Understanding future career choices of undergraduate medical students and their perceptions towards primary care work life: a national cross-sectional survey

MASTER OF PUBLIC HEALTH PROJECT

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LIST OF ABBREVIATIONS

GP	General Practice
GPA	Grade Point Average
OECD	The Organization for Economic Co-operation and Development
OR	Odds ratio
MPH	Master of Public Health
RCHD	Republican Center for Health Development of the Ministry of Health of The Republic of Kazakhstan
WHO	World Health Organization

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ABSTRACT

Background: Although primary care is an important part of any healthcare system, there is a huge gap between the demand of population for primary care and the number of primary care physicians available to meet that demand. There has been decline in the number of medical students interested in a primary care career.

Objectives: This study aimed at understanding undergraduate medical students' future career specialty choice by identifying influencing factors to their career choice and their perceptions of the work life of primary care physicians.

Methods: A cross-sectional study among undergraduate medical students studying in state medical universities in Kazakhstan was conducted using a 31-items web based questionnaire in February, 2018. Basic descriptive statistics along with the simple and multiple logistic regression analyses were carried out.

Results: A total of 1772 responses obtained from all state medical universities. The survey participants had a median age of 21.9, and 72.6% were women. Among respondents, 1584 (89.4%) were single and only 90 (5%) students had children. 1000 students (56.4%) reported that they were most likely to enter a career in GP, 75.5% of them were women.

Conclusion: This is the first study conducted in Kazakhstan that examined factors influencing career intentions of medical students. Personal interest, personal reasons, and ability to find a fellowship were the most motivating factors when choosing GP as a future specialty whereas factors such as workload, lack of recognition, and poor quality of life and low income restrained students to select GP as a future career. Overall attitudes of undergraduate medical students towards primary care work life were mainly negative

INTRODUCTION

Due to population ageing and a growing number of chronically ill patients, demand for primary care is increasing in most of countries (Irish and Purvis, 2012). In many researches, it has been highlighted that good primary care is able to reduce emergency admission, referrals, and all cause mortality as it delivers preventative care, early detection of diseases, consultations, and diagnosis (Starfield, 1994). Although primary care is an important part of any healthcare system, there is a huge gap between the demand of population for primary care and the number of primary care physicians available to meet that demand. In addition, there has been decline in the number of primary care physicians and the number of medical students interested in a primary care career.

Currently, Kazakhstan's primary care system faces some serious problems, especially the shortage of primary care workforce, which require more policy attention and urgency. According to the recent statistics of the Ministry of Health, in Kazakhstan the number of people served by one general practitioner averages above 2000 people, which is almost twice as high as in the OECD countries (RCHD, 2017). In The State Program of Health Development "Densaulyk 2016-2019", it was stated that in Kazakhstan the number of people served by one general practitioner should be reduced to 1791 in 2017 and decreased to 1500 by 2019. However, the analyses of the Republican Center for Health Development of the Ministry of Health (RCHD, 2017) showed that the average people served by one general practitioner is still above 2000 across the country. This indicates a failure of achieving a key indicator for the development of primary care, in turn, overall healthcare system.

There are, nowadays, five main state medical universities in Kazakhstan where medical internship specialty program "General practice" was specially designed to prepare future physicians of primary care in order to solve the shortage of primary care physicians. According to the recent report of the RCHD, most of GP graduates have not been employed at primary care. It seems that although they graduated from GP internship program, they have not shown an interest to this field. However, up to now no quantitative study has been conducted with a focus of identifying career choices of undergraduate medical students, factors that affect the career specialty decisions, and medical students' perceptions towards the work life of primary care physicians.

There are numerous studies conducted around the world, including USA (Phillips et al., 2012), United Kingdom (Lambert et al., 2006), Japan (Le et al, 2018), Canada (Scott et al., 2009), France (Lefevre et al., 2010), Saudi Arabia (Alkhaneen et al., 2018), Israel (Naimer et al., 2018), to identify the factors influencing career specialty decision made by medical students and their perceptions of a career in general practice. According to the above-mentioned studies, the most influential factors associated with the choice of a medical specialty include the following: controllable lifestyle, having a reasonable income to lifestyle ratio, opportunities for private practice, and reputation. However, the process by which medical students in Kazakhstan choose their specialty needs further investigation. Factors associated with choosing a career in primary career is required in order to address the reducing number of graduates interested in this field.

Significance of the study

It has been already mentioned that there is no study has been conducted in Kazakhstan among undergraduate medical students regarding their future career specialty aspirations and their perceptions of the work life of primary care physicians. Consequently, this study will be

valuable for examining medical students' preferences and motivating as well as demotivating factors of their career choices, which in turn bring information for policy makers and educators to understand and evaluate reasons of medical students' for choosing GP or any other specialties.

Aim of the study

This study aimed to understand undergraduate medical students' future career specialty choice by identifying influencing factors and their perceptions of the work life of primary care physicians. The aim of the study was achieved by the following objectives:

1) To identify proportion of undergraduate medical students who were interested in choosing GP as a future career specialty;

2) To determine motivating and demotivating factors that have impact to their future career choices;

3) To find out perceptions of undergraduate medical students towards the work life of primary care physicians;

4) To identify differences in perceptions of the primary care work life among students who chose general medical practice as a future career and those who chose different specialties.

METHODS

Study design

The purpose of this cross-sectional study was to develop a better understanding of career choices by investigating the preferred specialties, factors affecting to the choice among Kazakhstani medical students in their last years of study and also their perceptions towards the work life of primary care physicians.

Study population

In February 2018, five state medical universities which were selected and gave permission for study participation were included in the study. These five state medical universities are located in five different cities of Kazakhstan (Astana, Almaty, Karagandy, Semey, Aktobe). This study involved primary data collection by administering a 31-items web based questionnaire to undergraduate medical students who had enrolled at the Department of General Medicine in their fourth and fifth year of study at the time of February 2018 in five state medical universities. The web-based survey proposed to all state medical universities across the country rather than to selected universities or a single geographical area. Consequently, all five state medical universities in Kazakhstan were involved in the study.

Inclusion criteria

Full time fourth and fifth year undergraduate medical students of the Department of General Medicine from one of the following universities: Kazakh National Medical University named after S.D. Asfendiyarov; Astana Medical University; Karaganda State Medical University; Semey State Medical University; West Kazakhstan State Medical University named after M. Ospanov, and who can read and write either Kazakh or Russian languages were eligible to participate in the study.

Sample size collection

Sample calculation for this cross-sectional study was done by using Open Source Epidemiological Statistics for Public Health software. Having physician parent among GP was selected as an exposed, unexposed were those who were having physician parent among non-GP. The estimated proportions of 34.1% for unexposed and 27.9% for exposed were based on the data from the study done by Le et al., 2018. The aim of the study was to examine factors

associated with general practice career ambitions among Japanese medical students. Assuming a two-sided significance level of 0.05 and 80% power with 1.2 ratio of unexposed and exposed, the final sample was calculated to be 1863. Sample size was estimated by using Fleiss method with a continuity correction. However, in order to account for missing data, the total number of sample was inflated and totaled to be 2329.

Data collection

Data was collected through structured online questionnaire conducted among undergraduate medical students. The items included in the questionnaire were developed after a review of the literature and were adapted to issues specific to Kazakhstani students. Additionally, some corrections made after the pilot survey of the fifth year undergraduate medical students of Astana Medical University. Initially, questionnaire was designed in English language and translated into Kazakh and Russian languages. The questionnaire consisted of three parts and included 31 questions. The first part of the questionnaire was based on socio-demographic questions such as age, gender, ethnicity, marital status, and place of birth.

11 questions of the second part of the questionnaire were related to future career plans in a specialty choice and study experience. A future career choice of "General Practice" among undergraduate medical students was the primary outcome variable. If medical students were unlikely to choose general practice as a future career choice they were asked to select determined specialty fields: surgery, obstetrics and gynecology, pediatrics, internal medicine, hygiene and epidemiology and other (a write-in choice). Moreover, this part included questions about motivating and demotivating factors for choosing a specific future career specialty, which have been adopted from the study by Lefevre et al. (2010). Students were asked to select three main

motivational factors for and three main demotivating factors to the other specialties which had affected their choice of future career from two lists of 12 and 14 items, respectively.

