

## Factors that influence access to health care services in students of Semey State Medical University, Kazakhstan

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**Abstract:** Medical students have close contact with health care services and possess special knowledge about health risk factors, but, all too frequently, they remain unhealthy. In this study, we determined the factors that influence access to health care services in Kazakhstan through identification of the differences in students based on access quality measured as a score of barriers to health care services, and assessment of the association of factors that influence access and quality of access to health care services. We conducted a cross-sectional study using a structured questionnaire of medical students from their first to the fourth year. The obtained results represent a response rate of 99.24% (1178 out of 1187 students). A half of the students, 51.7% (609), showed “Normal” and 48.3% (569) “Poor” access to health care services. There are significant differences of sex ( $p = 0.067$ ), residency ( $p = 0.004$ ), form of education ( $p = 0.029$ ), perception of financial status ( $p < 0.001$ ), scholarship assistance ( $p = 0.033$ ), and self-assessed health status ( $p < 0.001$ ). We performed multiple logistic analysis on confounding factors, which indicated that students who live alone were much more likely to have “Poor” access to health care services (OR: 1.37,  $p = 0.037$ ), as well as to subjectively evaluate both their financial (OR: 1.67,  $p < 0.001$ ) and health statuses (OR: 2.84,  $p < 0.001$ ) as “Bad.” Factors that influence access to health care services include demographics, residence, form of education, financial status and scholarship assistance, self-assessed health status, and access barriers to health care services. Association of residency, financial and self-assessed health statuses identified that those factors can be associated with access to health care services in medical university students. Further study is needed to confirm the association of these factors with access to health care services.

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### 1. Introduction

In recent years, numerous studies have focused on the health of young people globally (Webb, Naish et al., 1996; Bohm, Ellsasser et al., 2003; Blum and Nelson-Mmari, 2004; Santor, Poulin et al., 2007; Baltag, 2008; Kostrzewa, 2008; Naylor, Lincoln et al., 2008; Burns, Durkin et al., 2009; Patton, Coffey et al., 2009; Regmi, 2009, World Health Organization. Regional Office for Europe. and European Commission, 2009; Tesso, Fantahun et al., 2012). The health and social problems of the young population is of great concern due to the vulnerability of this group, exposure to changes in physical and mental development, environmental factors, and risky behavior (Vogels, Vliet et al., 1993; Waszak Geary, Wedderburn et al., 2006; Wills, Appleton et al., 2008; Webster and Temple-Smith, 2010; Stephens-Reicher, Metcalf et al., 2011). But, at the same time young people are faced with health problems, they must deal with barriers of access to health care services. Health care services are often of poor quality in the way in

which they are provided, and often fail to meet the expectations of young people (Symington, 1997; Tonin, 2007; Shaw, 2009; Webster and Temple-Smith, 2010; Walsh, Scaife et al., 2011; Watson, Parr et al., 2011; Ward, Bryant et al., 2012). In Kazakhstan, the majority of the youth population are students in colleges and establishments of higher education with special conditions of life (Shaikh, Kahloon et al., 2004). The most appropriate age entering to Kazakhstan universities immediately after graduating from secondary school consists of individuals 17–24 years old. Students from the first to fourth year are young adults who are undergoing or have undergone the immense changes that take place during adolescence, heralded by puberty. The World Health Organization (WHO) defines adolescents as people aged 10–19 years, youths as those aged 15–24 years, and young people as those aged 10–24 years (World Health Organization. Regional Office for Europe. and European Commission, 2009). Medical students are an important part of young people, which

in Kazakhstan comprise 40% of the population. It must be noted that while medical students have close contact with all types of health care services and possess special knowledge about the health risk factors, they remain unhealthy and show adherence to risky behaviors, such as the use of tobacco, alcohol and other substances, practicing unprotected sex, and the neglect of health problems and medical services. Despite accessibility to health care services, many problems still exist when it comes to seeking help, in the area of what the population of medical students refers to as barriers (Wilkes, Skootsky et al., 1994; Roberts, Warner et al., 2000; Wilson, Grumbach et al., 2004; Wayne, Timm et al., 2010; Seritan, Hunt et al., 2012). The main access barriers relate to the availability, accessibility, acceptability, and equity of health care services (Penchansky and Thomas, 1981). Although a large number of qualitative and quantitative studies of young people as well as students exists, access to health care services is still a problem worldwide (Tylee, Haller et al., 2007). Differences in approach to studies and systems of health care can limit research findings in this field.

