A MARKETING STUDY INTO THE QUALITY OF HEALTHCARE IN THE REPUBLIC OF KAZAKHSTAN

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Abstract: *Among the key strategic areas in the development of Kazakhstan's healthcare system is the search for effective methods for managing the caliber of national healthcare. To gauge just how satisfied Kazakhstan residents are with the quality of healthcare they receive, the authors conduct a series of marketing studies involving a survey of patients at polyclinics in the city of Almaty. Based on the findings of the study, the authors determine the key factors influencing the quality of health services provided to the population and propose recommendations as to how to improve it.*

Keywords: *health services; management; quality; factors; satisfaction*

1. INTRODUCTION

Articulation of issue. The strategy 'Kazakhstan's Path – 2050: Common Goals, Common Interests, and a Common Future' sets out the development of the primary healthcare sector as a top priority for the nation's healthcare system. In fact, it is thanks to the development of the primary healthcare sector (PHCS), as a key element in healthcare, that all successful healthcare systems around the world have achieved significant results in their activity and major boosts in population health [1].

In Kazakhstan, 66% of the entire volume of health services provided is accounted for by the inpatient healthcare sector and just 34% by the PHCS. The Ministry of Health Care and Social Development of the Republic of Kazakhstan views the PHCS as one of the highest priority areas for the development of the nation's healthcare system, with the focus currently shifting to the PHCS as opposed to inpatient healthcare [2].

Despite the fact that over 40% of Kazakhstan's population is accounted for by rural residents, most of the nation's current healthcare infrastructure is concentrated in megalopolises, like Astana and Almaty. This makes it extremely hard for some of the country's residents to access high-quality and

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high-tech healthcare. As a consequence, there is unequal access to health services and uneven resource distribution across the republic's regions.

In 2013, the total cost of guaranteed free healthcare (GFHC) per person ranged from 30,576 in Almaty Oblast to 59,974 tenge in Astana [3].

2. ANALYSIS OF LATEST RELATED RESEARCH AND PUBLICATIONS.

Organizational-economic issues related to healthcare have been investigated by such Russian-speaking scholars as M.A. Goreva [4], G.Zh. Doskeeva [5], T.N. Yegorov [6], A.B. Zimenkovskii [7], A.K. Lykov [8], M.K. Nur-Mukhamed [9], T.P. Pritvorova [10], I.M. Sheiman [11], A.T. Shuzheeva [12], as well as a number of foreign authors including M.E. Porter, R.B. Saltman [13], J. Figueiras, and others. That said, to date only a limited amount of research has been carried out in terms of analyzing and assessing the quality of healthcare in the Republic of Kazakhstan.

2.1 The aim of this study

The aim of this study is to bring to light the quality of health services provided in Kazakhstan and come up with proposals for improving their quality.

2.2 Object of study

Ensuring the quality and accessibility of healthcare is one of the more important and challenging issues facing the healthcare system. In accordance with recommendations from the World Health Organization, all activity related to healthcare quality control and assurance ought to be conducted taking into account the following four components: safety, accessibility, quality, and patient satisfaction [14]. These components are regulated and controlled by Kazakhstan's Ministry of Healthcare and Social Development and other government agencies. However, to date there have yet to be developed proper criteria for assessing them. The authors are convinced that patient satisfaction ought to be gauged using only the latest research methods. To provide some input in this direction, the authors conducted a series of marketing studies involving a survey of patients at polyclinics across the city of Almaty.

Chosen as a study site for these marketing studies were outpatient polyclinics located in various parts of Almaty and offering the same range of health services. More specifically, at the time of the study Polyclinic No. 4

was the designated clinic for 85,000 residents of the city, Polyclinic No. 8 – 62,000, and Polyclinic No. 17 – 92,000 [15].

The above facilities provide assigned patients with primary healthcare and diagnostic services, hospital substitution care (day patient care and home care), and preventive medical examinations, all available to the key target groups: senior citizens, women, and children.