In the third part, students were asked about their attitudes towards the work life of primary care physicians by rating their agreement or disagreement with 10 statements related to the work life of primary care physicians by using a 5-point Likert scale. Statements about the primary care physicians' work life have been taken and adapted from the study of Phillips et al. (2012).

Ethical consideration

The questionnaire was distributed through the online survey software system in Kazakh and Russian languages. It is known that online questionnaires usually do not require signing separate informed consent form. However, although participants of the study have not signed a separate consent form, informed consent was obtained by virtue of completion. At the beginning of the online survey information was given to familiarize participants with the purpose of the study, structure of the survey and of possible risks and benefits from the participation in the study. Participants were given a choice of voluntary participation and the right to withdraw their participation in the study at any time. Also, it was stated that participants by submitting their responses they were giving their consent to participate in the study. All the data collected from medical students were anonymous except for the name of the medical universities.

This study was approved by the Nazarbayev University School of Medicine Institutional Research Ethics Committee.

Data analysis

The primary outcome variable were dichotomized into two categories based on whether general practice was selected as a future career choice or not. Chi-squared analysis performed for

categorical predictors in order to select significant independent variables by comparing demographic and study experience characteristics of the students who choose GP vs those who did not. Univariate and multivariate logistic regression were used to analyze the influence of each demographic variable and career intentions in terms of odds ratio and 95% confidence interval. P-value less than or equal to 0.05 was considered as significant. The binary logistic regression included the dependent variable GP career choice and independent variables that were previously in the literature associated with the career choice: gender, ethnicity, marital status, having children, university, tuition payment (e.g. state grant, self-paid), place lived before entering medical university, having had a core clerkship, satisfaction with the clerkship, clerkship influence on career decision making, academic performance (overall GPA), having had a course on GP, and university experience. Statistically significant variables in the binary logistic regression analysis were included in the multivariate logistic regression model. The Likelihood-ratio test was applied to test the overall model fit. Wilcoxon Rank-Sum test was used in order to check differences in the perceptions of the primary care physicians' work life between two groups, those who chose career in GP vs who did not. All analyses were performed using STATA 12.0 (STATA Corporation, USA, Texas, 2012).

RESULTS

Socio-demographic and study experience characteristics

A total of 1772 responses obtained from all state medical universities. Table 1 shows detailed socio-demographic characteristics of respondents and independent variables related to study experience such as academic performance, clerkship organization, clerkship satisfaction, university experience, and etc. in terms of frequencies and percentages. The survey participants had a median age of 21.9, and 72.6% were women. Among respondents, 1584 (89.4%) were

single and only 90 (5%) students had children. 85.8% of respondents identified themselves as representatives of Kazakh ethnicity, 9.5% of participants were Russian, and only 4.7% of them were from other ethnicities (Uzbek, Korean, Ukrainian etc.). 1596 students (90.1%) were studying at medical universities with the state-funded tuition. 52% of students lived in cities whereas 32% of students came from rural background before entering the medical university. 61.8% of respondents made decision about their future career during the bachelor years. 809 of all students (45.7%) reported that core medical clerkships had influence on their future career decision making. 1095 (61.8%) of students stated that they made decision on their future career specialty during the bachelor years. Most students agreed that medical university experience provided them enough insight into what general practitioners do to make an informed decision about GP as a future career (61.2% agreed vs. 27% disagreed).

Table 1 Socio-demographic and study experience characteristics of Kazakhstani undergraduate medical students.

Variables	n (%)	Mean	SD	Range
Demographics characteristics				
Number of participants	1772 (100)			
Age (years)		21.9	1.23	18-29
Gender				
Women	1286 (72.6)			
Men	486 (27.4)			
Ethnicity				
Kazakh	1521 (85.8)			
Russian	169 (9.5)			
Other	82 (4.7)			
Marital status				
Single	1584 (89.4)			
Married	176 (9.9)			
Divorced/Widowed	12 (0.7)			
Having children				
No	1682 (95)			
Yes	90 (5)			
Place lived until 18 years of age				
City	921 (52.0)			

Rayon	283 (16.0)
Village	568 (32.0)
Study experience characteristics	
University	
Kazakh National Medical University named after S.D. Asfendiyarov	229 (12.9)
Astana Medical University	145 (8.2)
Karaganda State Medical University	883 (49.8)
Semey State Medical University	312 (17.6)
West Kazakhstan State Medical University named after M. Ospanov	203 (11.5)
Tuition fees	
State	1596 (90.1)
Self-paid	165 (9.31)
NGOs or any other company	11 (0.62)
GPA	
A, A-	201(11.3)
B+, B, B-	1544 (87.1)
C+, C, C-	24 (1.35)
D+, D	3 (0.17)
Decision made about future career	
Before entering medical university	448 (25.3)
During the bachelor years	1095 (61.8)
During the core medicine clerkship (internship)	229 (12.9)
Clerkship organization	
Public Hospital	843 (47.6)
University hospital	358 (20.2)
City emergency station	182 (10.3)
Polyclinic	169 (9.5)
Private Hospital	18 (1.0)
I have not had core medicine clerkship yet	202 (11.4)
Satisfaction with the clerkship	
Agree	1194 (67.4)
Disagree	312 (17.6)
I don’t know	64 (6.6)
N.A.	202 (11.4)
Influence of clerkship on decision making	
More influence	809 (45.7)
Less influence	502 (28.3)
No influence	461 (26.0)
Agreement or disagreement with the statement: "My medical university experience provided me with enough insight into what an internist does to make an informed decision about General Medical Practice as a career."	

Agree	1084 (61.2)
Disagree	479 (27.0)
I don't know	209 (11.8)
Probability of working in the degree area after graduation	
Likely	1574 (88.8)
Unlikely	79 (4.5)
Neutral	119 (6.7)
Having course on GP at bachelor degree	
Yes	1062 (59.9)
No	710 (40.1)

Chi-squared analysis

Overall, 1702 students (96%) stated their preferred medical specialty choice. Of 1772 students, 218 students reported that they felt neutral in choosing GP as a future career. After sensitivity analysis along with the screening of their possible career choices, 218 responses were added to the group who selected other specialties.

Detailed characteristics of the students who were likely and unlikely to choose GP as a future career can be seen from the Table 2. 1000 students (56.4%) reported that they were most likely to enter a career in GP, 75.5% of them were women. 11.8% of those interested in GP were married as opposed to only 7.5% of those interested in other specialties, the difference was statistically significant ($p \leq 0.05$). 90.1% of the respondents who chose GP and 86.5% of those who selected other specialties stated that they were likely to work in a degree area after the graduation. There was a significant difference in choosing future career between students who have children and those who do not have ($p \leq 0.05$). This means that those students who have children mostly preferred GP as a future career. No significant differences were found between students who were satisfied with their core clerkship and among those who made specialty choices at different spans of time. Majority of students agreed or strongly agreed with the statement "I was satisfied with my core clerkship". Comparison across the groups revealed that 58% of students receiving overall an honors grade (GPA is A) were more likely to choose other

specialties whereas 58% of those who had a second class honors grade (GPA is B) made decision in a GP career. In chi-squared analysis except the following variables: time spans of decision making and clerkship satisfaction all variables have shown positive association with a career choice.

Table 2 Characteristics of students who are likely and not likely to choose GP as a future career in five state medical universities of Kazakhstan (N=1772).

