

ORIGINAL RESEARCH

Training Young Russian Physicians in Uganda: A Unique Program for Introducing Global Health Education in Russia



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Abstract

BACKGROUND Global health is a new concept in Russia. There has been an ongoing academic collaboration between the Yale School of Medicine in the United States and Makerere University College of Health Sciences in Uganda since 2010, and the US Western Connecticut Health Network/University of Vermont College of Medicine since 2012, to introduce global health concepts to Kazan State Medical University (KSMU) in Russia. The purpose was to educate Russian physicians and medical trainees about the practice of clinical medicine and medical education, as well as the general practice of global health in culturally diverse, resource-limited settings.

OBJECTIVES The aim of this study was to evaluate the initial outcomes of this multi-institutional partnership and to assess the impact of the global health elective on the participants and on KSMU.

METHODS Participants were selected to attend a 6-week elective in global health at Mulago Hospital in Kampala, Uganda. The elective consisted of clinical experience, education about Uganda's common diseases, and region-specific sociocultural classes. It included a predeparture orientation and, upon return, completion of a standard questionnaire to assess the program's impact.

RESULTS Since 2010, there have been 20 KSMU members (4 medical students, 4 interns, 9 residents, 2 fellows, and 1 faculty member) who have participated in the program. As a result of the elective, the participants reported increased knowledge of tropical medicine (70%) and HIV/AIDS (75%), and 95% reported increased cultural sensitivity and desire to work with the underserved. The majority noted a very positive impact of their careers (90%) and personal life (80%). KSMU established the first successful collaborative program in global health education in Russia, leading to the integration of tropical medicine and global health courses in medical school curriculum.

CONCLUSION This elective has proven highly effective in introducing the concept of global health to faculty, fellows, residents, and medical students at KSMU. It trained these participants to address the challenges faced by physicians in culturally diverse and resource-limited countries.

KEY WORDS Global health education, Russia, global health elective program, Uganda, individual and institutional effects on global health electives, attitudes toward global health.

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INTRODUCTION

Global health is defined as collaborative transnational research and action for promoting health for all¹ or as public health for the world.² Enthusiasm around global health is burgeoning across medical institutions in most Western countries.^{3–5} More students are entering the field of medicine versed in the language of global health and equipped to take on roles with social and humanistic dimensions.^{6–11} In contrast, global health is a new concept in Russian medical education.¹² The classic 6-year undergraduate medical education curriculum in Russia, developed by the Ministry of Health of the Russian Federation, allows little flexibility to introduce novel educational courses and programs.^{13,14} However, growing international interest in pursuing medical education in Russia¹⁵ has led to an increased demand for global health programs, as well as for high-quality international academic experiences for students, residents, and fellows at Russian medical universities.

Kazan State Medical University (KSMU), located in the city of Kazan, is one of the oldest medical universities in Russia.¹⁶ Established in 1814, KSMU currently offers both undergraduate and postgraduate education in medicine, pediatrics, public health, dentistry, pharmacy, nursing, and social work. At present, approximately 11% of KSMU students are international and come from >40 countries. KSMU has an extensive history of collaborating with international universities or medical education centers, including Yale School of Medicine (YSM; New Haven, Connecticut), Nova Southeastern University (Fort Lauderdale, Florida), Medical University of South Carolina (Charleston), and Katholieke Universiteit Leuven (Leuven, Belgium). More recent collaborations have been formed with Makerere University College of Health Sciences (MakCHS; Kampala, Uganda), Western Connecticut Health Network (WCHN; Danbury, Connecticut), and University of Vermont College of Medicine (UVCOM; Burlington), among others. It also has a long-standing collaborative partnership with the International Federation of Medical Students' Associations, the largest student-run organization in the world.¹⁷

Partnership with Yale University in particular introduced the concept of global health to students, residents, and faculty of KSMU through a long-lasting exchange program that brought American faculty, residents, and students to Kazan,¹⁸ where local faculty taught annual undergraduate and

postgraduate courses on tropical medicine and HIV/AIDS. Furthermore, the collaboration between YSM and MakCHS in 2010 laid the foundation for establishing a 6-week clinical elective course in global health in Kampala, Uganda, for KSMU faculty, residents, and medical students. This program, which we believe is the first of its kind in Russia, aims to familiarize participants with the concept of global health as well as medical practices in culturally diverse and resource-limited settings.