Table 1.
Major indicators for polyclinics in Almaty as of year-end 2015

Institution	Staffing level, %		Those with a qualification grade, %		Average monthly salary, in tenge	
	physicians	nurses	physicians	nurses	physicians	nurses
City Polyclinic No. 4	84	92	30	41	114,183	109,699
City Polyclinic No. 8	82	82	51	34	117,450	108,080
City Polyclinic No. 17	78	78	39	38	124,645	116,528
Across Almaty	70	78	47	45	143,729	104,917

Note: compiled by the authors based on data from an outside source [15].

Due to low staffing levels (Table 1, 70% in Almaty), a regular primary care physician, who is supposed to see 20 patients a day (4 patients an hour (15 minutes per patient) for 5 hours at a stretch), had to actually see 33 patients a day in 2014 and 37 patients a day in 2015, a caseload that is almost twice the size it should be [15].

We are also observing pretty low figures when it comes to staff with a qualification grade. Based on data from the Health Administration of Almaty, the percentage of physicians with a qualification grade was just 47%, which is one of the key factors affecting the quality of health services [15].

The average monthly salary for physicians in Kazakhstan is 125,000 tenge, which is almost 16 times less than what they pay in states within the Organisation for Economic Cooperation and Development (OECD) (nearly 2 million tenge). This detracts from the prestige of the profession and reduces overall job motivation for Kazakhstan's healthcare workers [2].

There are two mutually complementary concepts that can be used to evaluate the characteristic of the quality of health services reflecting the ability to meet patient expectations and needs: patient satisfaction with the treatment process and patient satisfaction with treatment outcomes. It is to gauge the degree of customer satisfaction with health services provided by medical institutions in Kazakhstan that the survey-based marketing study discussed in this paper was conducted.

2.3 Methods of study

The marketing study consisted of the following stages: establishing the study's goals and objectives, selecting methods for conducting the study, establishing the general population, putting together the questionnaire, as well as conducting pilot surveys, calculating the sample size, gathering information, determining the sample's representativeness, processing the data gathered, and analyzing and interpreting the results obtained.

Prior to the study, the following objectives were set: putting together a questionnaire, conducting a pilot survey, surveying respondents, determining the sample's size, analyzing and processing the results, and putting together recommendations.

3. PILOT SURVEY

The questionnaire consisted of open-ended and close-ended questions. The respondents were surveyed during their visits to selected polyclinics. The authors conducted a pilot survey of 30 patients at Polyclinic No. 4, during which they tested the questionnaire, identified imperfections in it, and remediated them. Based on the results of the pilot survey, the authors later made some changes to the questionnaire and then calculated the size of the sample.

The survey featured 248 individuals. The authors used a statistical method to determine the sample size. The survey's general population, 239,000 individuals, encompassed all major groups within the population of the city of Almaty.

In determining the sample size, the authors utilized a statistical method of sampling. The following formula was used to determine the sample size [16]:

$$n = \frac{t^2 * w(1-w)}{\Delta p^2} \tag{1}$$

(t – probability-dependent confidence coefficient; at p = 0.954, t = 2; w – share of answers from respondents rating the quality of health services provided by their primary care physicians; Δ – allowed margin of sampling error at a 0.954 probability).

The **source data** for calculating the sample size are provided in Table 2.

Table 2.
Source data for calculating the sample size

Question(s): 'Are you happy with the quality of service provided by your primary care physician?'; 'If not, which of the following parameters is not OK with you?'

Number of variants	Answer variant	Answers from respondents	
		number of individuals	%
	physician's qualifications	9	30
	physician's attitude towards the patient	7	23.3
m = 5	time it takes the physician to treat the patient	5	16.7
	use of cutting-edge medical equipment in the care provided to the patient	7	23.3
	shortage of doctors	2	6.7

Note: compiled by the authors based on data from a pilot survey conducted by them

On plugging the relevant values into the formula, the sample size (n) totaled 222 individuals, as is illustrated below:

$$n = \frac{2^2 \times 0.167(1-0.167)}{0.05^2} \approx 222 \tag{2}$$

Once again, the respondents were asked to rate the quality of health services provided to them by their primary care physicians by answering questions in a questionnaire developed by the authors (Appendix 1). To determine the sample size, the authors drew on data from a pilot survey and the share of respondent answers to particular questions within the questionnaire. Using a special formula (1), the authors calculated the sample size at n = 222. All in all, the study surveyed 248 individuals.