Variables	Outcome		P-value
	n (%) Likely (n=1000) (56.4%)	n (%) Unlikely (n=772) (43.6%)	
Gender			p=0.002*
Women	755 (75.5)	531 (68.8)	
Men	245 (24.5)	241 (31.2)	
Ethnicity			p<0.001*
Kazakh	903 (90.3)	618 (80.1)	
Russian	57 (5.7)	112 (14.5)	
Other	40 (4.0)	42 (5.4)	
Marital status			p= 0.007*
Single	877 (87.7)	707 (91.6)	
Married	118 (11.8)	58 (7.5)	
Divorced/Widowed	5 (0.5)	7 (0.9)	
Children			p= 0.001*
Yes	66 (6.6)	24 (3.1)	
No	934 (93.4)	748 (96.9)	
Place lived until 18 years of age			p=0.001*
City	483 (48.3)	438 (56.7)	
Rayon	166 (16.6)	117 (15.2)	
Village	351 (35.1)	217 (28.1)	
University			p<0.001*
Kazakh National Medical University named after S.D. Asfendiyarov	123 (12.3)	106 (13.7)	
Astana Medical University	69 (6.9)	76 (9.8)	
Karaganda State Medical University	557 (55.7)	326 (42.2)	
Semey State Medical University	161 (16.1)	151 (19.5)	
West Kazakhstan State Medical University named after M. Ospanov	90 (9.0)	113 (14.6)	
Tuition			p=0.044*
State	916 (91.6)	680 (88.1)	
Self-paid	78 (7.8)	87 (11.3)	
NGOs or any other company	6 (0.6)	5 (0.6)	

GPA			p<0.001*
A, A-	85 (8.5)	116 (15)	
B+, B, B-	897 (89.7)	647 (83.8)	
C+, C, C-/D	18 (1.8)	9 (1.2)	
Decision made			p=0.061
Before entering medical university	232 (23.2)	216 (28.0)	
During the bachelor years	639 (63.9)	456 (59.0)	
During the core medicine clerkship (internship)	129 (12.9)	100 (13.0)	
Clerkship organization			p<0.001*
University hospital	181 (18.1)	177 (22.9)	
Polyclinic	127 (12.7)	42 (5.4)	
City emergency station	116 (11.6)	66 (8.6)	
Public Hospital	453 (45.3)	390 (50.5)	
Private Hospital	13 (1.3)	5 (0.7)	
I have not had core medicine clerkship yet	110 (11.0)	92 (11.9)	
Clerkship satisfaction			p=0.168
Agree	695 (69.5)	499 (64.6)	
Disagree	161 (16.2)	150 (19.4)	
I don't know	33 (3.3)	31 (4.0)	
N.A.	110 (11)	92 (12.0)	
Clerkship influence			p<0.001*
More influence	497 (49.7)	312 (40.4)	
Less influence	277 (27.7)	225 (29.2)	
No influence	226 (22.6)	235 (30.4)	
University experience			p<0.001*
Agree	691 (69.1)	393 (50.9)	
Disagree	213 (21.3)	266 (34.5)	
I don't know	96 (9.6)	113 (14.6)	
GP course			p<0.001*
Yes	651 (65.1)	411 (53.2)	
No	349 (34.9)	361 (46.8)	

*Statistically significant at an alpha level of 0.05 - Results of Chi-squared analysis

Simple and multiple logistic regression analyses

In simple logistic regression only clerkship satisfaction variable was not statistically significant. After adjusting for potential confounding variables in the multivariate logistic regression, the association of the outcome variable of choosing GP specialty became insignificant with the following variables: marital status, tuition paid, decision made, and clerkship satisfaction (Appendix 1). The Likelihood-ratio test showed the significance of the

final model without above mentioned not statistically significant variables. From the final multivariate logistic regression analysis, which can be found in Appendix 1, it has been revealed that the odds of choosing GP as a future career compared to choosing other specialties are decreased by a factor of 0.60 by being male rather than female. The odds of entering to GP career for students who have children are 2.13 higher in comparison with the odds of those who do not have children. Students who lived in villages before entering to a medical university are more likely to work at primary care than those who lived in cities. In addition, it was found out that the odds of students who did not have course on GP in their bachelor degree were 39% lower than the odds of students who had course on GP in their bachelor degree for considering GP as a future career choice.

Table 3 Crude and adjusted odds ratio of characteristics of students who were likely and unlikely to choose GP as a future career among Kazakhstani undergraduate medical students (N=1772).

OR (95% CI)	Crude		P	Adjusted		P
Gender						
Women	ref					
Men	0.71*	(0.58, 0.88)	p=0.002	0.60*	(0.50, 0.81)	p<0.001
Ethnicity						
Kazakh	ref					
Russian	0.35*	(0.25, 0.49)	p=0.000	0.27*	(0.19, 0.39)	p<0.001
Other	0.65	(0.42, 1.02)	p=0.059	0.58*	(0.36, 0.95)	p=0.030
Marital status						
Single	ref					
Married	0.61*	(0.44, 0.85)	p=0.003	1.23	(0.80, 1.90)	p=0.338
Divorced/Widowed	0.35	(0.11, 1.15)	p=0.085	0.50	(0.12, 2.03)	p=0.334
Having children						
Yes	2.20*	(1.37, 3.55)	p=0.001	2.06*	(1.10, 3.87)	p=0.024
No	ref					
Place lived until 18 years of age						
City	ref					
Rayon	1.29	(0.98, 1.68)	p=0.067	1.16	(0.87, 1.57)	p=0.299
Village	1.47*	(1.19, 1.82)	p=0.000	1.52*	(1.20, 1.92)	p<0.001
University						
Kazakh National Medical	0.68*	(0.51, 0.91)	p=0.010	0.75	(0.53, 1.06)	p=0.100

University named after S.D. Asfendiyarov						
Astana Medical University	0.53	(0.37, 0.76)	p=0.000	0.500*	(0.34, 0.76)	p=0.001
Karaganda State Medical University	ref					
Semey State Medical University	0.62*	(0.48, 0.81)	p=0.000	0.47*	(0.35, 0.64)	p<0.001
West Kazakhstan State Medical University named after M. Ospanov	0.47*	(0.34, 0.63)	p=0.000	0.39*	(0.27, 0.56)	p<0.001
Tuition						
State	ref					
Self-paid	0.67*	(0.48, 0.92)	p=0.013	0.80	(0.56, 1.14)	p=0.217
NGOs or any other company	0.89	(0.27, 2.93)	P=0.849	1.04	(0.27, 4.03)	p=0.946
GPA						
A, A-	0.52*	(0.09, 0.64)	p=0.000	0.57*	(0.41, 0.80)	p=0.001
B+, B, B-	ref					
C+, C, C-/D	1.44	(0.18, 1.17)	p=0.373	1.59	(0.67, 3.80)	p=0.296
Decision made						
Before entering medical university	0.77*	(0.61, 0.96)	p=0.018	0.76*	(0.59, 0.97)	p=0.028
During the bachelor years	ref					
During the core medicine clerkship (internship)	0.92	(0.69, 1.23)	p=0.573	0.86	(0.63, 1.18)	p=0.345
Clerkship organization						
University hospital	0.88	(0.69, 1.13)	p=0.313	0.54	(0.34, 0.85)	p=0.290
Polyclinic	2.60*	(1.79, 3.78)	p=0.000	2.17*	(1.43, 3.27)	p<0.001
City emergency station	1.51*	(1.09, 2.11)	p=0.014	1.49*	(1.04, 2.12)	p=0.031
Public Hospital	ref					
Private Hospital	2.24	(0.79, 6.33)	p=0.129	2.74	(0.90, 8.34)	p=0.076
I have not had core medicine clerkship yet	1.02	(0.76, 1.40)	p=0.854	1.47	(0.96, 2.27)	p=0.078
Clerkship satisfaction						
Agree	ref					
Disagree	0.78*	(0.60, 0.99)	p=0.046	0.98	(0.73, 1.32)	p=0.882
I don't know	0.76	(0.46, 1.26)	p=0.295	1.16	(0.67, 2.02)	p=0.599
N.A.	0.86	(0.64, 1.16)	p=0.318	-		
Clerkship influence						
More influence	ref					
Less influence	0.77*	(0.62, 0.97)	p=0.025	0.79	(0.61, 1.01)	p=0.062
No influence	0.60*	(0.48, 0.76)	p=.000	0.59*	(0.43, 0.82)	p=0.020
University experience						
Agree	ref					

Disagree	0.46*	(0.37, 0.57)	p=0.000	0.49*	(0.39, 0.63)	p<0.001
I don't know	0.48*	(0.36, 0.65)	p=0.000	0.56*	(0.40, 0.79)	p=0.001
GP course						
Yes	ref					
No	0.61*	(0.50, 0.74)	P=0.000	0.73*	(1.10, 1, 70)	p=0.005

Dependent variable whether GP was chosen as a future career or not
*Statistically significant at an alpha level of 0.05

Trends in career choice

The next most commonly selected specialties after GP were surgery 325 (18.3%), internal medicine 184 (10.4%), obstetrics and gynecology 121 (6.8%). The specialty choices of undergraduate medical students are summarized in Table 4. Gender had an impact on the choice of specialty: 91.7% of future gynecologists, 84.4% of future pediatricians, and 82.1% of future internists, but only 47.7% of future surgeons were women.