Kazakhstan, as well as having geographic diversity, is ethnically very diverse, with a higher proportion of Russians than in the other central Asian republics. The official state languages are Kazakh and Russian. Kazakhstan inherited a health system organized according to the Semashko model of Soviet health care, with the key feature that health services should be free and accessible to everyone (Katsaga, Kulzhanov et al., 2012). Since its independence in 1991, Kazakhstan has had to develop its own policy and planning capacity. The main regulatory document with regard to patient rights is the Law on Protection of Population Health of 7 July 2006. According to this law, patients are entitled to receive high-quality health care in the context of the guaranteed benefits package provided free of charge. However, primary health facilities are not fully staffed with qualified personnel. Primary care staff also have a heavy workload (Katsaga, Kulzhanov et al., 2012). In recent years, Kazakhstan accepted the initiative of the United Nations Development Programme (UNDP) to organize youth-friendly clinics. But in Kazakhstan, despite a large number of free services, especially those oriented to youth, a great many problems to the access of health care remain. This situation is complicated by inadequate scientific studies in this field.

In this study, we aimed to determine the factors that influence access to health care services in Kazakhstan, identify the differences in students based on access quality measured as a score of the degree of the difficulty of barriers to health care services,

and assess the association of factors that influence access and quality of access to health care services.

## 2. Material and Methods

This cross-sectional study was conducted at Semey State Medical University, Kazakhstan, aimed at students of General Medicine faculty from the first to fourth year. We prepared a paper-based, structured questionnaire with 15 questions in the Russian and Kazakh languages, and then independently back-translated to insure the accuracy of translation. These questions included the specifics of student demographics, residence, form of education, perception of financial status and scholarship assistance from the university, self-assessed health status, readiness to be a volunteer in a local health care service, and access to health care services. The students were asked to complete the questionnaires anonymously based on the explanations of the research assistants. Before the enrollment of students in the study, informed consent was obtained from each individual. The study protocol was approved by the Local Ethics Committee of the university.

Using the Register of students from Semey State Medical University, General Medicine Faculty, all students were invited by post to complete the questionnaire. All registered students were eligible to participate in the study. A total of 1187 students were recruited for participation in this study during April and May 2012. Research assistants explained the aim and privacy of this study to students recruited from the university. Oral informed consent was obtained from each participant beforehand. The response rate was 99.24% (1178 out of 1187 students).

The questionnaire included five blocks of queries, all of which comprised the issues discussed in this article. The demographics questions captured age, sex, and language of education at the university. Socio-economic status related to basic financial sources, self-assessed financial status, and place of residency of respondents. Most students who receive financial support received it from their parents and from monthly scholarships. Students' expenditures were mainly for dormitory or house rent and school expenses. Self-assessed perception of financial status was asked by a question with three text answer options to specify, "I have money (for)": "only for living," "need sorely," and "enough." Self-assessed health status evaluated subjective health status, using a set of alternative answers provided by the question, "Please, describe your health status": "well"/"bad." The questionnaire included a question about the readiness to improve the quality of medical care provided by local health care services (HCS). Many senior students of the General Medicine Faculty could be a resource for health care services options,

giving them the opportunity to be helpful to the society and at the same time be trained in primary care delivery. The question was, “Are you ready to improve the quality of local health care services?” with the multi-choice answers, “No, this is mission of the Government”/“Yes, I’m ready”/ “I’m doing it (I’m a volunteer)”/ “I have not decided yet.” Access to HCS was provided to specify the examples of various barriers to health care services with multi-option answers. Examples of barriers were divided into four separate groups according to basic points of delivering health care services: availability, accessibility, acceptability, and equity of health care services. Each statement was concordant with one of the four listed. The total number of questions in this block was six.

All subjects were divided into two groups according to the answer regarding the access to health care services, i.e., students who reported none or one barrier of access to HCS were assigned as the “Normal” group, and students who reported more than two barriers of access to HCS were assigned as the “Poor” group.