The next stage in the control of sample representativeness involved checking the answer coefficient, which is another crucial factor in a survey. The answer coefficient across the three polyclinics was not lower than 65%, which attests to the representativeness condition being met.

4. MAJOR FINDINGS OF STUDY.

Here is how the respondents rated the quality of health services at the above polyclinics. The question 'Are you happy with the quality of service provided by your primary care physician?' produced the following distribution of respondent answers (Figure 1).

Figure 1: Respondent answers to the question 'Are you happy with the quality of service provided by your primary care physician?'
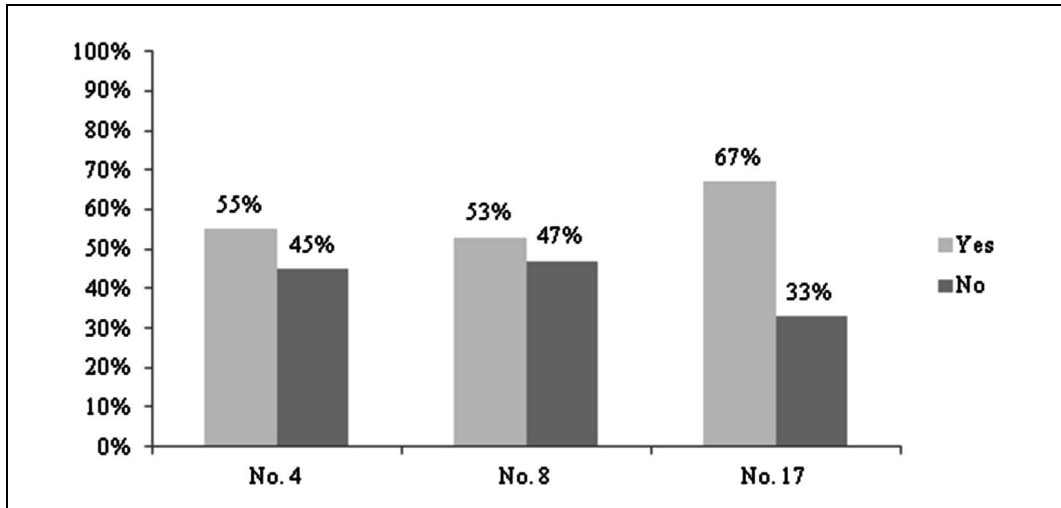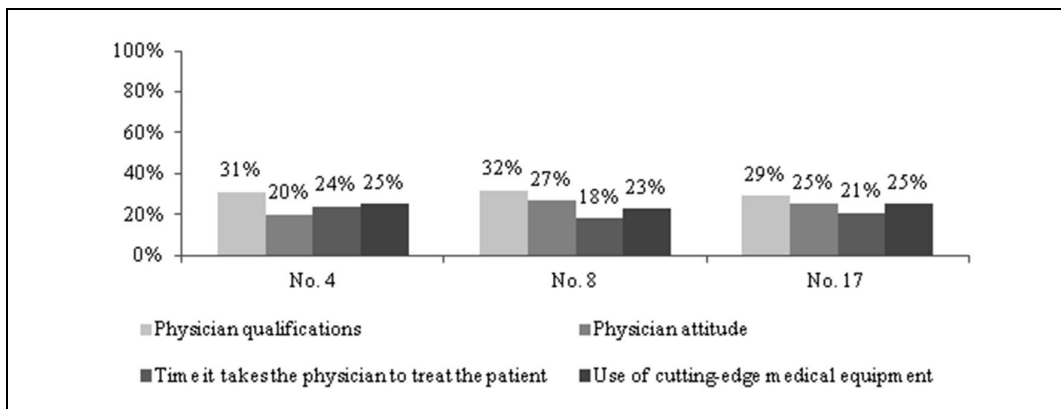

Note: Compiled by the authors based on data from a marketing study conducted by them

As is seen in Figure 1, the average figure across the three polyclinics was 58% of respondents satisfied with the quality of healthcare, versus 42% of them unhappy with it.