Table 4 Trends in medical specialty choices in a population of 1772 students.

Specialty	Total n	Total %	Women n (%)	Men n (%)
General Medical practice	1000	56.4	755 (75.5)	245 (24.5)
Surgery	325	18.3	155 (47.7)	170 (52.3)
Internal Medicine	184	10.4	151 (82.1)	33 (17.9)
Obstetrics and gynecology	121	6.8	111 (91.7)	10 (8.3)
Pediatrics	64	3.6	54 (84.4)	10 (15.6)
Do not know	70	4	56 (80)	14 (20)
Hygiene and epidemiology	5	0.3	3 (60)	2 (40)
Public Health	3	0.2	1 (33.3)	2 (66.6)
Total	**1772**	**100**	**1286**	**486**

Motivating and demotivating factors

Three motivating reasons for their specific future career specialty and three factors that restrained their choice of general medical practice as a future career were given by undergraduate medical students. The number of students citing each of the proposed 12 motivating and 14 demotivating factors are summarized in Table 5. Top three motivational factors for students who were likely to work as primary care physicians were personal interest, personal reasons (e.g.

influence of family and friends), and an ability to find a fellowship. Those who chose other specialties cited that they were motivated by following factors: personal interest, personal reasons (e.g. influence of family and friends), and good quality of life and financial rewards. However, only motivational factors such as personal interest and exclusive work at polyclinic were statistically significant between students who chose GP and those who chose other specialties ($p<0.001$and $p=0.003$, respectively). Lack of recognition, geographical location, and treating chronically ill patients were significant factors of discouragement from a GP career ($p=0.011$, $p=0.044$, and $p=0.006$ respectively).

Both men and women were influenced by the same motivating and demotivating factors in their career decision making. This means that there were no significant difference in the analyses of factors by gender.

Table 5 Motivational and demotivating factors for future career choice among Kazakhstani undergraduate medical students.

Factors	n	%	Outcome		P
			GP n (%)	Non-GP n (%)	
Motivating					
Personal interest	908	20.4	461 (50.8)	447 (49.2)	p<0.001*
Personal reasons (e.g. family, friends)	617	13.8	363 (58.8)	254 (41.2)	p=0.064
Ability to find a fellowship	430	9.6	256 (59.5)	174 (40.5)	p=0.536
Future job opportunities in that field	406	9.1	243 (59.9)	163 (40.1)	p=0.106
Good quality of life and financial rewards	391	8.8	191 (48.9)	200 (51.1)	p=0.255
Status/reputation	316	7.1	148 (46.8)	168 (53.2)	p=0.465
Private practice	292	6.5	155 (53.1)	137 (46.9)	p=0.325
Work in hospital	249	5.6	132 (53.0)	117 (47.0)	p=0.480

Less occupational hazard	234	5.2	141 (60.3)	93 (39.7)	p=0.134
Intellectual challenge	204	4.6	88 (43.1)	116 (56.9)	p=0.163
Previous positive clerkship experience	222	5.0	122 (55.0)	100 (45.0)	p=0.310
Work at polyclinic	191	4.3	122 (63.9)	69 (36.1)	p=0.003*
TOTAL	**4460**	**100**	**2422**	**2038**	
Demotivating					
Workload	687	16.4	362 (52.7)	325 (47.3)	p=0.931
Poor quality of life and low income	603	14.4	314 (52.1)	289 (47.9)	p=0.317
Excessive occupational hazard	369	8.8	231 (62.6)	138 (37.4)	p=0.282
Lack of recognition	338	8.1	145 (42.9)	193 (57.1)	p=0.011*
Exclusive hospital career	314	7.5	190 (60.5)	124 (39.5)	p=0.796
No private practice	306	7.3	170 (55.6)	136 (44.4)	p=0.739
Geographical location	270	6.4	135 (50.0)	135 (50.0)	p=0.044*
Feeling about treating terminally ill, dying patients	258	6.2	143 (55.4)	125 (44.6)	p=0.056
Judicial proceedings	214	5.1	110 (51.4)	104 (48.6)	p=0.680
Competition	207	4.9	129 (62.3)	78 (37.7)	p=0.590
Loss of patient contact	186	4.4	102 (54.8)	84 (45.2)	p=0.818
No technical activity	178	4.2	91 (51.1)	87 (48.9)	p=0.339
Cancer or fatal disease	149	3.6	89 (59.7)	60 (40.3)	p=0.336
Chronic diseases	111	2.7	65 (58.6)	46 (41.4)	p=0.006*
TOTAL	**4190**	**100**	**2277**	**1913**	

*Statistically significant at an alpha level of 0.05 - Results of Chi-squared analysis

Perceptions of undergraduate medical students

Overall, medical students' responses to the perceptions statements about primary care physicians' work life were mainly negative. 55.5% of respondents agreed and strongly agreed that prescription limits restrict the quality of care provided by primary care physician. 75% of students endorsed that primary care physicians have too many administrative work to do and very much overwhelmed by the needs of patients. 64% of students supported the statement that primary care physicians feel harried by the pace of their work. They were unsure whether patients have confidence in physicians over their work or not and whether patients conflict with physicians about their clinical judgements or not. Although students agreed that physicians are able to develop good relationship with patients, they believe that physicians experience lack of time and are not able to control their work schedule. More than half of respondents thought that primary care physicians receive inadequate incentives for their work.

Nevertheless, the results of Wilcoxon-Rank Sum test identified that students planning career in GP view only half of the statements related to the primary care work life differently compared with those planning to enter to other specialties. Detailed information about students perceptions' towards primary care work life and statistical significance between those who chose to work in primary care and those who did not are shown in Table 6.

Table 6 Kazakhstani undergraduate medical students' perceptions towards primary care physicians' work life statements.

Primary care physicians' work life statement	Strongly agree n (%)	Agree n (%)	I don't know n (%)	Disagree n (%)	Strongly disagree n (%)	P
1. Formularies or prescription limits restrict the quality of care provided by physician	262 (14.8)	721 (40.7)	358 (20.2)	406 (22.9)	25 (1.4)	p=0.004*
2. Patients seldom conflict with	130	511	407	610	114	p=0.465

primary care physician's clinical judgment	(7.3)	(28.8)	(23.0)	(34.4)	(6.4)	
3. Primary care physicians have too many administrative work to do	606 (34.2)	730 (41.2)	339 (19.1)	82 (4.6)	15 (0.9)	p=0.271
4. Primary care physicians have control over their work schedule	127 (7.2)	502 (28.3)	380 (21.4)	631 (35.6)	132 (7.5)	p<0.001*
5. Primary care physicians feel harried by the pace of their work	412 (23.2)	728 (41.1)	411 (23.2)	200 (11.3)	21 (1.2)	p=0.797
6. Time pressure keep primary care physicians to build from developing good patient relationship	479 (27.0)	666 (37.6)	297 (16.8)	293 (16.5)	37 (2.1)	p=0.686
7. Primary care physicians are overwhelmed by the needs of their patients	384 (21.7)	728 (41.1)	431 (24.3)	207 (11.7)	22 (1.2)	p=0.003*
8. Patients have confidence in primary care physicians	167 (9.4)	594 (33.5)	472 (26.6)	453 (25.6)	86 (4.9)	p=0.005*
9. Primary care physicians' have good relationship with patients	139 (7.8)	620 (35.0)	497 (28.1)	452 (25.5)	64 (3.6)	p=0.054
10. Primary care physicians receive adequate incentives for their work	83 (4.7)	281 (15.9)	510 (28.8)	601 (33.92)	297 (16.8)	p=0.319
11. Opportunity to do preventive medicine makes primary care more attractive	250 (14.1)	689 (38.9)	459 (25.9)	316 (17.8)	58 (3.3)	p<0.001*

*Statistically significant at an alpha level of 0.05 - Results of Wilcoxon Rank-sum test

DISCUSSION

Main findings

In this study the choices of internship profession and socio-demographic factors along with the medical students perceptions towards primary care physicians' work life were reported in a population of 1772 Kazakhstani undergraduate medical students. The sample was representative of the Kazakhstani medical student population as it included all state medical universities. In Kazakhstan, admission to the internship is carried out on a competitive basis in accordance with the cumulative score (GPA) of the applicant, established annually by the

decision of the Academic Council of the University (AMU, 2013). Students who do not study internship are not allowed to clinical practice. The proportion of general practice internships versus those in other specialties is fixed by the government (ibid).

