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Assessing of Socio-Economic Determinants of the Availability of Medical Services in Kazakhstan

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ABSTRACT

The frequent visits to doctors and their impact on healthcare providers' workload is a significant concern in many countries, including Kazakhstan, where this topic has been understudied. This research aimed to identify key socio-economic factors influencing the frequency and likelihood of individuals seeking medical care. Utilizing sociological, statistical, and comparative research methods, we conducted a survey involving 1838 participants across 20 regions in Kazakhstan. Our statistical analysis included the calculation of Pearson and Kendall correlation coefficients to evaluate relationships between variables such as the frequency of doctor visits and individuals' health assessment practices, their attentiveness to health, and their responses to illness. The findings reveal that individuals who are proactive in seeking medical advice when symptoms appear also tend to visit doctors more frequently throughout the year. Moreover, socioeconomic factors such as drug costs, demographic characteristics, and travel time to medical facilities were identified as influencing factors, albeit to a lesser extent compared to health status assessment and medical examinations. This study provides a foundational understanding of the factors driving medical visits in Kazakhstan, highlighting the interplay between personal health practices and healthcare utilization. This insight is crucial for planning and optimizing healthcare resource allocation and addressing healthcare accessibility and inequality. The study did not identify any significant limitations for future research.

KEYWORDS: Population, Healthcare, Health Economics, Socio-Economic Factors, Health Behavior, Kazakhstan

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1. INTRODUCTION

The study context is essential for better understanding the dynamics and effectiveness of the Kazakh healthcare system. This study will help assess how evenly health services are distributed among different groups of people so that inequalities in health care can be combated. The results obtained help determine which patients seek medical help more often and what motives motivate them to do so more often. Understanding these two factors can contribute to effective planning in the healthcare system, optimally allocate limited resources, identify groups of patients with a high probability of illness, and identify categories of people with low access to medical care. The study is essential for the health care system and public health, as well as for ensuring equal access to health services. It should be noted that at the moment, the topic of interaction between the patient and the doctor, the likelihood and frequency of the patient's visit to the doctor, has not been sufficiently studied in Kazakhstan. The lack of research often leads to poor awareness of the issue. It makes it challenging to implement effective health interventions, such as efforts to reduce inequalities in access to health services.

According to the new rules, starting in April 2024, Kazakhstanis can get an appointment with specialized specialists without going through a therapist. Only a specific part of the population may have such a privilege, namely people with injuries and emergency conditions, people registered at a dispensary, people in need of urgent dental care, and people with suspected venereological, skin, and oncological diseases. It is also possible not to take a referral from a therapist if the patient has made an appointment with a cardiologist, psychologist, neurologist, endocrinologist, surgeon, ophthalmologist, obstetrician-gynecologist, specialists in youth health centers, specialized specialists for a repeat appointment according to his appointment, specialists of mobile medical complexes and mobile services (Adilet, 2024). With limited healthcare resources and a shortage of medical personnel, there is an acute problem of the high workload of medical workers, leading to professional burnout. According to regulations, the workload of a general practitioner in Kazakhstan should not exceed 1,700 people, and the workload of a local therapist should be 2,200 people per assigned area. In 2022, the workload of general practitioners in Kazakhstan amounted to 1,838 people. In 2023, the average workload per general practitioner was 1,808 people, while staffing did not exceed 87% (Ministry of Healthcare, 2024). However, IMD's annual competitiveness reports indicate that Kazakhstan's performance has been trending worse for several years on another indicator, "population density per doctor". So, if in 2018, the population density per doctor in Kazakhstan was 270.01 people, then in 2022, this figure increased to 380.18 people (IMD, 2022). It is worth noting that the rating considers all doctors, regardless of citizenship, who are licensed to work in public or private clinics, except dentists. Undoubtedly, an increase in population density per doctor affects an increase in his workload, which in turn can lead to various problems, ranging from professional burnout to the doctor's dismissal from a medical institution. Analyzing another important indicator "population per doctor/nurse" calculated by IMD, it is worth noting the deterioration of this indicator in recent years in Kazakhstan. Thus, since 2018, the "population per doctor/nurse" has increased from 194.26 people to 251.96 people in 2022. If Kazakhstan took 13th place in the IMD ranking in 2018 in terms of "number of population per doctor/nurse", then in 2022 Kazakhstan dropped to 35th place in the ranking (IMD, 2022).