Answers to the question 'If not, which of the following parameters is not OK with you?' resulted in the following distribution (Figure 2).

Figure 2: Respondent answers to the question 'If not, which of the following parameters is not OK with you?

Note: Compiled by the authors based on data from a marketing study conducted by them

As is evidenced by the study findings, 30% of respondents were not happy with the physician's qualifications, 22% – his/her attitude towards

them, 21% – the amount of time it normally takes the physician to treat them, and 27% –the insufficient use of cutting-edge medical equipment in treating them.

Table 3.
Respondent answers to the question 'What is your average waiting time to see a doctor?'

Waiting time	City Polyclinic No. 4		City Polyclinic No. 8		City Polyclinic No. 17		Average value
	number of individuals	%	number of individuals	%	number of individuals	%	%
Under 30 minutes	8	8	18	27	11	14	16
30 minutes to 1 hour	21	20	13	19	20	27	22
1 hour	27	26	12	17	15	19	21
Over 1 hour	48	46	25	37	30	40	41
Total:	104	100	68	100	76	100	100

Note: compiled by the authors based on data from a marketing study conducted by them

As is seen in Table 3, to see a doctor, on the average 16% of respondents waited in line for 30 minutes, 22% – 30 minutes to 1 hour, 21% – 1 hour, and 41% – over 1 hour.

Table 4.
Respondent answers to the question 'How would you rate the professionalism of your primary care physician?'

Level of professionalism	City Polyclinic No. 4		City Polyclinic No. 8		City Polyclinic No. 17		Average value
	number of individuals	%	number of individuals	%	number of individuals	%	%
Very high	7	7	3	5	9	12	8
High	47	45	27	39	38	50	44.4
Average	19	18	16	24	14	18	20
Low	29	28	20	29	15	20	26
Very low	2	2	2	3	0	0	1.6
Total:	104	100	68	100	76	100	100

Note: compiled by the authors based on data from a marketing study conducted by them

As is seen in Table 4, just 8% of respondents rated the professionalism level of doctors treating them as very high, 44.4% – high, 20% – average, 26% – low, and 1.6% – very low.

Table 5.
Respondent answers to the question 'How would you rank, in terms of significance, the following factors influencing the quality of health services at the polyclinic you go to?'

| No.	Factor	Number of respondents	Percentage, %
1	high qualifications of the doctor	47	19
2	swiftness of care delivery	27	11
3	use of cutting-edge medical equipment	37	15
4	physician's attitude towards the patient	32	13
5	sanitary and hygienic conditions at the medical facility	35	14
	Respondent answers provided under 'other'		
	Staff being reliable, responsive, responsible	22	9
	Ability to take an individual approach to each patient's needs	13	5
	Size of pay for healthcare workers	20	8
	Size of funding	15	6
	Total:	248	100

Note: compiled by the authors based on data from a marketing study conducted by them

As is seen in Table 5, to 19% of respondents the quality of health services was influenced the most by the physician being highly qualified, 15% – the use of cutting-edge medical equipment, 14% – the sanitary and hygienic conditions at the medical facility, 13% – the physician's attitude towards the patient, and 11% – the swiftness of care delivery.

Among other factors influencing the quality of health services, the respondents mentioned staff being reliable, responsive, and responsible, the ability to take an individual approach to each patient's needs, the size of pay for healthcare workers, the size of funding, and the number of professional staff available.

As is seen in Figure 3, 10% of respondents said it normally took under 30 minutes before they could be seen for a scheduled medical examination or medical procedure, 11% – under 1 hour, 15% – under 3 hours, and 41% – 1 to 3 days.