The aim of the current study was to evaluate the initial outcomes of this multi-institutional partnership as well as the effects of this particular elective in global health on the participants and on KSMU.

MATERIALS AND METHODS

The 6-week global health elective was established as a collaborative effort between YSM, MakCHS, and KSMU in 2010, with WCHN joining the partnership in 2012. The elective is based on an already existing program established by YSM Department of Medicine¹⁹ and WCHN/UVCOM, wherein medical students and residents take part in a 6-week clinical rotation at Mulago Hospital in Kampala.

Selection Criteria. Over the past 6 academic years (from 2009–2010 to 2014–2015), 20 members of KSMU (4 medical students, 4 interns, 9 residents, 2 clinical PhD students*, and 1 faculty member) have participated in this global health elective (Table 1). Participants were selected among a competitive pool of applicants on the basis of their class ranking, global health competencies and experience, scientific achievements, English-language skills, cultural and ethical sensitivity, a motivation letter, and letters of recommendation (Table 2). In addition to the KSMU Global Health Office members, a senior US or Ugandan counterpart interviewed all of the eligible candidates.

Predeparture Orientation. Selected candidates underwent vigorous orientation sessions to become familiar with the medical education, health care system, and sociopolitical-economic condition of Uganda, in addition to cultural, religious, and ethical challenges that they might encounter. The orientation sessions were conducted with

*In Russian postgraduate medical education, a “clinical PhD student”¹ is an analogue of a fellow in the US-based medical education.

Table 1. Profile of the Global Health Elective Participants and the Control Group

Variable	Global Health Elective Participants		Control Group		P value
	Value	Percentage (%)	Value	Percentage (%)	
	Completed surveys (N)	20	100	18	
Mean age ± SD	25.1 ± 1.7	—	25.1 ± 2.5	—	0.992
Age range (y)	23-29	—	22-34	—	—
Gender					
Male	6	30	7	38.9	0.566
Female	14	70	11	61.1	0.566
Level of medical education at the time of the global health elective					
Medical student	4	20	2	11.1	0.663
Intern	4	20	2	11.1	0.663
Resident	9	45	10	55.6	0.517
Clinical PhD student*	2	10	3	16.7	0.653
Faculty	1	5	1	5.6	1.00
Previous participation in other international medical exchange programs	13	65	3	16.7	0.004 †
Prior experience in a resource-limited country or community	0	0	1	5.6	0.474

* In Russian postgraduate medical education, a “clinical PhD student” is an analogue of a fellow in the US-based medical education.
† Indicates statistical significance (p<0.05).

participation of faculty from either the United States or Uganda.

Description of the Global Health Elective. During the 6-week global health elective, participants were assigned to inpatient and outpatient clinical wards at Mulago Hospital based on their personal preferences and faculty availability. Participants were given placements at the clinical departments of internal medicine, infectious disease, obstetrics and gynecology, general surgery, neurosurgery, and ophthalmology, among others. To ensure maximal effects of training in and exposure to a specific clinical discipline, participants were advised to rotate through no more than 2 clinical departments throughout the elective. In addition to clinical activities, participants

attended classes on the health care system, medical education, sociopolitical history, common diseases, and Luganda, the predominant language in Uganda. On the weekends, participants visited historical sites, such as the source of the Nile, the village of Kasensero (a village by Lake Victoria where the first cases of AIDS in Uganda were identified in early 1980s), and national parks.

Postrotation Evaluation. Upon return to Russia, participants were asked to complete a questionnaire to understand the program’s efficacy, effects, and other components, as well as to gauge the participants’ attitudes toward global health education. The questionnaire, developed in conjunction with the three collaborating institutions, included inquiries into the efficacy and effect of the global health elective. All 20 participants completed the questionnaire.

Control Group. A similar questionnaire, excluding sections pertaining to the rotation in Uganda, was distributed among 20 trainees of KSMU who were matched against participants by age, sex, specialty, and class rank but who lacked any prior experience in resource-limited settings abroad (Table 1). Eighteen trainees (90%) from the control group returned the questionnaire, which was evaluated and compared with the responses from the global health elective participants.

Funding. The 6-week global health elective program was primarily funded by KSMU and WCHN.