Thus, the study aims to identify the influence of socioeconomic factors on the frequency and likelihood of the population visiting doctors. This study not only explores how socio-economic status, education, and access to healthcare impact the frequency of doctor visits but also examines the broader implications of these visits on the healthcare system's efficiency and the distribution of medical resources. Data analysis on income, education, access to medical services, and other

socio-economic indicators of patients allows us to identify the relationship between these indicators and the regularity of medical treatment. The significance of this research lies in its potential to inform policy decisions and healthcare management practices that aim to enhance the effectiveness of health service delivery and reduce inequalities. By identifying which demographic groups are most likely to seek medical help and understanding the underlying motives and barriers, healthcare providers and policymakers can better tailor their strategies to meet the needs of the population. Moreover, the study's findings can contribute to the development of interventions that target under-served groups, ensuring more equitable access to healthcare services across different regions and socio-economic segments of Kazakhstan.

2. LITERATURE REVIEW

A study conducted by Islam and Awal (2020) notes that the number of doctor visits in public medical institutions is influenced by factors such as patients' financial condition, satisfaction with doctors' work, accessibility, and satisfaction with medical services. In Bangladesh, the unsatisfactory quality of medical services and distrust in public and private medical institutions have contributed to the development of medical tourism in neighboring countries (Andaleeb et al., 2007).

A better understanding of the factors influencing physician visits can help healthcare managers identify over or under-services. Personal qualities of patients, such as extraversion and neuroticism, directly affect the likelihood of visiting a doctor (Hajek & König, 2020). For example, neurotic patients with poor self-esteem of health visit the doctor more often than other categories of neurotic patients. There is also a category of patients who associate their health status with external factors (external locus of control) and may assume that frequent visits to the doctor will have a positive effect on their health (Hajek & König, 2017). The likelihood of visiting a doctor is even influenced by such factors as a decrease in the level of subjective well-being and a low level of optimism (Hajek & König, 2019). In addition, social isolation or a patient's crisis of meaning in life may also influence the likelihood of visiting a doctor (Cruwys et al., 2018).

Lueckmann et al. (2020) analyzed the frequency of visits to specialists and general practitioners in populations of different socioeconomic backgrounds. So, according to the study, people with low socio-economic status, distance, and waiting time for an appointment have the most significant weight when visiting specialists. Populations with a low socio-economic status are less likely to visit specialists, unlike populations with a high socio-economic status. However, a study by Dowd & Zajacova (2010) argues that patients' higher levels of education may bias self-rated health scores because such patients are more critical of their level of subjective health. Among older people, older women, older people with good physical activity, and older patients with poor self-rated health are the most likely to see doctors (Wickramarachchi et al., 2022).

Several studies show various reasons for the decreased likelihood of the population visiting doctors in medical institutions. Thus, in a study by Taber and others (2015), the following reasons are noted: low demand for medical services due to possible recovery, lack of financial resources and time, lack of insurance, high cost of medical services, and low qualifications of doctors. Another study notes that patients do not visit doctors because of difficult financial situations, living in rural areas, and undesirable and adverse events in life (Chapman et al., 2022).

Several studies link frequent doctor visits with patients' psychological characteristics. Hence, women who experience depression during pregnancy or after childbirth are more likely to visit the doctor (Chee et al., 2008). A study by Guo et al. (2017) shows that depression, sleep quality, and pain are associated with frequent doctor visits.

A study conducted in China shows the problem of a high workload of doctors from high-level medical institutions and an

insufficient workload of doctors from lower-status medical institutions. The authors believe that the introduction of co-payment for doctor visits can reduce the workload at high-status medical centers; differentiated payment can increase the likelihood of visiting inexpensive doctors, especially among older people and people with chronic diseases (Wang et al., 2023). In 2013, Cyprus introduced co-payments for emergency care visits, allowing the health system to refer non-emergency patients to primary healthcare facilities (Petrou & Ingleby, 2019).