Figure 3: Respondent answers to the question 'What is the average waiting time for a medical examination or medical procedure you are due to have?'
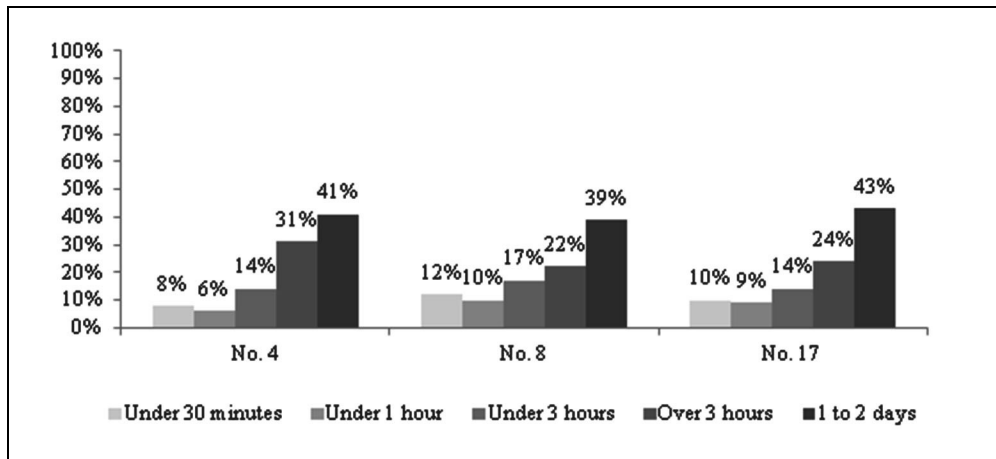
Note: compiled by the authors based on data from a marketing study conducted by them

Table 6.
Respondent answers to the question 'How would you rate the efficiency of the treatment and care you have received from your primary care physician?

Treatment results	City Polyclinic No. 4		City Polyclinic No. 8		City Polyclinic No. 17		Average value
	number of individuals	%	number of individuals	%	number of individuals	%	%
Feel a lot better	14	13	25	36	20	27	25
Feel better	36	35	15	22	7	10	23
Feel a little better	10	10	6	9	15	20	13
Feel the same	33	32	12	18	23	31	27
Feel worse	11	10	10	15	11	12	12
Total:	104	100	68	100	76	100	100

Note: compiled by the authors based on data from a marketing study conducted by them

A crucial indicator for the quality of health services is the result of treatment received. 25% of respondents reported considerable improvement in their condition, 22% – some degree of improvement, 13% – a little improvement, 27% – no change in their condition, and 12% – a worsening of their condition.

The study utilized a total of 248 questionnaires. 36% of the respondents were males and 64% females. The average age was 51–60. In terms of the social make-up of the respondent group, 10% were students, 10% were employed residents, 16% were unemployed residents, 16% were housewives, 42% were retired residents, and 6% belonged to other segments.

Consequently, since the market's primary target segments are retired residents, unemployed residents, and housewives, these groups may qualify for additional healthcare benefits and require that a special healthcare policy be put in place to serve them better.

5.   CONCLUSIONS

The findings of this study lead to the following conclusions as to what affects the quality of health services in Kazakhstan.

Shortage of healthcare professionals. Based on 2015 data, the staffing level of physicians at Almaty's public medical institutions was 70% and that of nurses 78%, which means the city still needs the remaining 30% and 28% worth of healthcare personnel for these positions respectively. Besides, on graduating from college young specialists often end up working in a field other than what they studied for [15].

Lack of funding in healthcare. The World Health Organization has advocated allocating to healthcare no less than 5 to 5.5% of a nation's annual GDP per month. In 2014, Germany's expenditure on healthcare totaled 10.8% of its GDP, France's – 9.4%, England's – 7.5%, and the US's – 14% [18]. By contrast, over the last two years Kazakhstan has spent on healthcare just around 1.9–2.4% of its GDP, which means the republic is 6 to 7 times behind the world's leading nations in this indicator. On top of that, Kazakhstan is tangibly behind certain CIS nations as well. For instance, Russia allocates to healthcare 3.7% of its GDP, Belarus – 4.8%, and Ukraine – 2.7% [18]. Funding for guaranteed free healthcare (GFHC), despite annual increases (e.g., from 64.8 to 464.1 billion tenge in 2014), will also need a boost. In addition to the lack of funding, the other acute issue faced by healthcare in Kazakhstan is poor efficiency in the use of these funds.