Table 2. Criteria for Participant Selection

Selection Criteria	Weight in Decision making (%)
Knowledge of English language	20
Class standing (based on grades and achievements)	10
Participation in scientific meetings (abstract presentations)	10
Scientific publications (manuscripts in Russian and international journals)	16
Letter of motivation	14
Recommendation letters	10
Interview with the applicant	20

Statistical Analysis. Pearson's χ^2 test and Fisher's exact tests were used to compare proportions (categorical variables). The two-tailed unpaired t test was used to compare continuous variables. $P < 0.05$ was considered statistically significant. Statistical analysis was performed using the VassarStats Website for Statistical Computation.²⁰

RESULTS

Predeparture Preparation and Orientation. The top 3 reasons participants applied for the global health elective were to:

1. Learn more about global health (n = 17, 85%),
2. Learn how medicine is practiced in resource-limited settings (n = 17, 85%), and
3. Gain international experience in medicine (n = 16, 80%).

Ten participants (56%) took this elective to gain experience specifically in dealing with HIV-infected patients and 13 (65%) to learn more about tropical medicine. Twelve participants (60%) identified learning about the importance of cultural sensitivity when treating patients as their motivation to participate in this program, and 2 (10%) noted interest in Uganda as a touristic destination.

Eighteen participants (90%) reported having received all necessary information from the global health offices of KSMU and Mulago Hospital before the start of the elective. All 20 participants found the orientation meetings held by faculty members from YSM, MakCHS, and KSMU useful in preparing for the trip to Uganda.

In regard to the fairness of the selection process and whether it ensured participation of the best possible representatives from KSMU in the global health elective, 18 participants (90%) identified the selection as fair, 1 (5%) thought otherwise, and 1 (5%) was undecided on the matter.

Global Health Elective in Uganda. The overall length of training in Uganda was 120 participant-weeks. The elective exceeded the expectations of 16 participants (80%) and met the expectations of 4 (15%). None of the participants reported the program as failing to meet his or her expectations. Ten participants (50%) admitted to experiencing problems communicating with fellow students, physicians, and patients because of the language barrier, but only 3 (15%) felt unwanted or unwelcome in a certain clinical department or ward at any point during their rotation. All 20 participants said they

were able to communicate with faculty, residents, students, and other health care workers at Mulago Hospital effectively, and 19 (95%) found that communication with patients was not a major challenge. Overall, all of the participants described their interactions with health care professionals in Uganda positive or very positive.

The participants were asked to identify the extent to which they were involved in clinical activities while working in the hospitals. The majority (n = 12, 60%) said they were fully engaged in all daily activities, including decision making in diagnostic and treatment interventions, discussing treatment plans with other members of the medical team, and assisting with operations in the surgical departments under close observation. None of the respondents' work was just limited to shadowing or observing the attending physician/intern/resident. For 3 participants (15%), the work was limited to taking patient histories and performing physical exams, and 4 participants (20%) reported that they were only allowed to perform minor interventions (blood draw, intramuscular injections, intravenous injections, urinary catheterization, etc.).

In terms of diversity of pathologies, 3 participants (15%) reported that their rotation was dominated by taking care of patients with tropical diseases, but no one said that the program was dominated by chronic noncommunicable disease (NCD; similar to those seen in Russia), and 8 (40%) identified their experience as an equal mix of tropical and chronic NCDs. Five participants (25%) reported that their rotation covered a mix of diseases with emphasis on tropical diseases, whereas 4 (20%) felt the same but with emphasis on chronic disease.

The global health elective participants were asked to rate the following aspects of their elective in Uganda on a scale from 1 (*very bad*) to 10 (*excellent*): the quality of obtained clinical skills, the quality of the didactics (lectures, classes, practical sessions), and the overall impression of the elective. The 3 aspects received mean scores of 8.5, 8.9, and 9.2, respectively.

Effects of the Global Health Elective on Participants. The effects of the global health elective program on participants was assessed through a series of questions, responses to which are illustrated in Figure 1A and B.