Research on patient visits to doctors in Kazakhstan is not so widespread in the scientific literature. A study conducted at one of the medical institutions in Astana notes the importance of patient trust in the likelihood of visiting a doctor (Zhumadilova et al., 2018). A study conducted in Almaty examines various factors of self-assessed health among migrant workers and their impact on the receipt of medical services (Kumparatana et al., 2017). Among primary care physicians, the probability of professional burnout was higher for those who had additional work. This fact hurts patients (Migina et al., 2023).

An analysis of the literature touching on the frequency and likelihood of the population visiting doctors shows that the frequency and likelihood of visiting doctors depend on several factors, including the socioeconomic status of the patient, the psycho-emotional state of the patient, the quality and availability of services and organizational aspects of healthcare. Thus, the low socioeconomic status of the patient negatively affects visits to the doctor, especially visits to specialists, due to the long wait for an appointment and the long distance to the medical facility. Such psycho-emotional characteristics of patients, such as neuroticism, extraversion, depression, etc., may affect the increase in the frequency and likelihood of visiting a doctor. The low quality and inaccessibility of medical services contribute to the outflow of patients to better medical institutions, including foreign ones. Factors such as health insurance, cost of medical services, medical and physician staff qualifications, and co-payment mechanisms can influence the frequency and likelihood of patient visits. A review of the literature showed the need to take into account the various characteristics of patient behavior in different countries, including the need to consider the population's mentality. It is also worth considering the multiple factors influencing physician visits to develop effective interventions and strategies to improve access and quality of healthcare services and reduce healthcare inequalities.

3. METHODOLOGY

We conducted a sociological survey among the population of 20 regions of the Republic of Kazakhstan, including in new administrative units (Abai, Zhetysu, and Ulytau regions). The method of collecting information was a questionnaire survey, the total population of respondents was 1638. The majority of respondents (59%) lived in cities, 28.2% lived in rural areas, and 12.8% lived in cities remote from regional centers. The majority of respondents, 64.3%, were women, and 35.7% of respondents were men. The age range of respondents was: 16-17 years old 12.3%; 18-24 years old 53%; 25-34 years old 13.6%; 35-54 years old 16.7%; 55-64 years old 3.4%; respondents over 65 years old 1%. Among the respondents, 51% had higher education, 36.1% had incomplete higher and secondary specialized education, and 12.8% had incomplete secondary and secondary education. Of the respondents surveyed, 39.9% worked; 4.8% had a household; 6.5% did not work due to age and disability; on maternity leave and unpaid leave, 4.2%; 39.9% studied; 4.7% of respondents did not work. 36.4% of respondents were married, 5.5% were divorced or widowed, and 58.1% were unmarried. In total, respondents were asked 26 questions, including information about health, doctor visits, access to medical care, socioeconomic characteristics of the respondents, etc. The sociological survey was conducted from February to March 2023.

Based on the survey results, this research posits the following hypotheses for examination:

H1: Insufficient access to quality healthcare significantly contributes to health issues among vulnerable populations, perpetuating disparities between economically advantaged and disadvantaged groups.

H2: A proactive health mindset, characterized by a responsible and sometimes excessive concern for one's health (akin to hypochondria) and a paternalistic view towards medical care, significantly increases the frequency of doctor visits.

To validate these hypotheses, correlation analysis was employed as a principal statistical method. This involved utilizing Pearson's product-moment correlation coefficients for variables quantified on interval scales and calculating Kendall's rank correlation coefficients for those measured on ordinal scales. Additionally, an ordered logistic regression model was implemented to assess the probability of doctor visits based on various independent variables. These included the patient's self-assessed health status, tendencies towards self-medication, the proximity to healthcare facilities, and the financial costs associated with medical care.

The analytical approach adopted ensures a robust examination of the correlations between socio-economic factors and healthcare utilization, thus providing a quantitative foundation for addressing the hypothesized health disparities and behavioral influences on medical consultations.