This study revealed that general practice was selected as a career option by approximately 56.4% of the medical students in their final years. It has been found out that gender has a great impact on a career choice. Majority of respondents were women (72.6%). It can be explained by the fact that 75% of medical students across Kazakhstan are women (stat.gov, 2014). Also, it has been noted that a continuous feminization of medicine is taking place worldwide (Borman et al., 2008). Internship specialties such as GP, obstetrics and gynecology, pediatrics, and internal medicine are mostly favored by women whereas men expressed more interest to surgery specialties. The same big gap between men and women in career choices for general practice and to other specialties was observed in other studies done by Lambert and his colleagues (2006) and Lefevre et al. (2010).

The study revealed that the choice of GP as a career among Kazakhstani medical students depends on multiple factors including gender, ethnicity, having children, place lived before entering university, university, academic performance, clerkship organization, clerkship itself, having course on GP at bachelor degree, and positive university experience. All of these factors were statistically significant after adjusting for a potential confounding factor. The type of organization in which students take their clerkship and medical university experience play a tremendous role in the choice of future career. These findings were concordant with the findings of previous studies. The study done by Karen and his colleagues (2008) has been identified that observation of the work life of physicians, the culture of medical education, and negative

feedbacks from faculty and peers can affect perceptions of students towards work life of primary care.

The study results also provided insights into factors that influence career choices of medical students. The findings suggest that the most influential factors when choosing GP as a future specialty were personal interest, personal reasons, and ability to find a fellowship. The study has found, as Karen et al. (2008) did previously, that for those who are more likely to enter to other specialties a factor such as good quality of life and financial rewards was more important that the ability to find a fellowship. However, personal interest and work at polyclinic were only statistically significant factors that determined future career choices between students who chose GP and those who did not. Conversely, the most cited restraining factors for choosing GP as a future career were workload, lack of recognition, and poor quality of life and low income. Alkhaneen et al. (2018) highlighted that financial rewards and perceived reputation were most associated with a surgical career choice. Statistically significant demotivating factors for a future career choice were lack of recognition, geographical location, and challenges of caring for chronically ill patients.

A study done by Karen et al. (2008) found out that different factors affect medical students' choices of future career specialty. These factors include variety of reasons from individual characteristics and expectation of specialty-related financial rewards. It has been found that during the bachelor degree medical students' views towards primary care become more negative, which in turn that attitudes can affect to the choice of medical specialty made by them. It can be explained by the fact that students' attitudes towards primary care work life become more negative as a consequence of negative training programs or core medical clerkships (Davis et. al., 2001 and Zinn et. al., 2001). Therefore, it is assumed that understanding

student's future career choices and factors affecting will reveal valuable information that can be used in shaping curriculum of medical universities and practice opportunities to be able to match students' desires and population needs. Campos-Outcalt et al. (2007) highlighted that in order to plan physician workforce of primary care it is important for policy makers and educators to understand and evaluate reasons of medical students for choosing primary care or any other specialty.

Furthermore, the study found out that all students reported negative perceptions towards the work life of primary care physicians. Both future GPs and those who chose other specialties perceived that primary care physicians have too much administrative work, they do not receive adequate remuneration for their work, and time pressure usually restrict them to build good relationship with patients. Nevertheless, respondents believed that relationship between primary care physicians and patients are not adversarial and opportunity to do preventive medicine makes primary care more attractive. Consequently, it is assumed that perceptions do not affect to the career choice in the true state of affairs. These findings are in line with the studies in other countries, where GP is unpopular among medical students because of the unregulated lifestyle, low earnings, and lack of reputation resulting in weak relationships between lifestyle and income (Morra et al., 2009; Dorsey et al., 2005). Thus, it can be seen that general practitioners usually suffer from extremely low prestige both in the eyes of their colleagues and the public. Therefore, leaders of healthcare organizations, medical universities, healthcare system and professional societies need to publicly recognize and communicate importance of GPs to the healthcare system, especially to medical students who are potential primary care physicians.

Strengths of the study

This is the first and largest nationwide survey conducted in all five state medical universities in Kazakhstan. This cross-sectional identified both sides of future career selection issue, factors associated with the career specialty decision made by medical students and their perceptions of the work life of primary care physicians. The results of the study can be fundamental to future research, policy makers and educators to plan new teaching methods or curriculum of medical universities.

Limitations of the study

Despite of the thorough questionnaire development and relatively large sample size, there are several limitations. Firstly, the outcome of the study was career choice of undergraduate medical students in general practice during the final years of medical universities. Therefore, the actual enrolment of students in general practice internship needs to be studied in the future. Secondly, the differences in the results of students in their fourth and fifth year of studies were not analyzed separately.

CONCLUSION

This nationwide survey revealed numerous factors associated with general practice career aspirations among Kazakhstani medical students and additionally analyzed undergraduate medical students' perceptions towards the primary care work life. Gender, ethnicity, having children, place lived before entering university, university, academic performance, clerkship organization, clerkship itself, having course on GP at bachelor degree, and positive university experience were the most associated socio-demographic and study experience characteristics to undergraduate medical students for their decision-making. Personal interest, personal reasons, and ability to find a fellowship were the most motivating factors when choosing GP as a future

specialty whereas factors such as workload, lack of recognition, and poor quality of life and low income restrained students to select GP as a future career. It has been also identified that attitudes of undergraduate medical students' attitudes towards the primary care work life were mainly negative.

RECOMMENDATIONS

Although there is a shortage of primary care workforce in the country, this study findings showed that more than half of respondents were interested in general practice as a future career. Therefore, in order to solve the primary care physicians deficiency it is necessary to conduct another study with current general practitioners aimed at identifying actual problems at primary care settings. Giving the nature of ageing population with increased demand for primary care it is important to carry out further research to learn more about strategies to make general practice more attractive to graduate students. A national effort is required in order to address the factors influencing medical students' career choice regarding GP, which also needs to include interventions to change the nature of work and lifestyle in primary care.

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APPENDIX 1: Final multivariate logistic regression model for choosing GP and other medical specialties as a future career among undergraduate medical students in Kazakhstan.