Views on health care determinants, global health, and global health electives. The participants, after returning from Uganda, were asked about their views on health care determinants and global health electives

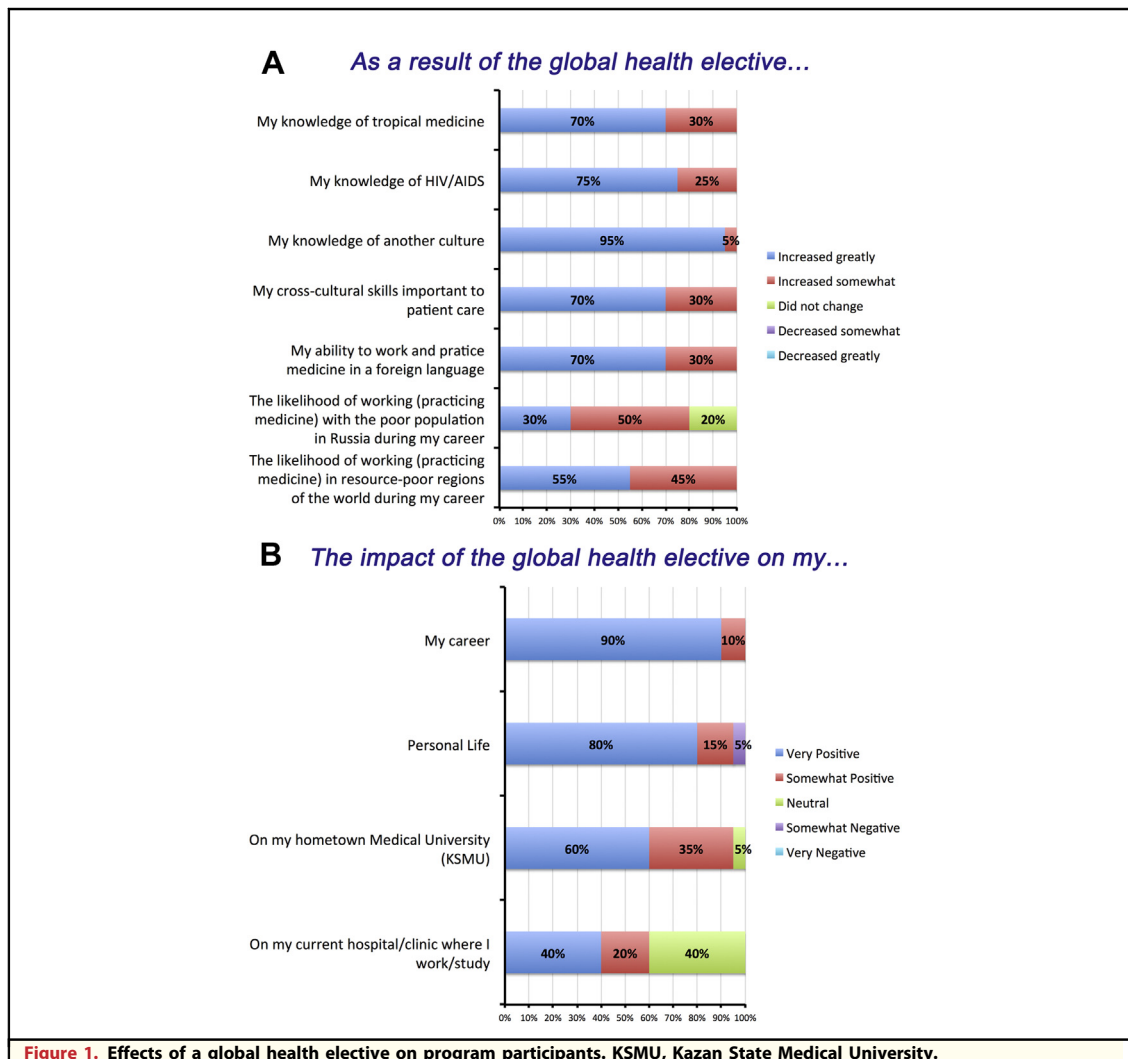


Figure 1. Effects of a global health elective on program participants. KSMU, Kazan State Medical University.

in general. The participants' responses were compared with those of the control group (Fig. 2). Of note, because the assessment was conducted after the elective, the responses represent the post-rotation attitudes of the participants. In comparison to the control group, the global health participants perceived a greater importance in understanding the patients' cultural beliefs as influencing the health outcomes and satisfaction of the patients. Participants also had stronger feelings about the benefits of Russian physicians' participation in such global health rotations in order to better practice medicine in Russia. The majority of the global health program participants (80%) felt that such an experience could not be substituted by a village/rural country medical practice in Russia, while the control group was not so convinced.

Views on significance of the global health program in KSMU and in Russia. The participants felt that the current global health elective program should be continued and expanded to become part of the medical curriculum in Russia (Fig. 3). The participants noted that they would strongly recommend participation in this global health elective to their fellow medical students, residents, PhD students, and physicians. In contrast, the control group had weaker feelings about these issues (Fig. 3).