4. FINDINGS AND DISCUSSION

Tables 1, 2, and 3 provide detailed results from a sociological survey concerning participants' perceptions and attitudes towards their health. Specifically, Table 1 documents responses to the query, "How do you assess the state of your health?" Results indicate that a majority of respondents, 57.5%, reported their health as "good." A further 33.3% described their health as "average," while 6.5% considered their health "poor." Additionally, 2.7% of participants were unable to provide an assessment of their health status. These findings underscore the varied perceptions of health within the surveyed population, reflecting a spectrum of personal health evaluations.

For a detailed breakdown of survey responses to the question "How do you assess the state of your health?" refer to Table 1.

TABLE 1. Self-Assessment of Health Status by Respondents

Variable		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Health is poor	106	6,5	6,5	6,5
	Average state of health	545	33,3	33,3	39,7
	Health is good	942	57,5	57,5	97,3
	I find it difficult to answer	45	2,7	2,7	100,0
	Total	1 638	100,0	100,0	

Note: compiled by authors

The data is structured to show the frequency and percentage distribution of responses across four categories. The cumulative percentages of data illustrate a progressive accumulation of responses, culminating in 100% with those who found it difficult to answer.

The obtained data of categories the respondents' levels of health consciousness as follows. A significant portion of respondents indicated that they primarily focus on maintaining their health. Many respondents reported a general commitment to their health. Some admitted to having minimal concern for their health.

Next, Table 2 documents the responses to the survey question "To what extent do you care about your health?"

TABLE 2. Extent of Health Care Engagement Among Respondents

Variable		Frequency	%	Valid, %	Cumulative, %
Valid	I don't care at all	73	4,5	4,5	4,5
	I don't care much	398	24,3	24,3	28,8
	Mostly I care	682	41,6	41,6	70,4
	I care	454	27,7	27,7	98,1
	I find it difficult to answer	31	1,9	1,9	100,0
	Total	1 638	100,0	100,0	

Note: compiled by authors

A smaller group stated that they do not care about their health whatsoever. This distribution provides insights into the varying degrees of health attentiveness among the surveyed population, highlighting a significant portion that is actively engaged in health management, alongside a noticeable fraction displaying apathy towards health issues.

Table 3 presents respondents' answers to the question "Based on what you assess the state of your health?".

TABLE 3. Criteria for Self-Assessment of Health Status by Respondents

Variable		Frequency	%	Valid, %	Cumulative, %
Valid	Based on medical examination	1	0,1	0,1	0,1
	Based on medical examination and well-being	322	19,7	19,7	19,7
	Based on well-being	524	32,0	32,0	51,8
	Milk and honey	788	48,1	48,2	99,9
	Psychosomatics	1	0,1	0,1	100,0
	Total	1 636	99,9	100,0	
Missing	777,00	2	0,1		
Total		1 638	100,0		

Note: compiled by authors

The responses illustrate the criteria used by respondents to evaluate their health status. The predominant method, cited by nearly half of the participants, involved a metaphorical 'milk and honey' approach, indicating an overall perception of well-being and contentment. The next most common basis was personal well-being, followed by assessments that combined medical examinations with personal well-being. A smaller fraction of respondents relied solely on medical examinations. Notably, a negligible number of participants mentioned psychosomatic factors as their assessment criterion. This distribution of responses highlights the varied and subjective nature of health perception among the surveyed individuals.

When analyzing the data, the task was set to find out how closely the studied characteristics are interconnected. To test whether there was a statistically significant relationship between the variables, correlation coefficients were calculated. The relationships studied in Table 4 generally have a weak or weak insignificant relationship with the variable "How often do you visit a doctor during the year".

