

Migration of Ethiopian Doctors

*A cross sectional study on attitudes among
Ethiopian medical students towards studying
medicine, migration and future work*

Sandra Johansson



Student thesis

OSLO UNIVERSITY

September 2014

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2014

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Abstract

Background

Ethiopia is a developing country with serious shortages of health personnel and is one of the countries with the lowest physician density in the world. It is also one of the countries with the highest physician emigration in sub-Saharan Africa. This study was carried out to investigate attitudes among medicine students to understand why this situation of migration of doctors continues.

Methods

An anonymous survey was distributed to 117 last year students of medicine at Jimma University and St Paul's Millennium Medical College in Addis Ababa regarding their attitudes towards studying medicine, future career and migration. The results were plotted in and analyzed in IBM SPSS Statistics 20.

Findings

Career possibilities and high salary were important both when choosing to study medicine and when choosing where to work. 59,4 % answered it to be likely or very likely that they work abroad in 5 years, and as much as 73,4 % in 10 years. Factors related to staying with statistical relevance in this study were helping the community as a motivation to study medicine, young age, and good relations to their supervisors. The majority of students preferred working in a hospital rather than in primary health care, and about 75 % of the students were likely to work in private sector.

Conclusion

This study shows that the thoughts of leaving the country are there already as students of medicine. Motivations before studying medicine and experiences during studies are important to future career choices, and improvements here could to some extent prevent emigration. In addition, local improvements of sufficient dimensions should be made, and the ones of most importance in this study seem to be higher salaries and future career possibilities.

Acknowledgements

I wish to thank all the students who kindly participated in the study, making this project possible. I would like to give special thanks to welcoming arms at Jimma University in January 2013, especially to Dr. Hailemariam Segni who kindly organized my stay there and to the Health Officer students and friends that made my stay unforgettable. I am also very grateful for the work Dr. Abraham Haileamlak and Dr. Temesgen Tilahun did with distributing and recollecting the surveys for me at Jimma University. At St Paul's Millenium College in Addis Ababa I would like to thank principle Dr. Mesfin Araya who kindly met me at his hospital on my short visit there, and Dr. Zerihun Abebe and Dr. Lia Tadesse for the correspondence by mail and the collection of the surveys. Finally, I thank Dr. Jeanette Magnus at Oslo University for good mentoring and facilitation of this whole project.

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1. INTRODUCTION

1.1 Preface – Choosing a topic

As a part of the medicine education at Oslo University, all medicine students have to write an essay on a topic within the specter of medicine. At the time of choosing topics I contacted Jeanette Magnus, a doctor working with the relations between Oslo University and Jimma University in Ethiopia. She proposed a study tour to Jimma to figure out more exactly what to write about. Interested in tropical medicine as I am, this suited me perfectly, and off I went to Ethiopia for a month in January 2013.

I was placed at a clinic in the outskirts of Jimma to work with around 20 other students of medicine (or more correctly, Health Officer students). There are not many health clinics up and running on the countryside of Ethiopia, and these were practically run by the students coming there for their 8 weeks of practice in their last year. The people coming there didn't have the funds to go to a hospital and relied on the health clinic which did most of the procedures for free or a very small amount of money.

I decided to write about the health insufficiency in Ethiopia. I was interested in what the medical students thought about the future. What factors are of importance to future doctors in Ethiopia when deciding where to work? Who wants to stay in Ethiopia? Who wants to work in Primary Health Care?

I decided to make a questionnaire for medical students and I made contacts in Jimma and in Addis Ababa to help me with distributing the survey when I eventually would have it ready.

– My time in Jimma was already over.

1.2 Problem statement

Why aren't there enough health workers on the countryside in Ethiopia? The drain of health resources from low income countries to richer ones is not a new phenomenon, and Ethiopia is one of the countries with the lowest density of physicians in the world.

Health migration is a problem in several categories of health workers in Ethiopia. I have decided to focus on the migration of doctors and the medical students in their final year of studies. How many will leave the country, and which ones will stay? Are there any factors that can be associated with staying?

Thesis of assignment:

- What are the attitudes among Ethiopian medical students towards studying medicine, their future career and migration?

2 BACKGROUND

2.1 About Ethiopia

Lying on the Horn of Africa, surrounded by Kenya, Somalia, Djibouti, Eritrea and Sudan makes Ethiopia the most populous landlocked country in the world. It has a population of almost 92 million people, 83 % of which live in rural areas [1].

The history of the Federal Democratic Republic of Ethiopia proudly brings stories about never being part of “the African scramble” as the only African country to defeat a European colonial power. It was the first independent African member of the 20th-century League of Nations and the UN.

Tourists know Ethiopia for being the origin of the coffee bean and Lucy, a skeleton estimated to be 3,2 million years old and the origin of the specie Homo Sapiens. Ethiopia is also a multicultural land with over 80 ethnic groups with many different languages, the biggest ones Amharic and Oromo.

Ethiopia is a developing country. It has a GDP per capita of \$ 1300, which makes it number 211 on a ranking over 229 countries of the world. Population rate below poverty line is 39 % [2].

The economic situation has a big impact on the ability to deliver health services to the population. Ethiopia has a physician density of 0.025/1000 population, which makes it one of the countries with the lowest physician density in the world [3]. Drinking water sources are scarce in rural areas (39.4%) as well as sanitation facility access (19.4%) [2]. Main health problems are communicable diseases, which normally are easily treated and prevented. We see the results of this situation in high numbers of infant mortality rate (47/1000 live births), maternal mortality rate (350/100000 live births), short life expectancy at birth (63.64 years) and high numbers of deaths of HIV/AIDS [4]. More than 90% of child deaths are due to preventable conditions like pneumonia, diarrhea, malaria, neonatal problems, malnutrition and HIV/AIDS, and often a combination of these conditions [5].