Control group. Only 4 trainees from the control group (22%) claimed familiarity with the term *global health* and what it refers to. The majority of control group respondents (n = 12, 67%) acknowledged having heard the term, but were unsure of its meaning and components. Two individuals (11%) from

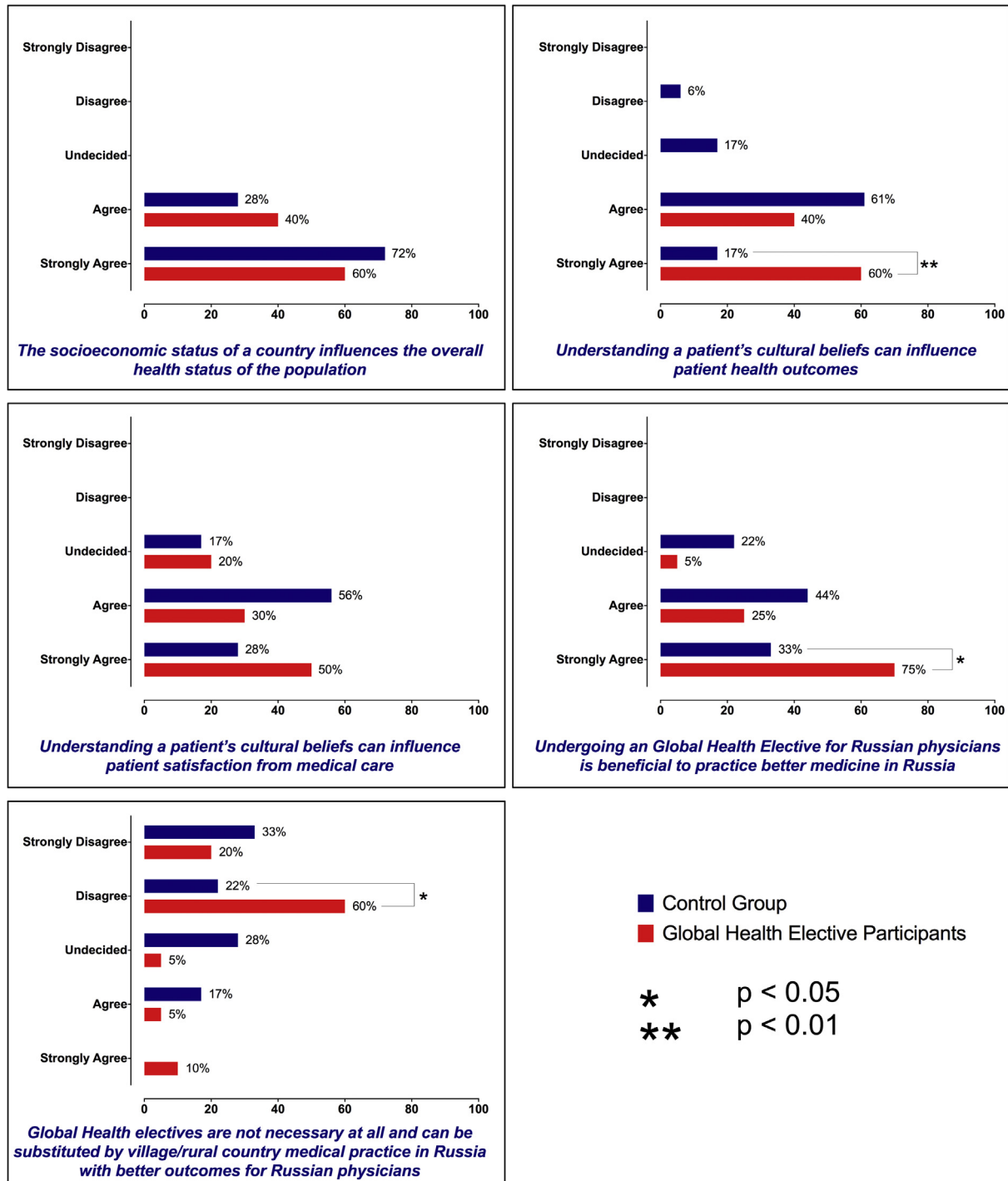


Figure 2. Views on health care determinants, global health, and the significance of a global health elective in general.