TABLE 4. Dependencies of Variables on Frequency of Doctor Visits

Researched dependencies	Pearson's Criterion	The power of interconnection	The direction of communication
How would you rate the state of your health	68.942	weak (not significant <0.1)	-
To what extent do you care about your health	225.74	average (0.2-0.4)	+
Based on what do you assess the state of your health	241.71	average (0.2-0.4)	+
Have you been sick in the last 12 months	89.024	weak (not significant <0.1)	+
The last 6 months were shown to a health worker for a medical examination	165.09	weak (0.1-0.2)	+
Where did you go for medical care during the year	414.35	weak (0.1-0.2)	-
How much time do you spend traveling to a medical institution	67.856	weak (0.1-0.2)	-
Do you think that the medical institution lacks specialists in the required profiles	51.069	weak (not significant <0.1)	-
You or a family member need to take medication on a regular basis	35.057	weak (not significant <0.1)	-
Do you purchase medicines or receive them from the state	112.97	weak (not significant <0.1)	+
How much do you spend per month on medicines	44.378	weak (not significant <0.1)	-
What's your gender	13.276	weak (not significant <0.1)	+
Your age interval	76.014	weak (not significant <0.1)	-
Your education	38.048	weak (not significant <0.1)	-
Your main occupation	147.38	weak (not significant <0.1)	-
If you work, in what field	145.29	weak (not significant <0.1)	-
Your marital status	85.342	weak (not significant <0.1)	-
Do you have children in your family	47.392	weak (not significant <0.1)	+
How do you assess the financial situation of your family	151.94	weak (not significant <0.1)	-
Average monthly income per person in a family	53.666	weak (not significant <0.1)	-
Your area of residence	29.016	weak (not significant <0.1)	-
Indicate the region and city in which you live	283.80	weak (not significant <0.1)	-

Note: compiled by authors

The table data suggests that there is a weak, insignificant relationship between the frequency of visiting a doctor and the indicator "How would you rate the state of your health," implying that patients who rate their health as good may not visit doctors as often as other categories of patients. The factors "To what extent do you care about your health" and "Based on what do you assess the state of your health" exhibit an average positive relationship

with the frequency of visiting a doctor. This may be explained by the tendency of patients who care about their health and evaluate its condition to visit doctors more often.

Furthermore, the factor "Have you been sick in the last 12 months" shows a weak but positive relationship, indicating that patients who have been sick are more likely to see a doctor. Similarly, there is a weak but positive relationship with the factor "The last 6 months were shown to a health worker for a medical examination," which can be attributed to a more cautious attitude towards health by the patient. The weak negative relationship between the factors "Where did you go for medical care during the year" and "How much time do you spend traveling to a medical institution" can be explained by patients living at a considerable distance from medical facilities and being dissatisfied with medical care, thus negatively affecting their likelihood of consulting a doctor.

Additionally, a weak but positive connection is observed for the factors "Do you purchase medicines or receive them from the state" and "Do you have children in your family." Such a relationship between these factors may indicate that patients are more inclined to visit a doctor for prescriptions and consultations about medications, and can also be explained by their concern for the health of their children.

Among the studied dependencies in Table 5, the average strength of the relationship is observed for the indicator "I approach the doctors".

TABLE 5. Interrelation of Frequency of Doctor Visits and Actions Taken in Case of Disease

Researched dependencies	Pearson's Criterion	The power of interconnection	The direction of communication
I approach the doctors	159.82	average (0,2-0,4)	+
I use unconventional means	16.394	weak (not significant <0.1)	+
I treat myself with medications and folk remedies	80.246	weak (0.1-0.2)	-
Self-medication and doctor’s recommendations	46.396	weak (not significant <0.1)	-
I don't do anything	82.154	weak (0.1-0.2)	-

Note: compiled by authors

There is an average strong positive relationship between approaching doctors and the frequency of doctor visits. This suggests that individuals who regularly visit doctors are more likely to approach healthcare professionals when they fall ill, seeking formal medical assistance. A weak, insignificant relationship is observed between using unconventional means and the frequency of doctor visits.

This implies that using alternative or unconventional methods for treating illnesses does not significantly influence the frequency of doctor consultations. There is a negative relationship between visiting a doctor and self-medication, which suggests that patients who rarely visit doctors are predisposed to trust their treatment methods and do not listen to doctors' recommendations. It is worth noting that the observed variables have a weak or medium strength of relationship, which suggests that other factors influence a person in case of illness.

The data in Table 6 shows an analysis of the relationship between the frequency of visiting a doctor during the year and the reasons prompting patients to seek medical care for a fee.