Variable		OR	95% CI	P
Gender	Women	1		
	Men	0.60	(0.48, 0.75)	p<0.001*
Ethnicity	Kazakh	1		
	Russian	0.27	(0.19, 0.39)	p<0.001*
	Other	0.58	(0.36, 0.94)	p=0.027*
Having children	No	1		
	Yes	2.13	(1.28, 3.56)	p=0.004*
Place lived until 18 years of age	City	1		
	Rayon	1.17	(0.87, 1.57)	p=0.291
	Village	1.54	(1.22, 1.94)	p<0.001*
University	Karaganda State Medical University	1		
	Kazakh National Medical University named after S.D. Asfendiyarov	0.71	(0.51, 0.98)	p=0.039*
	Astana Medical University	0.52	(0.35, 0.77)	p=0.001*
	Semey State Medical University	0.46	(0.34, 0.62)	p=0.000*
	West Kazakhstan State Medical University named after M. Ospanov	0.37	(0.26, 0.53)	p<0.001*
GPA	B+, B, B-	1		
	A, A-	0.58	(0.41, 0.82)	p=0.001*
	C+, C, C-/D	1.52	(0.64, 3.57)	p=0.341
Clerkship organization	Public Hospital	1		
	University hospital	1.16	(0.88, 1.54)	
	Polyclinic	2.18	(1.45, 3.28)	p<0.001*
	City emergency station	1.47	(1.03, 2.10)	p=0.035*
	Private Hospital	2.41	(0.83, 7.00)	p=0.107
	I have not had core medicine clerkship yet	1.49	(0.98, 2.25)	p=0.059
Clerkship influence	More influence	1		
	Less influence	0.81	(0.64, 1.04)	p=0.096
	No influence	0.61	(0.44, 0.83)	p=0.002*
University experience	Agree	1		
	Disagree	0.48	(0.38, 0.61)	p<0.001*
	I don't know	0.56	(0.41, 0.78)	p=0.001*
GMP course	Yes	1		p=0.005*
	No	0.73	(1.10, 1.69)	p<0.001*

APPENDIX 2: Study instrument in English, Kazakh and Russian languages

NAZARBAYEV UNIVERSITY

UNDERSTANDING UNDERGRADUATE MEDICAL STUDENTS' FUTURE CAREER SPECIALTY CHOICE AND THEIR PERCEPTIONS OF THE PRIMARY CARE WORK LIFE

The project study aims to identify future career interests of undergraduate medical students and factors that influence their choice of future profession. It is also aimed to study their perceptions towards the work life of primary care physicians.

Your participation is voluntary, and you have the right to terminate participation at any time, which will not entail any consequences. The questionnaire consists of three parts. The first part includes demographic questions such as age, gender, ethnicity; the second part consists of questions concerning the career plan of medical students, in the third part it is necessary to assess your agreement or disagreement to the statements related to the work life of primary care physicians.

By starting this survey, you confirm that you understand the information, give your consent to participate in the study, you are at least 18 years old, you are a student of a medical university.

I. Please give the following information about yourself.

1. What is your gender?
- □ Male
- □ Female

2. What is your ethnicity
- □ Kazakh
- □ Russian
- □ Other *(specify)* _____

3. What is your age? _____ *(write in)*

4. What is your marital status?
- □Married
- □ Single
- □ Divorced,
- □ Widowed,
- □ Cohabiting

5. Do you have children?
- □ Yes
- □ No

6. Which of the following categories best describes the area you grew up in until 18 years of age?
- □ City
- □ Rayon

□ Village

7. Medical university that you currently study:
- □ Kazakh National Medical University named after S.D. Asfendiyarov
- □ Astana Medical University
- □ Karaganda State Medical University
- □ Semey State Medical University
- □ West Kazakhstan State Medical University named after M. Ospanov

8. Tuition fees for your study are paid by:
- □ State
- □ Self-paid
- □ NGOs or any other company
- □ Other *(specify)* _____

9. What is your latest overall grade (GPA)?
- □ A, A-
- □ B+, B, B-
- □ C+, C, C-
- □ D+, D

II. Future Career Plans in Specialty Choice

10. Please rate your probability of choosing General Practice as a medical specialty for your Medical Intern?
- □ Very Likely
- □ Likely
- □ Neutral
- □ Not Likely
- □ Very Unlikely

11. If you are NOT Likely or VERY Unlikely to enter GENERAL PRACTICE, which medical specialty you would like to take for Medical Intern?
- □Hygiene and epidemiology
- □ Internal Medicine
- □ Surgery
- □ Pediatrics
- □ Obstetrics and gynecology
- □ Do not know
- □ Other *(specify)* _____

12. When did you make your specialty choice?
- □ Before entering medical university
- □ During the bachelor years
- □ During the core medicine clerkship (internship)
- □ Other *(specify)* _____

13. In which type of medical organizations did you do your core medicine clerkship?
- □ University hospital
- □ Polyclinic
- □ City emergency station
- □ Public Hospital
- □ Private Hospital
- □ I have not had core medicine clerkship yet (go to question 16)

□ Other *(specify)* _____

14. Rate the degree to which you agree with the following statement "I was satisfied with my core medicine clerkship"

□ Strongly agree
□ Agree
□ Disagree
□ Strongly disagree
□ I don't know

15. Did your core medicine clerkship influence your career choice?

□ It made me more influence
□ It made me less influence
□ No influence on my career choice

16. During the bachelor years have you had course on General Practice?

□ Yes
□ No

17. Please indicate the degree to which you agree or disagree with the following statement: "My medical university experience provided me with enough insight into what an internist does to make an informed decision about General Practice as a career."

□ Strongly agree
□ Agree
□ Disagree
□ Strongly disagree
□ I don't know

18. Which of the following factors motivates you to choose a specific specialty?
Please, rank the most 3 motivational factors (1,2,3)

□ Personal reasons (e.g. family, friends)
□ Less occupational hazard
□ Personal interest
□ Private practice
□ Good quality of life and financial rewards
□ Intellectual challenge
□ Previous positive clerkship experience
□ Work in hospital
□ Work at polyclinic
□ Future job opportunities in that field
□ Status/reputation
□ Ability to find a fellowship
□ Other *(specify)* _____

19. Which of the following factors demotivates you to choose General Practice?
Please, rank the most 3 demotivating factors (1,2,3)

□ Excessive occupational hazard
□ Poor quality of life and low income
□ Exclusive hospital career
□ Loss of patient contact
□ No technical activity
□ Workload

□ No private practice
□ Feeling about treating terminally ill, dying patients
□ Lack of recognition
□ Judicial proceedings
□ Chronic diseases
□ Cancer or fatal disease
□ Competition
□ Geographical location
□ Other *(specify)* _____

20. Do you think you will work in the area you are getting your degree in?

□ Very Likely
□ Likely
□ Neutral
□ Not Likely
□ Very Unlikely

III. How medical students view the work life of Primary Care

For questions 21-31, please rate your agreement or disagreement with following statements

	Strongly agree	*Agree*	*Disagree*	*Strongly disagree*	*I don't know*
21. Formularies or prescription limits restrict the quality of care provided by physician	□	□	□	□	□
22. Patients seldom conflict with primary care physician's clinical judgment	□	□	□	□	□
23. Primary care physicians have too many administrative work to do	□	□	□	□	□
24. Primary care physicians have control over their work schedule	□	□	□	□	□
25. Primary care physicians feel harried by the pace of their work	□	□	□	□	□
26. Time pressure keep primary care physicians to build from developing good patient relationship	□	□	□	□	□
27. Primary care physicians are overwhelmed by the needs of their patients	□	□	□	□	□
28. Patients have confidence in primary care physicians	□	□	□	□	□
29. Primary care physicians' have good relationship with patients	□	□	□	□	□

30. Primary care physicians receive adequate incentives for their work	□	□	□	□	□
31. Opportunity to do preventive medicine makes primary care more attractive	□	□	□	□	□

THANK YOU FOR YOUR PARTICIPATION!

NAZARBAYEV UNIVERSITY

МЕДИЦИНАЛЫҚ УНИВЕРСИТЕТТЕРДІҢ СТУДЕНТТЕРІНІҢ БОЛАШАҚ МАНСАПТЫҚ МАМАНДЫҒЫ ЖӘНЕ АЛҒАШҚЫ МЕДИЦИНАЛЫҚ-САНИТАРЛЫҚ КӨМЕКТІҢ ЕҢБЕК ҚЫЗМЕТІНЕ КӨЗҚАРАСТАРЫ ТУРАЛЫ САУАЛНАМА

Бұл жоба жоғары медицина университеттердің соңғы курс студенттерінің болашақ мансаптық мамандығы жоспарларына қандай факторлар әсер етеінін және алғашқы медициналық-санитарлық көмектің еңбек қызметіне қөзқарастары туралы ойларын зерттейді.

Бұл сауалнамаға ерікті болып табылатынды, және кез-келген уақытта сауалнамаға қатысуды тоқтатуға құқығыңыз бар, бұл ешқандай салдар әкелмейді.