We describe the distribution of categorical data with the use of absolute frequency and percentage. Quantitative data are expressed as mean  $\pm$  standard deviation as appropriate. Differences between the two subgroups (“Normal” group and “Poor” group access) with quantitative data were analyzed by  $\chi^2$ -test. Multiple logistic regression analysis was performed to assess the influences to access the health care services of each factor, and the odds ratio (OR) and 95% confidence interval (95% CI) were calculated. A *P*-value less than 0.05 was considered to be significant. We performed statistical analysis using the SPSS statistical package, version 17.0 for Windows (SPSS Japan, Tokyo, Japan).

### 3. Results

**Demographics** Basic characteristics of the study participants are presented in Table 1. Total number of respondents was 1178, out of which 276 (23.4%) were men and 902 (76.6%) were women. The mean age for women was  $19.43 \pm 1.31$  years and men,  $19.78 \pm 1.76$  years. There were 475 students with Russian language of education (40.3%) and 703 with Kazakh language of education (59.7%).

**Socio-economic status** The majority of respondents, 799 (71.4%), indicated that they live independently (“live alone”), while the number of participants living with their family was 320 (28.6%). A large majority of students had a government education grant 867 (79%), and only 230 (21%) had to pay for education in the university. Those on scholarship were 808 (69.1%), and without were 362 (30.9%). About half of students 514 (45.1%) reported

that they have “bad” financial status (“have money only for living” or “need sorely”) (Table 1).

**Self-assessed health status** A large number of participants, 680 (59.2%), assessed their own health status as “bad” and 468 (40.8%) of participants reported having “well” health status (Table 1).

Table 1. Basic characteristics of respondents (n=1178)

Variable	n (%)
Sex	
Men	276 (23.4%)
Women	902 (76.6%)
Age (mean $\pm$ standard deviation)	
All	$19.51 \pm 1.44$
Men	$19.78 \pm 1.76$
Women	$19.43 \pm 1.31$
Language of education	
Russian	475 (40.3%)
Kazakh	703 (59.7%)
Residency	
Alone	799 (71.4%)
Family	320 (28.6%)
Form of education	
Commercial	230 (21%)
Grant	867 (79%)
Financial status	
Bad	514 (45.1%)
Well	625 (54.9%)
Scholarship	
Yes	808 (69.1%)
No	362 (30.9%)
Self-assessed health status	
Bad	680 (59.2%)
Well	468 (40.8%)
Readiness to be a volunteer	
Yes	707 (61.6%)
No	441 (38.4%)
Evaluation of access to health care services*	
Normal (# of barriers from 0 to 1)	609 (51.7%)
Poor (# of barriers from 2 to 6)	569 (48.3%)

\* The maximal number of barriers is 6

**Readiness to be a volunteer in local HCS** Seven hundred and seven students (61.6%) reported that they want to participate in improving the current health care system, especially health care services activity.

**Access to health care services** To distinguish access to health care services quality, we stratified students by the reported number of barriers. This procedure saw 51.7% (609) respondents assessed as “Normal” and 48.3% (569) assessed as “Poor” regarding access to HCS (Table 1). All

students had already experienced access barriers at least once during their university study. Adjusting for differences in sex, language of education, socio-economic status, self-assessed health status, and readiness to be a volunteer in the two groups (“Normal” and “Poor”) demonstrated no differences in language of education ( $p = 0.852$ ) and readiness to

improve the quality of health care system ( $p = 0.597$ ) and significant differences of sex ( $p = 0.067$ ), residency ( $p = 0.004$ ), form of education ( $p = 0.029$ ), perception of financial status ( $p < 0.001$ ), scholarship assistance ( $p = 0.033$ ), and self-assessed health status ( $p < 0.001$ ) (Table 2).

Table 2. Evaluation of access to health care services and socio-economic status of respondents

Evaluation of access (n, %)			
Variable	Normal	Poor	P Value
Sex: Men	156 (25.6%)	120 (21.1%)	0.067
Women	453 (74.4%)	449 (78.9%)	
Language of education			
Russian	244 (51.4%)	231 (48.6%)	0.852
Kazakh	365 (51.9%)	338 (48.1%)	
Residency			
Alone	384 (48.16%)	415 (51.9%)	0.004
Family	184 (57.5%)	136 (42.5%)	
Form of education			
Commercial	133 (57.8%)	97 (42.2%)	0.029
Grant	431 (49.7%)	436 (50.3%)	
Financial status			
Bad	208 (40.5%)	306 (59.5%)	< 0.001
Well	376 (60.2%)	249 (39.8%)	
Scholarship			
No	204 (56.4%)	158 (43.6%)	0.033
Yes	401 (49.6)	407 (50.4%)	
Self-assessed health status			
Bad	426 (62.6%)	254 (37.4%)	< 0.001
Well	165 (35.3%)	303 (64.7%)	
Readiness to be a volunteer			
No	231 (52.4%)	210 (47.6%)	0.597
Yes	359 (50.8%)	348 (49.2%)	