TABLE 6. Interrelation between Frequency of Doctor Visits and Reasons for Seeking Medical Care for a Fee

Researched dependencies	Pearson's Criterion	The power of interconnection	The direction of communication
The doctor at the hospital at the place of residence refused to issue a referral	141.31	weak (0.1-0.2)	+
There is a long wait to register for diagnostic tests	11.846	weak (not significant <0.1)	+
I want to be served at a high level (quickly and efficiently)	38.419	weak (not significant <0.1)	+
The district polyclinic is far away	13.212	weak (not significant <0.1)	+
Low level of equipment at the district clinic	9.841	weak (not significant <0.1)	+
Lack of necessary medical specialists in the district clinic	10.943	weak (not significant <0.1)	+
High professionalism of doctors in a private clinic	24.956	weak (not significant <0.1)	+
Better organization of work (no queues, etc.)	30.499	weak (not significant <0.1)	-
Attentive attitude of medical staff in a private clinic	13.948	weak (not significant <0.1)	+
Satisfied with the broader range of medical services provided	15.128	weak (not significant <0.1)	+
High quality of medical care in a private clinic	14.079	weak (not significant <0.1)	+
Modern equipment	9.89	weak (not significant <0.1)	+
Specialized institutions (diagnostic centers, etc.)	139.02	weak (0.1-0.2)	+
I did not apply	80.058	weak (0.1-0.2)	-

Note: compiled by authors

Refusal to issue a medical referral by a doctor and referral to specialized institutions have a weak positive relationship. Other factors, such as long waiting times for an appointment for a diagnostic examination, the desire to receive quality care, remoteness of the medical facility, etc., have an insignificant relationship with the frequency of doctor visits. Such a factor as not seeking medical help also has a weak but negative relationship with the frequency of visiting a doctor.

Refusal or problems with calling an ambulance show a weak positive relationship with the frequency of visiting a doctor. This is explained by the fact that having not received or received insufficient medical care services, patients more often turn to doctors. Those portions of the population that had no problems or did not seek emergency medical care had a weak but negative relationship with the frequency of doctor visits, which may mean that they visit the doctor less often over a year. This trend suggests that access to emergency medical services plays a critical role in shaping individuals' healthcare behaviors.

The studied dependencies in Table 7 show a weak, insignificant strength of the relationship between the variables "How often do you visit a doctor during the year" and "If you went to emergency medical care, did you encounter any problems?"

TABLE 7. Relationship Between Frequency of Doctor Visits and Encountering Problems in Emergency Medical Care

Researched dependencies	Pearson's Criterion	The power of interconnection	The direction of communication
The call was not accepted	120.368	weak (0.1-0.2)	+
Very long wait for a response	2.848	weak (not significant <0.1)	+
Lack of available crew on site	9.513	weak (not significant <0.1)	+
Recommendations are given over the phone	1.851	weak (not significant <0.1)	+
Very long wait for the crew	10.014	weak (not significant <0.1)	+
No, there were no problems	26.658	weak (not significant <0.1)	+
I did not apply	48.941	weak (0.1-0.2)	-

Note: compiled by authors

As we can see, the highest indicator of the Pearson Criterion was recorded for the dependence "Where did you seek medical help during the year" (414.35), and the lowest indicator for the dependence "Recommendations were given by telephone" (1.851). The average strength of the relationship (0.2-0.4) was recorded for the variable "How often do you visit a doctor during the year" with the variables "To what extent do you care about your health", "Based on what you assess the state of your health" and "What do you do in case of disease" (answer: I turn to the doctors). With the rest of the variables, a weak or weak insignificant force of the relationship is fixed.

It was tested whether there was a statistically significant relationship between "How would you rate the state of your health?" and "How often do you visit a doctor during the year?". Both variables are measured on an interval scale. At the same time, it should be taken into account that the Pearson correlation coefficient is less robust than the Spearman correlation coefficient, therefore, the Kendall coefficient is also considered.

For variables measured on an ordinal scale, Kendall's rank correlation coefficient values were calculated. Based on this, there is a statistically significant relationship between "What do you do in case of disease" (answer: I turn to the doctors) and "How often do you visit a doctor during the year", in social sciences, a correlation coefficient value of 0.427 can be considered a good indicator.

