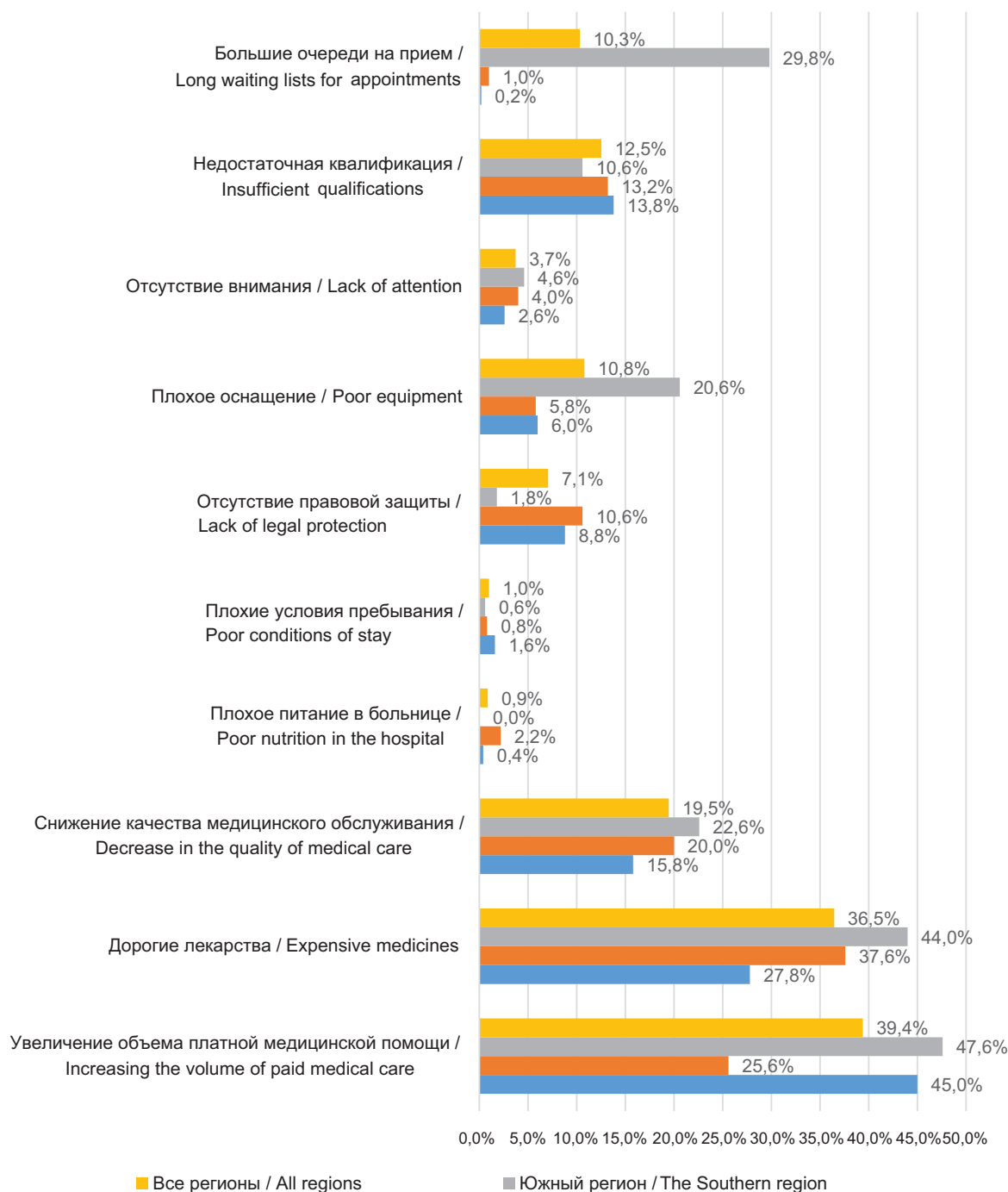


Fig. 4. The frequency of negative phenomena that reduce the availability of medical care

Рис. 4. Частота негативных явлений, снижающих доступность медицинской помощи

approach is required in determining the strategic priorities of providing the population with health care services [4]. This becomes extremely relevant, as the Ministry of Health of the Republic of Kazakhstan continuously and systematically works to improve the accessibility of medical care provided to the population to reduce complaints of the population about medical personnel [5].

The established facts of high frequency of answers of the surveyed population, taking into account the region of residence, about the increase in the volume of paid medical services, shortage of specialists, increased waiting time for appointments, refusals to provide medical care, and insufficient equipment are also compared with other studies and experience of im-

proving the accessibility of medical care in other countries. Thus, in the Russian Federation in Article 10 of the Federal Law No. 323-FL dated 21.11.2011 the legislator presents the criteria of accessibility of medical care [6]. S.N. Shelepov [7] notes, the above list of criteria can be extrapolated to health care services in general, but with the following additions: sufficient drug supply to the population; medical interventions and manipulations with the use of medical technologies in medical organizations in accordance with safety requirements; provision of health care services by medical specialists. During the process of providing health care services, the specificity lies in the fact that citizens who apply to the relevant organizations for their receipt are often unable to wait, unable to assert their rights to receive this or that volume of these services, unable to pay for expensive services, but nevertheless expect the necessary (not minimum) volume and range of services. In many countries, the progressive process of replacing free health care with paid services should be recognized as significant problems compromising equal and fair access of citizens to health care services [7]. At the same time, it is difficult to ignore the increase in the proportion of respondents who apply to private clinics and medical centers, while the share of those who in their choice is limited exclusively to commercial organizations is insignificant — residents of the region are more likely to vary situationally between organizations of both types of ownership [8].

The analysis of statistical data shows that there is no shortage of equipment and personnel (except for endocrinologists) in medical organizations of the regions under study. The presence of dissatisfaction of the population of the regions of the Republic of Kazakhstan with the availability of medical care according to the above-mentioned indicators against the background of the absence of problems in staffing and equipment is probably due to the imperfection of the organization of medical care on the ground and requires further study to develop management solutions for its improvement.

## CONCLUSION

The results of the sociological survey on the satisfaction of the population of the Republic of Kazakhstan with the accessibility of medical care indicate the need to find out the reasons for its

decline in some criteria and to improve the existing organization of medical care. In the southern regions, increasing the population's satisfaction with the accessibility of medical care should be achieved by increasing the number of staff in the profiles of "endocrinology" and "dentistry", expanding the opportunities for the population to be examined by endoscopic and ultrasound examinations, reducing the waiting time for appointments with neurologists, surgeons, otorhinolaryngologists and gynecologists, as well as by reducing the burden of financial expenditure on paid medical services and medicines. In the northern regions, it is necessary to increase the availability of endocrinological medical care, improve the organization of work of ophthalmologists and district general practitioners, and expand the opportunities to examine the population through endoscopic examinations. In the western regions, increasing the population's satisfaction with the accessibility of medical care requires improving medical care to the population in cases of musculoskeletal pain, increasing the accessibility of medical care in the endocrinological profile, increasing the number of otorhinolaryngologists in medical organizations, and expanding the opportunities for examining the population through endoscopic research.

## ADDITIONAL INFORMATION

**Author contribution.** Thereby, all authors made a substantial contribution to the conception of the study, acquisition, analysis, interpretation of data for the work, drafting and revising the article, final approval of the version to be published and agree to be accountable for all aspects of the study.

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