Сіз осы сауалнамаға қатысуыңыз, берілген мәліметті түсінгеніңізді, келісіміңізді бергеніңізді, жасыңыз 18-ден асқандығын, және медицина университетінің студенті екеніңізді растайсыз.

I. Өзіңіз жайлы ақпарат берсеңіз.

1. Жынысыңызды көрсетіңіз
- □ Ер
- □ Әйел

2. Ұлтыңыз қандай?
- □ Қазақ
- □ Орыс
- □ Басқа *(көрсетіңіз)* _____

3. Жасыңыз нешеде? _____*(жазыңыз)*

4. Отбасылық жағдайыңыз?
- □ Үйленген/күйеуге шыққан
- □ Бойдақ
- □ Ажырасқан
- □ Жесір
- □ Азаматтық некеде

5. Балаларыңыз бар ма?
- □ Иә
- □ Жоқ

6. 18 жасқа дейін қайда тұрдыңыз?
- □ Қала
- □ Аудан
- □ Ауыл

7. Төмендегі қай жоғарғы оқу орнында білім алып жатырсыз?
- □ С.Ж. Асфендияров атындағы ҚазҰМУ

□ Астана медицина университеті
□ Қарағанды мемлекеттік медицина университеті
□ Семей қаласының Мемлекеттік Медицина университеті
□ М. Оспанов атындағы Батыс Қазақстан мемлекеттік медицина университеті

8. Сіздің оқуыңыздың төлемі қалай жүргізіледі?
□ Мемлекеттік грант
□ Ақылы түрде
□ Мемлекеттік емес ұйымдардың тарапынана немесе басқа ұйымдар
□ Жасыңыз нешеде? *(көрсетіңіз)* _____

9. Қазіргі уақыттағы орташа балыңыз (GPA)?
□ A, A-
□ B+, B, B-
□ C+, C, C-
□ D+, D

II. Сіздің болашақ мансаптық жоспарыңыз.

10. Интернатура мамандығына **«Жалпы дәрігерлік практика»** мамандығын таңдау мүмкіндігіңізді бағалаңыз?
□ Өте мүмкін
□ Мүмкін
□ Бейтарап
□ Екіталай
□ Мүлдем мүмкін емес

11. Егер жоғарыдағы сұраққа ЕКІТАЛАЙ немесе МҮЛДЕМ МҮМКІН ЕМЕС деп жауап берсеңіз, интернатураға төмендегі қай мамандықты таңдар едіңіз?
□ Гигиена және эпидемиология
□ Ішкі аурулар/терапия
□ Хирургия
□ Педиатрия
□ Акушерлік және гинекология
□ Білмеймін
□ Басқа *(көрсетіңіз)* _____

12. Өзіңіздің таңдауыңызға қашан шешім қабылдадыңыз?
□ Жоғарғы оқу орнына түсер алдында
□ Бакалаврда оқып жүрген кезде (1-5 курс)
□ Міндетті клиникалық практика кезінде
□ Басқа *(көрсетіңіз)* _____

13. Сіздің міндетті клиникалық практикаңыз қандай клиникалық базада өтті?
□ Университет жанындағы ауруханада
□ Поликлиникада
□ Қалалық жедел медициналық жәрдем станциясында
□ Мемлекеттік ауруханада
□ Жеке меншік клиникада
□ Мен әлі клиникалық даярлықтан өткен жоқпын (16-шы сұраққа өтіңіз)
□ Басқа *(көрсетіңіз)* _____*)*

14. Келесі тұжырыммен қаншалықты келісетіндігіңізді белгілеңіз: «Мен өзімнің міндетті клиникалық практикама қанағаттанамын»

□ Толығымен келісемін
□ Келісемін
□ Келіспеймін
□ Мүлдем келіспеймін
□ Білмеймін

15. Міндетті клиникалық практикадан өту Сіздің мамандық таңдауыңызға әсер етті ме?

□ Үлкен әсер етті
□ Аз әсер етті
□ Әсер етпеді

16. Оқу кезінде **«Жалпы дәрігерлік практика»** бойынша циклді өттіңіз бе?

□ Иә
□ Жоқ

17. Келесі тұжырыммен қаншалықты келісетіндігіңізді белгілеңіз: «Мансап ретінде **«Жалпы дәрігерлік практиканы»** таңдауым үшін университетте жалпы практика дәрігерлерінің қызметі туралы жеткілікті ақпарат берілді»

□ Толығымен келісемін
□ Келісемін
□ Келіспеймін
□ Мүлдем келіспеймін
□ Білмеймін

18. Төменде келтірілген факторлардың қайсысы сізді мамандық таңдауда ынталандырады?
Өтініш, ең ынталандыратын 3 факторды таңдаңыз (1,2,3)

□ Жеке себептер (мысалы, отбасым, достарым)
□ Кәсіби қауіптіліктің төмендігі
□ Жеке қызығушылығым
□ Жеке практикамен айналысу мүмкіндігі
□ Сапалы өмір және қаржылық сыйлықтар
□ Интеллектуалды қарсылық
□ Міндетті клиникалық практикадан өткеннен кейінгі оң тәжірибе
□ Ауруханада жұмыс жасау
□ Емханада жұмыс жасау
□ Келешекте осы салады жұмыс табу мүмкіндігі
□ Мәртебе/бедел
□ Грантқа түсу мүмкіндігі
□ Басқа *(көрсетіңіз)* _____

19. Қандай факторлар сіздің Жалпы дәрігерлік практиканы таңдамауыңызға әсер етеді?
Өтініш, таңдауыңыға кері әсер ететін 3 факторды таңдаңыз (1,2,3)

□ Шамадан тыс кәсіби қауіптілік
□ Өмір сапасының және табыстың төмендігі
□ Құрметтің жоқтығы
□ Сотта іс қаралулар

□ Шектеулі клиникалық мансап
□ Пациенттермен байланыстың жоқтығы
□ Техникалық қызметтің жоқтығы
□ Жұмыстың көптігі
□ Жеке практикамен айналысу мүмкіндігінің жоқтығы
□ Ауыр науқастарды емдеудегі эмоционалды ауыртпалық
□ Созылмалы аурулар
□ Онкологиялық және қайтпайтын аурулар
□ Бәсеке
□ Географиялық оқшаулану
□ *(көрсетіңіз)* _____

20. Мамандық алған салада жұмыс жасау мүмкіндігіңізді бағалаңыз?

□ Өте мүмкін
□ Мүмкін
□ Бейтарап
□ Екіталай
□ Мүлдем мүмкін емес

III. Медицина университеттерінің бакалаврының соңғы курс студенттерінің Алғашқы медициналық-санитарлық көмек (емхана) жұмысына көзқарастары қандай?

21-31 сұрақтар үшін келесі тұжырымдармен келісетіндігіңізді не келіспейтіндігіңізді бағалаңыз:

	Толығымен келісемін	*Келісемін*	*Келіспеймін*	*Мүлдем келіспеймін*	*Білмеймін*
21. Формулярлық шектеулер немесе рецепт бойынша шектеулер емхана дәрігері көрсететін медициналық көмек сапасын шектейді	□	□	□	□	□
22. Пациенттер емхана дәрігерімен сирек қарсыласады	□	□	□	□	□
23. Емхана дәрігерінің әкімшілік жұмыстары өте көп	□	□	□	□	□
24. Емхана дәрігері өз кестесін қадағалай алады	□	□	□	□	□
25. Емхана дәрігері жұмыс қарқынынан өзін шаршаған күйде	□	□	□	□	□

сезінеді					
26. Уақыттың аздығынан емхана дәрігері пациентпен жақсы қарым-қатынас орната алмайды	□	□	□	□	□
27. Емхана дәрігеріне өз пациенттерінің қалауларынан көп жұмыс артылған	□	□	□	□	□
28. Пациенттер емхана дәрігеріне сенеді	□	□	□	□	□
29. Емханада дәрігерлері мен пациенттер арасында жақсы қарым-қатынас орнатылған	□	□	□	□	□
30. Емханада дәрігерлер өз жұмысына сәйкес қаржылық ынталандырулар алады	□	□	□	□	□
31. Аурулардың алдын алумен айналысу емхана дәрігерлерінің жұмысын тартымдырақ етеді	□	□	□	□	□

Қатысқаныңыз үшін рақмет!