Heavy physician workloads. In accordance with the Decree of the Ministry of Healthcare of the Republic of Kazakhstan on Approval of Standard Positions and Units and Standard Work Scope for Staff at Healthcare Institutions (No. 238 of April 7, 2010), the maximum allowed workload is 2,200 adult patients per primary care physician and 2,000 mixed-age patients per general practitioner [17].

Currently, Almaty's 658 physicians (primary care physicians and general practitioners) handle a total of 1,642,000 individuals assigned to the clinics they work for. That makes it 2,495 individuals per physician, an overload of 13%. To compare, in Austria the average workload per physician is 1,532, in France – 1,400, and in Great Britain – 1,892 patients [19], which means the indicator is lower by 14 to 36% for these countries when compared with Kazakhstan. It is therefore imperative that the authorities reconsider standard workloads for primary care physicians, if they are to truly improve the quality of national healthcare.

Workforce aging trend. Despite a boost in young specialists coming into the sector, their numbers still remain insignificant, accounting for no more than 4% of the republic's entire healthcare workforce [15]. This is due to doctors turning into an unattractive and low-paid profession.

Insufficient qualifications among doctors; lack of graded doctors. Based on data for 2015, only 47% of all physicians and 45% of all nurses, i.e. less than half of both groups, in Kazakhstan have a qualification grade [15]. Achieving gains in qualified and graded workforce may require outside funding, which, above all, could be used to get input from foreign experts invited in to help boost healthcare staff competence levels.

The results of the marketing study conducted by the authors helped establish the degree of customer satisfaction with the quality of health services provided at healthcare institutions in the city of Almaty. The survey results indicated that 42% of respondents were not satisfied with the quality of health services provided to them. The study established that among the key factors facilitating the improvement of the quality of health services are enhanced doctor qualifications, better funding for healthcare, use of cutting-edge medical equipment, better staffing levels, and better pay for professionals employed within the healthcare sector.

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Appendix

Dear patient!

As part of our continued effort to assess the quality of national healthcare, we are currently conducting a special survey of residents who have received healthcare service in Kazakhstan. Your feedback will help us come up with proposals for improving the quality of health services at the polyclinics you go to. Please check the box that best represents your answer to the question below.

Thank you for your input!

1. Are you happy with the quality of service provided by your primary care physician?

    □ yes

    □ no

2. If not, which of the following parameters is not OK with you?

    □ physician's qualifications;

    □ physician's attitude towards the patient;

    □ time it takes the physician to treat the patient

    □ use of cutting-edge medical equipment in the care provided to the patient;

3. What is your average waiting time to see a doctor?

    □ under 30 minutes;

    □ 30 minutes to 1 hour;

    □ 1 hour;

    □ over 1 hour;

4. How would you rate the professionalism of your primary care physician?

    □ very high;

    □ high;

    □ average;

    □ low;

    □ very low;

5. How would you rank, in terms of significance, the following factors influencing the quality of health services at the polyclinic you go to?

    □   high qualifications of the doctor;

    □   swiftness of care delivery;

    □   use of cutting-edge medical equipment;

    □   physician's attitude towards the patient;

    □   sanitary and hygienic conditions at the medical facility; other_____ _____(specify)

6. What is the average waiting time for a medical examination or a medical procedure you are due to have?

    □   under 30 minutes;

    □   under 1 hour;

    □   under 3 hours;

    □   over 3 hours;

    □   1 to 2 days;

7. How would you rate the efficiency of the treatment and care you have received from your primary care physician?

    □   you feel a lot better;

    □   you feel better;

    □   you feel a little better;

    □   you feel the same;

    □   you feel worse;

8. Your age

    □   under 20

    □   21 – 30

    □   31 - 40

    □   41 - 50

    □   51 - 60

    □   61 - 70

    □   61 - 70

9. Your sex

    □ female   □ male

10. Your occupation

    □ student

    □ employed

    □ unemployed

    □ housewife

    □ retired

    □ other

Thank you!