the control group admitted to never before hearing about the term. In comparison, when asked whether the respondents were familiar with the field of tropical medicine, the majority (n = 11, 61%) said they

were not; 5 (28%) were uncertain, and only 2 (11%) were familiar with the term. Similar to the participants of the global health elective, the trainees from the control group were

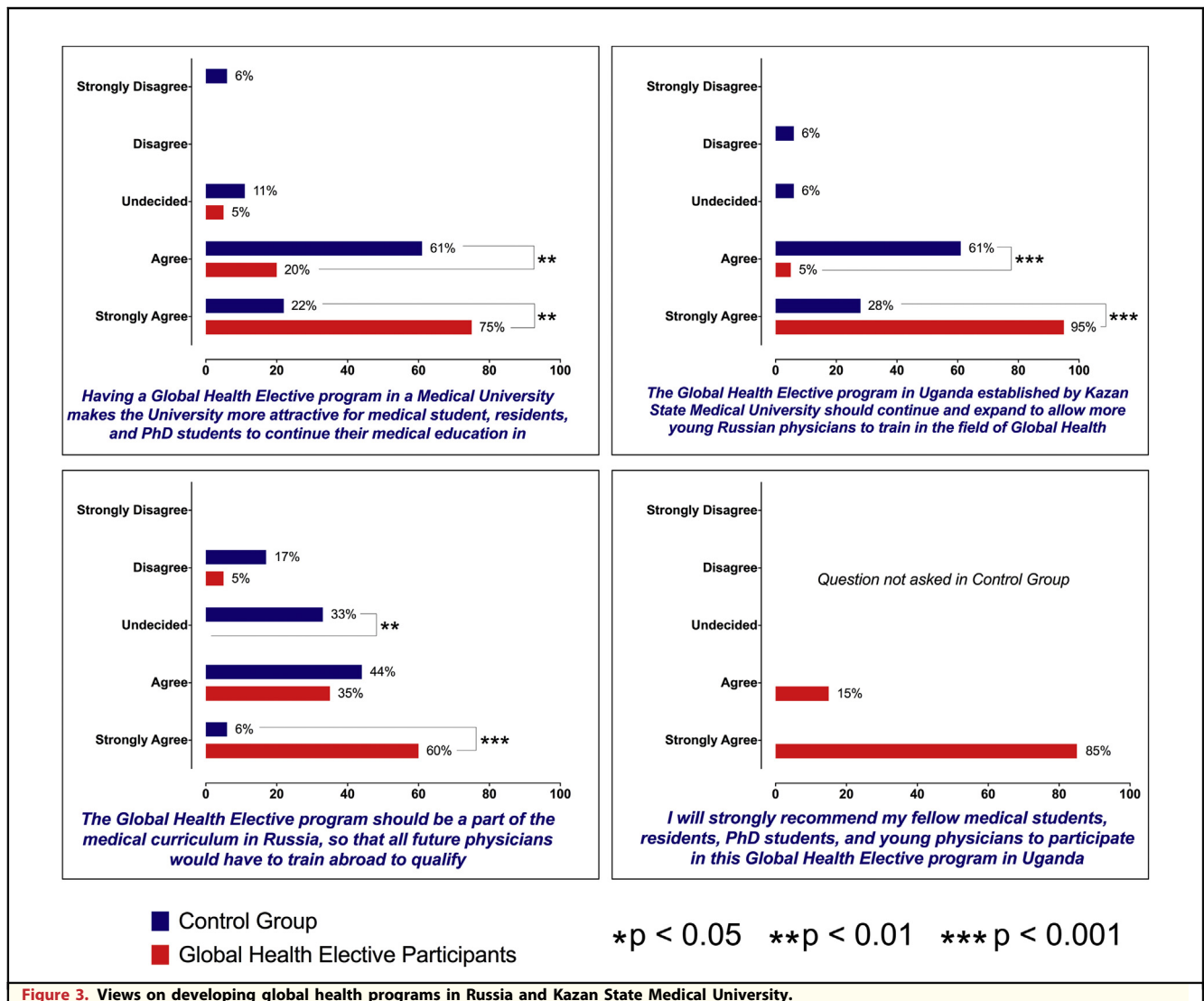


Figure 3. Views on developing global health programs in Russia and Kazan State Medical University.

asked to evaluate the quality of education that they were receiving at KSMU. On a scale from 1 (*very bad*) to 10 (*excellent*) the 3 aspects of education at KSMU received the following mean scores: 6.9 for the quality of the obtained practical (clinical) skills ($P = 0.012$), 6.7 for the quality of the didactics (lectures, classes, practical sessions; $P = 0.002$), and 7.2 for the overall impression regarding all aspects of education at KSMU ($P = 0.002$).