To estimate the effect of personal characteristics on decisions to visit doctors, we use the ordinal logit model. We treat no visits to doctors at all as a baseline category and interpret the coefficients of the model as determinants of more frequent visits (up to several times a month). One natural explanatory variable is self-reported health state, baseline being Poor, and others, Average, Good, and Unidentified (Hard to say, probably also meaning not bad). Other explanatory variables include actions when ill, with categories None, wait till recovery (baseline), Self-medication, Non-conventional medicine, and going to medical doctor; time required to reach clinic, categories ranging from under 15 minutes (baseline) to more than 2 hours; monthly expenses on drugs, ranging from under 5 thousand KZT to more than 35 thousand KZT, as well as a bunch of sociodemographic characteristics. Another important variable is whether the respondent had a professional health check (as part of their job contract) within the last 6 months. Separate regressions are reported for those who did or who did not perform such health checks, along with the primary regression with controls.

TABLE 8. Frequency of Doctor Visits Based on Base: A Few Times a Month

Researched dependencies	(1) full	(2) screening	(3) No screening
Health (ref: poor) average	0.789***	1.086***	1.000***
	(0.230)	(0.376)	(0.330)
Good	-0.033	0.285	-0.346
	(0.182)	(0.298)	(0.255)
Hard to say	0.197*	0.500***	0.128
	(0.102)	(0.162)	(0.145)
Cure when ill (ref: none) self-medication	-0.787***	-0.971**	-0.663**
	(0.237)	(0.469)	(0.302)
Non-traditional	-1.490***	-1.891***	-1.040***
	(0.279)	(0.518)	(0.380)
Doctor	-1.777***	-1.824***	-1.723***
	(0.242)	(0.468)	(0.316)
Time to clinic (ref:<15min) 15 to 30min	0.221**	0.401**	0.034
	(0.111)	(0.166)	(0.164)
30 to 60min	0.485***	0.441**	0.456**
	(0.131)	(0.202)	(0.186)
1 to 2 hrs.	0.518**	0.157	0.614*
	(0.240)	(0.391)	(0.324)
>2 hrs.	0.928***	0.685*	1.061***
	(0.260)	(0.397)	(0.393)
Drug cost (ref:<5K KZT) 5 to 10K KZT	-0.319***	-0.311*	-0.392**
	(0.114)	(0.182)	(0.159)
10 to 20K KZT	-0.362***	-0.142	-0.602***
	(0.128)	(0.196)	(0.186)
20 to 35K KZT	-0.266	-0.090	-0.685**
	(0.190)	(0.280)	(0.289)
>35K KZT	-0.101	-0.273	-0.321
	(0.201)	(0.287)	(0.326)
Prof med screening (ref: yes)	0.807***		
Hard to say	(0.188)		
No	0.787***		
	(0.098)		
Age category (numeric)	0.008*	0.013**	0.001
	(0.004)	(0.006)	(0.007)
Female	-0.044	0.019	0.001
	(0.069)	(0.108)	(0.099)
Observations	1633	720	792
Residual variance	5063.84	2112.58	2463.45

Note: compiled by authors

Ordinary logit is a proportional model; hence it means that all coefficients are interpreted as linear effects of the respective regressor on the odds of choice of each category relative to the baseline. In particular, the coefficient of self-reported health: average implies that the odds of going to the clinic less often than several times a month is 2.20 (=exp (0.789)) times higher for patients with an average health state than for patients with a poor health state. This makes sense because patients with poorer health are expected to consult doctors more. Interestingly, this does not hold for the patients whose health state is good but is marginally accurate for patients who find it hard to characterize their health state, especially when they have to do a regular medical check as part of their job contract. This fact is expected and can serve as additional evidence that respondents took the survey seriously. Patients who reportedly use self-medication in case of illness, rather than doing nothing, are more likely to see the doctors more often. Their odds of seeing a doctor less likely to see a doctor less often than several times a month are 0.45 (=exp (-0.787)) of the odds of the respondents who do nothing in case of illness. This tendency is even more vital for those who use traditional medicine and especially for those who go to conventional doctors in such cases. These last patients are almost five times 0.22 = exp (-1.77)) less likely to decrease their frequency of doctoral visits in case of illnesses than those who reportedly do nothing in case of illnesses. Interestingly, this tendency is more vital for those who incur regular professional health checks, meaning that people who have regular exposure to such checks also develop some habits of consulting doctors whenever needed. This is confirmed by the dummies of these professional health checks in the primary regression.