These were identified as key factors in determining access to health care services. In order to determine confounding factors (sex, residency, form of education, financial status, scholarship assistance, and self-assessed health status), multiple logistic analysis was performed. Students who live alone were much more likely to have “Poor” access to health care services (OR: 1.37,  $p = 0.037$ ), as well as to subjectively evaluate both their financial (OR: 1.67,  $p < 0.001$ ) and health statuses (OR: 2.84,  $p < 0.001$ ) as “Bad” (Table 3).

Table 3. Odds ratio (OR) 95% confidence interval (CI) for access to health care services, as assessed using multiple logistic regression analysis

Variable	Unit	OR	95% CI	P Value
Sex	Men/Women	0.94	0.69–1.29	0.712
Residency	Family/Alone	1.37	1.02–1.83	0.037
Form of education	Grant/Commercial	1.37	0.98–1.91	0.064
Financial status	Well/Bad	1.67	1.27–2.20	< 0.001
Scholarship	Yes/No	1.22	0.91–1.64	0.182
Self-assessed health status	Well/Bad	2.84	2.16–3.72	< 0.001

#### 4. Discussions

A student population is always vulnerable to lack of time to visit health care services due to

academic obligations throughout the day, such as seminars, lectures, and clinical basis (Shaikh, Kahloon et al., 2004). Even medical students very

close to health services have poor self-assessed health status as shown in this study and similar studies in other countries (Roberts, Warner et al., 2000; Seritan, Hunt et al., 2012). The most commonly highlighted reasons for access barriers are due to the insurance status of the young person (Wilkes, Skootsky et al., 1994). In this cross-sectional study, we tried to find the key reason for reluctance to take advantage of free health care services. We identified young people as the target population, the group with a primary reserve of health and more likely to engage in risky behaviors (Tylee, Haller et al., 2007). We found a high rate of barriers in young people, even though the study sample consists of future doctors who should be informed about the activities of health care services. Differences in students are based on access quality measured as a score of the degree of difficulty of barriers to health care services, which have shown that significant differences of sex, residency, form of education, perception of own financial status, scholarship assistance, and self-assessed health status exist in these groups.

Young people comprise the greatest number of students for whom personal health care is an important but neglected issue. As other studies have represented, medical student-patients experience special barriers to health care services and report problematic care-seeking practices that merit further inquiry (Roberts, Hardee et al., 1996; Roberts, Warner et al., 2000; Roberts, Warner et al., 2000; Roberts, Warner et al., 2001). A student's life can be exciting but it can also be very pressured and stressful, as occupies a transitional period. There is a definite need for regular surveys to be undertaken to monitor the levels of health among youth, especially students, whose well-being guarantees the future (Shaikh, Kahloon et al., 2004).

In the context of this study, several limitations should be noted: the study results are relevant only to the Kazakhstan health care system due to specific features such as the lengthy experience in recent years with other kinds of systems and reforms (Katsaga, Kulzhanov et al., 2012). Although the participants were aged from 17 to 24 years and were appropriate to the range of the WHO definition of young people, the results of this study cannot be representative of the general population. In particular, medical students have special conditions of daily life and cannot be used to show the daily activity of ordinary young adults. The students who participated in this study were volunteers from Semey State Medical University. So, the findings from this study may not be representative of all graduate and undergraduate university students. Data were collected using the self-report method. The self-report method collection

of information cannot guarantee true answers, which therefore limits generalizability.

In conclusion, factors that influence access to health care services and are common in students include demographics, residence, form of education, financial status, and scholarship assistance, self-assessed health status, and access barriers to health care services. Also, we assessed the association of the factors of residency, financial, and self-assessed health statuses and identified that those factors can be associated with access to health care services in students of the medical university. Further study is needed to confirm the association of these factors with access to health care services in Kazakhstan as in other countries.

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