NAZARBAYEV UNIVERSITY

ОПРОС О БУДУЩЕЙ КАРЬЕРНОЙ СПЕЦИАЛИЗАЦИИ МЕДИЦИНСКИХ СТУДЕНТОВ И ИХ ВЗГЛЯДЫ НА ТРУДОВУЮ ДЕЯТЕЛЬНОСТЬ ПЕРВИЧНОЙ МЕДИКО-САНИТАРНОЙ ПОМОЩИ

Проект изучает будущие карьерные интересы студентов последних курсов бакалавра медицинских университетов и факторы, которые влияют на их выбор будущей профессии. А также, нацелен изучить взгляды медицинских студентов на трудовую деятельность первичной медико-санитарной помощи.

Ваше участие является добровольным, и Вы имеете право прекратить участие в любой момент, что не повлечет за собой никаких последствий. Анкета состоит из трех частей. Первая часть включает в себя демографические вопросы, такие как возраст, пол, этническая принадлежность; вторая часть состоит из вопросов касательно карьерного плана медицинских студентов, в третьем части необходимо оценить свое согласие либо несогласие с утверждениями связанными с трудовой деятельности в поликлиниках.

Начав заполнение данного опроса, Вы подтверждаете, что Вы поняли информацию, даёте свое согласие участвовать в исследовании, Вам не менее 18 лет, Вы являетесь студентом медицинского университета.

II. Пожалуйста, предоставьте информацию о себе.

1. Укажите ваш пол?
- □ Мужчина
- □ Женщина

2. Ваша национальность?
- □ Казах
- □ Русский
- □ Другое *(укажите)*_____

3. Укажите Ваш возраст? _____ *(впишите)*

4. Семейное положение?
- □ Женат/Замужем
- □ Не женат/Не замужем
- □ Разведен(а)
- □ Вдовец/Вдова
- □ Состою в гражданском браке

5. Имеете ли Вы детей?
- □ Да
- □ Нет

6. Где Вы жили до 18 лет?
- □ Город
- □ Район
- □ Поселок

7. Укажите университет в котором обучаетесь?
- □ Казахский Национальный Медицинский Университет им. С. Асфендиярова
- □ Медицинский Университет Астана
- □ Карагандинский Государственный Медицинский Университет
- □ Государственный Медицинский Университет г. Семей
- □ Западно-Казахстанский Государственный Медицинский Университет им. М. Оспанова

8. Как производится оплата за Ваше обучение?
- □ Государственный грант
- □ На платной основе
- □ Негосударственная организация или другая компания
- □ Другое *(укажите)*_____

9. Ваш средний балл на текущий момент (GPA)?
- □ A, A-
- □ B+, B, B-
- □ C+, C, C-
- □ D+, D

II. Ваши карьерные планы на будущее.

10. Оцените вероятность выбора Вами в качестве специализации интернатуры по специальности **«Общей Врачебной Практики»**?
- □ Очень вероятно
- □ Вероятно
- □ Нейтрально
- □ Маловероятно
- □ Крайне маловероятно

11. Если Вы ответили КРАЙНЕ МАЛОВЕРОЯТНО или МАЛОВЕРОЯТНО на предыдущий вопрос, то какую специализацию Вы планируете пройти во время интернатуры?
- □ Гигиена и эпидемиология
- □ Внутренние болезни/терапия
- □ Хирургия
- □ Педиатрия
- □ Акушерство и гинекология
- □ Не знаю
- □ Другое *(укажите)*_____

12. Когда Вы определились с выбором специализации?
- □ Перед поступлением в университет
- □ Вовремя учебы на бакалавриате (1-5 курс)
- □ Вовремя обязательной клинической практики
- □ Другое *(укажите)*_____

13. В какой клинической базе Вы прошли обязательную клиническую практику?

□ Больница при университете
□ Поликлиника
□ Городская станция скорой помощи
□ Государственная больница
□ Частная клиника
□ Я еще не проходил(а) обязательную клиническую практику (пройдите на вопрос 16)
□ Другое *(укажите)*_____

14. Укажите, в какой степени Вы согласны со следующим утверждением: «Я доволен своей обязательной клинической практикой»
□ Полностью согласен
□ Согласен
□ Не согласен
□ Полностью не согласен
□ Не знаю

15. Повлияла ли обязательная клиническая практика на Ваш выбор специализации?
□ Оказало большое влияние
□ Оказало небольшое влияние
□ Не повлияло

16. Во время обучения проходили ли Вы цикл по **«Общей Врачебной Практике»**?
□ Да
□ Нет

17. Укажите, в какой степени Вы согласны со следующим утверждением: «Университет дал мне представление о деятельности врачей общей практики, чтобы принять решение о выборе **«Общей Врачебной Практике»** в качестве профессии».
□ Полностью согласен
□ Согласен
□ Не согласен
□ Полностью не согласен
□ Не знаю

18. Какой из ниже перечисленных факторов мотивирует вас при выборе специализации?
Пожалуйста, выделите 3 наиболее мотивирующих факторов (1,2,3)

□ Личные причины (например семья, друзья)
□ Малый профессиональный риск
□ Интерес
□ Возможность заниматься частной практикой
□ Работа в стационаре
□ Работа в поликлинике
□ Лучшее трудоустройство
□ Статус/репутация

□ Хорошее качество жизни и финансовые награды

□ Интеллектуальный вызов

□ Предыдущий положительный опыт, после прохождения обязательной клинической практики

□ Возможность поступить на грант

□ Другое *(укажите)*_____

19. Какие факторы демотивируют Вас при выборе Общей Врачебной Практики в качестве специализации?
Пожалуйста, выделите 3 наиболее демотивирующих факторов (1,2,3)

□ Большой профессиональная риск

□ Низкое качество жизни и низкий доход

□ Плохое трудоустройство

□ Отсутствие контакта с пациентами

□ Отсутствие технической деятельности

□ Повышенная рабочая нагрузка

□ Отсутствие возможности заниматься частной практикой

□ Эмоциональная нагрузка при лечении тяжелобольных

□ Отсутствие признания

□ Судебные разбирательства

□ Хронические болезни

□ Онкологические или фатальные заболевания

□ Конкуренция

□ Географическая локализация

□ Другое *(укажите)*_____

20. Какова вероятность, что Вы будете работать в области, в которой получите специализацию?

□ Очень вероятно
□ Вероятно
□ Нейтрально
□ Маловероятно
□ Очень маловероятно

III. Как студенты последних курсов бакалавра медицинских университетов относятся к работе Первично Медико-санитарной Помощи (ПМСП)?

Для вопросов 21-31 оцените, пожалуйста, свое согласие либо несогласие со следующими утверждениями:

	Полностью согласен	*Согласе н*	*Не согласен*	*Полностью не согласен*	*Не знаю*
21. Формулярные ограничения или ограничения по рецепту ограничивают качество медицинской помощи, предоставляемой врачом поликлиники	□	□	□	□	□
22. Пациенты редко сталкиваются с осуждением врача поликлиники	□	□	□	□	□
23. У врача поликлиники слишком много административной работы	□	□	□	□	□
24. Врач поликлиники может контролировать свое расписание	□	□	□	□	□
25. Врач поликлиники чувствует себя измученным из-за темпа работы	□	□	□	□	□
26. Из-за нехватки времени врач поликлиники не может построить хорошее взаимоотношение с пациентом	□	□	□	□	□
27. Врач поликлиники перегружен потребностями своих пациентов	□	□	□	□	□

28. У пациентов есть доверие к врачам поликлиники	□	□	□	□	□
29. В поликлинике складываются благоприятные отношения между врачами и пациентами	□	□	□	□	□
30. Врачи поликлиники получают адекватную заработнаю плату для своей работы	□	□	□	□	□
31. Возможность заниматься профилактикой заболеваний делает работу врача поликлиники более привлекательной	□	□	□	□	□

Спасибо за участие!