DISCUSSION

Development of the global health curriculum at KSMU via establishment of a Global Health Office and an international health elective in a resource-limited country follows the methodology of many

North American educational institutions.^{11,19,21-24} However, contrary to the model of global health elective programs that is based on sending trainees from “resource-rich” partner sites to train in “resource-poor” partner sites,^{4,19,25-27} the model developed at KSMU is less polarized in terms of resource distribution, because KSMU, like all other federal budget-funded higher education institutions in Russia, does not qualify either as a “resource-rich” or a “resource-poor” institution, but rather something between the two extremes.

The initial experience of introducing global health as an academic discipline at a Russian medical university has revealed a clear lack of awareness and knowledge about this discipline among Russian medical trainees. At the same time, this study has shown

that there is a clear interest among the trainees to become educated about and involved with global health activities. Moreover, participation in the global health elective has proven beneficial at both the individual and institutional levels.

At the individual level, the trainees noted that after participating in the elective, their knowledge of tropical medicine, HIV/AIDS, and cross-cultural communication skills improved greatly (Fig. 1A). In comparison, 89% of nonparticipants (control group) admitted either to not knowing anything about tropical medicine or having heard of it but not knowing what it is.

Participants learned how cultural beliefs can influence both patient health outcomes and overall satisfaction from medical care not only in a foreign country, but also in one's home country. The majority of participants felt that Russian physicians should engage in global health electives to enable them to practice better medicine in Russia. In comparison, only 33% of control group respondents without global health experience agreed with this, whereas another 22% of nonparticipants were not sure that global health electives are useful.

At the institutional level, the global health elective in Uganda has positively affected KSMU. It is the first medical university in Russia to establish such a unique program; because of the popularity and increased demand from students and residents, tropical medicine and global health have been introduced into the medical curriculum. This attribute is now attracting more competitive applicants to the university.

It is evident that young physicians who have experienced global health training in resource-limited settings are very interested in developing global health ($P < 0.001$) and medical education ($P = 0.014$) in Russia (Table 3), a development that would be highly beneficial for Russian education and health care institutions.

Strengths and Challenges. The global health elective program proved to be very rewarding for the participants. Becoming more familiar with the determinants of health, being willing to practice in underserved communities, and becoming more familiar with tropical medicine and HIV/AIDS are outcomes that proved to be strengths of the program. These were achieved via active involvement in patient care at Mulago Hospital (which was welcomed by many patients and staff), integration and immersion into the medical team, and exposure to diverse pathologies from communicable to non-communicable diseases.

The main challenge reported by the global health elective participants was the language barrier experienced when communicating in Uganda. Adequate knowledge of English language is a prerequisite for participation in the program and is assessed by native Russian teachers of English language and during interviews conducted by US and/or Ugandan visiting faculty, all as part of the selection process. However, knowledge of English language accounts for only 20% of the overall selection criteria (Table 2). Moving forward, this figure might need to be revised to ensure that more weight is given to good language skills. The other challenge noted by some of the participants was the feeling of not being welcome or wanted in a particular clinical department. Working with the global health office in Uganda to engage more faculty and staff to participate in the program as well as devoting more attention to this issue during predeparture training are the 2 possible ways to improve on this challenge in the future.

CONCLUSION

Although in early stages of development, the global health program in KSMU, similar to the global health programs in Western countries, has proven to be highly effective in training competent

Table 3. Spectrum of Participants' Professional Interests Versus Control Group

Fields of Interest	Global Health Elective Participants		Control Group		P value
	Value	Percentage (%)	Value	Percentage (%)	
	Clinical medicine	20	100	17	
Public health and health care organization	2	10	2	11	1.00
International (global) health	13	65	2	11	< 0.001*
Medical education	11	55	3	17	0.014*
Other	1	5	0	0	1.00

* Indicates statistical significance ($p < 0.05$).

physicians to address challenges faced by the international medical community. The results presented in this study clearly reveal a lack of knowledge about global health among young Russian physicians. KSMU is the first higher medical educational institution in Russia to establish such a global health elective program, and it may become the leading institution for development of global health education in the country.

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