Attendance of doctors decreases monotonically with distance to a clinic, even though the significance of the effect varies. In particular, people who live within 60 min of the clinic have their odds of going to the doctor less than a few times a month 1.62 times (=exp (0.485) higher than those who live within walking distance of 15 min. This tendency is true regardless of whether people undergo regular health checks as part of job contracts, although the effects are less significant due to lower sample sizes. Distance is also obviously correlated with residence area (large cities vs countryside); hence, we did not find any significant effect on residence per se, education, income, gender, or age.

Effects of drug costs are also explained that people who spend 5 to 10 thousand tenge on drugs per month are less likely to visit doctors fewer times than those who spend less than 5 thousand (odds ratio is 0.72 (= exp (-0.319)). This means that visits to doctors are accompanied by more drug expenses, probably due to drug prescriptions – but up to a specific limit of less than 20 thousand tenge. Interestingly, this effect is more 'prolonged' for those who do not undergo regular health checks (column 3). For them, the effect holds until the expense of 35 thousand tenge: those people are 6 times less likely to decrease the frequency of their visits to doctors than those who spend less than 5 thousand tenge. One might speculate here that people who are more exposed to doctors through undergoing regular health checks take drug prescriptions somewhat more critically, and not each of their visits to the doctor is accompanied by an increase in drug expenses. However, this intuition has to be discounted by regular health check visits.

Thus, the data reviewed contains coefficient values, standard errors of coefficients, standardized coefficient values, Pearson pairwise correlation coefficients, significance levels, and modeling results using the Ordered Logit model. From the data obtained, it is clear that at a significance level of 0.05, all coefficients are statistically significant: the constant and the coefficient β in front of the variables. According to the results obtained, the variable "How often do you visit a doctor during the year" is most strongly correlated with the following variables "Based on what you assess the state of your health", "To what extent do you care about your health", "What do you do in case of disease" (I approach the doctors). It is worth noting that the ordered

choice model shows that factors such as self-assessment of health status, behavior in case of illness, regular medical examinations, time and distance to a medical facility, as well as the cost of medications have no less influence on the frequency and likelihood of visiting a doctor.

5. CONCLUSIONS

The results of the study showed that a more serious attitude towards one's health and an excessive attitude towards one's health on the part of the patient influence a high likelihood of visiting a doctor. Undoubtedly, such factors affect the increase in the workload of both general practitioners and the workload of specialized specialists. It is also worth considering the paternalistic relationships that arise between some patients and doctors. The presence of paternalistic relationships cansignificantly influence the likelihood of patients visiting their doctor because patients rely entirely on the doctor's qualifications and experience in all matters of medicine.

Using the ordered logit model, we were able to obtain the following conclusions. Respondents who rate their health as "good" or "uncertain" visit a doctor more often than respondents who rate their health as "poor". The use of alternative medicine and self-medication is not significantly associated with the frequency of doctor visits. Having undergone a professional medical examination in the last six months also positively affects the frequency of visiting a doctor, demonstrating the respondents' high responsibility for their health. Factors such as drug costs, socio-demographic characteristics, and time spent traveling to a medical facility can also influence the frequency of the population visiting doctors. However, this influence is less significant than professional medical examination and health status assessment.

The current study aimed to identify socioeconomic factors that influence the population's likelihood of seeking medical attention. The likelihood of a patient going or not going to see a doctor is directly interconnected. It affects many current challenges facing the healthcare system, for example, the excessive workload of doctors, long waiting periods for a doctor's appointment, health inequalities, etc. Thus, the existing problem of insufficient access of a part of the vulnerable population, primarily those uninsured in the health insurance system, to quality medical care, negatively affects the likelihood of visiting doctors; accordingly, this problem can negatively affect the health of this category of the population. Understanding the underlying factors that influence the likelihood of attendance will allow healthcare managers to better design strategies to reduce unfair healthcare disparities.

AUTHOR CONTRIBUTION

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