2.2 Jimma university

Jimma is the biggest city in southwestern Ethiopia, with around 207000 inhabitants (2012).

Jimma University (JU) is a public higher educational institution established in December 1999 by the fusion of Jimma College of Agriculture, and Jimma Institute of Health Sciences.

Department of Medicine and Health Officers has a total of 1071 Medicine and 610 Health Officer students [6].

Community-Based Education (CBE)

JU is Ethiopia's first Innovative Community Oriented Education Institution of higher learning.

By letting the students get in contact with the needs of the community throughout the studies, the hopes are to develop skills in problem identification and team work and possibly positive attitudes towards serving the society.

2.3 Addis Ababa – St Paul's Hospital Millennium Medical College

St Paul's hospital is the second largest public hospital in the nation. The hospital was established to serve the economically under privileged population, providing services free of charge to about 75% of its patients [7]. In 2007 it became a medical college and 511 medical students now attend the college.

Similar to the students in Jimma, at St Paul's college in Addis Ababa they also get in contact with the needs of the community in their six weeks of rural community attachment.

At St Paul's medical college they also have a focus on the recruitment of their undergraduates of medicine, where female students as well as students from emerging regions are prioritized. This also shows in their recruitment statistics, where 39,8 % of their 511 medical students are female [8].

2.4 Health Sector Development Program

The implementation of Health Sector Development Programs (HSDP) in 1994 by the Ministry of Health has had some important effects on the health situation in Ethiopia.

The amount of health posts, health centers and hospitals have increased substantially (table 1). To meet health demands on a district level there has been a focus on training of community and Mid-Level Health Professionals (MLHPs) such as Health Extension Workers and Health Officers. However, regarding medical doctors there is still a big gap to fill (table 2).

Table 1: Trends of Health Facility Construction

Facility	HSDP I (1996/7)	HSDP II (2003/2004)	HSDP III (2010)
HP	76	2,899	14,416
HC	412	519	2689
Hospitals	87	126	195

HP: Health Posts

HC: Health Centers

HSDP: Health Sector Development Program

- Federal Democratic Republic of Ethiopia Ministry of Health 2010

Table 2: The total number of available Human Resource for Health during the successive HSDP phases

HR Category	End HSDP I 1994		HSDP II End 1997		HSDP III	
	Total No	Ratio to population	Total No	Ratio to population	Total No	Ratio to Population
All physicians	1,888	1:35,603	1,996	1:35,604	2152	1: 34,986
Specialist	652	1:103,098	775	1:91,698	1151	1:62,783
General practitioners	1,236	1: 54,385	1221	1:58,203	1001	1:76,302
Public health officers	484	1:138,884	683	1:104,050	3,760	1: 20,638
Nurses Bsc. & Diploma (except midwives)	11,976	1:5,613	14,270	1: 4,980	20109	1: 4,895
Midwives (Senior)	862	1:77,981	1,274	1: 55,782	1379	1: 57,354
Pharmacists	118	1:569,661	172	1:413,174	661	1: 117,397
Pharmacy Tech.	793	1: 84,767	1171	1: 60,688	3013	1: 25,755
Environmental HW	971	1: 69,228	1169	1: 60,792	1,819	1: 42,660
Laboratory technicians & technologists	1,695	1:39,657	2,403	1: 29,574	2,989	1: 25,961
Health Extension Workers	-	-	2,737	1: 23,775	31,831	1: 2,437

- Federal Democratic Republic of Ethiopia Ministry of Health 2010

One of the aims for HSDP-IV (2010/11 – 2014/15) is to increase the amount of physician to population ratio to 1:5,500 [5]. Initiatives to succeed in this are expansion and establishment of new medical training programs, transformation of hospitals into medical training colleges and development of staff retention mechanisms. An increase in annual medical student intake from 250 to 1000 was made in 2009 [9].

3 ABOUT THE TOPIC

3.1 Definitions

Health workers are people engaged in actions whose primary intent is to enhance health. These include people who provide health services – such as doctors, nurses, midwives, pharmacists and laboratory technicians (about 2/3), and management and support workers (1/3).

Health migration is a well-known phenomenon where health workers migrate from rural to urban regions within a country, from developing to developed countries or from public to private sector.

3.2 Reasons for migration / push and pull factors

The reasons for migration can be summarized into so called push and pull factors. Push factors are the ones driving a person *from* a country/region/public sector, and the pull factors are the ones driving a person *to* a specific country/region/private sector.

Push factors can be economic, heavy workload, lack of employment rights, lack of professional fulfillment, political corruption, safety etc. Pull factors are promises of improvements in workplace, economy, social environment or family factors. A meta-ethnographic synthesis from 2014 [10] has summarized the reasons for health migration from Africa as follows:

1. Struggle to achieve unmet material expectations of self, family and society.
2. Strain and emotion, interpersonal discord, and insecurity in workplace.
3. Fear from threats to personal or family safety, in and out of workplace.
4. Absence of adequate professional support and development.
5. Desire for professional prestige and respect.
6. Conviction that hopes and goals for the future will be fulfilled overseas.

3.3 Health migration worldwide

Globalization and a freer labor market have made migration easier. In high income countries the health demands are increasing as a result of not enough locally trained health workers in combination with an older population and more and more chronic ill patients. The needs for more health workers in developed countries, and the willingness of trained health workers from developing countries to fill in the gaps, make health migration lucrative for health systems in already rich parts of the world.

To fill the gaps in health coverage in developed countries, active recruitment of health workers from developing countries has been used. Strategies involve advertising in national newspapers and journals, text-messaging to health workers, personal emails and internet sites, and recruitment workshops. Offers of employment are accompanied by legal assistance with immigration, guaranteed earnings, and moving expenses [11].

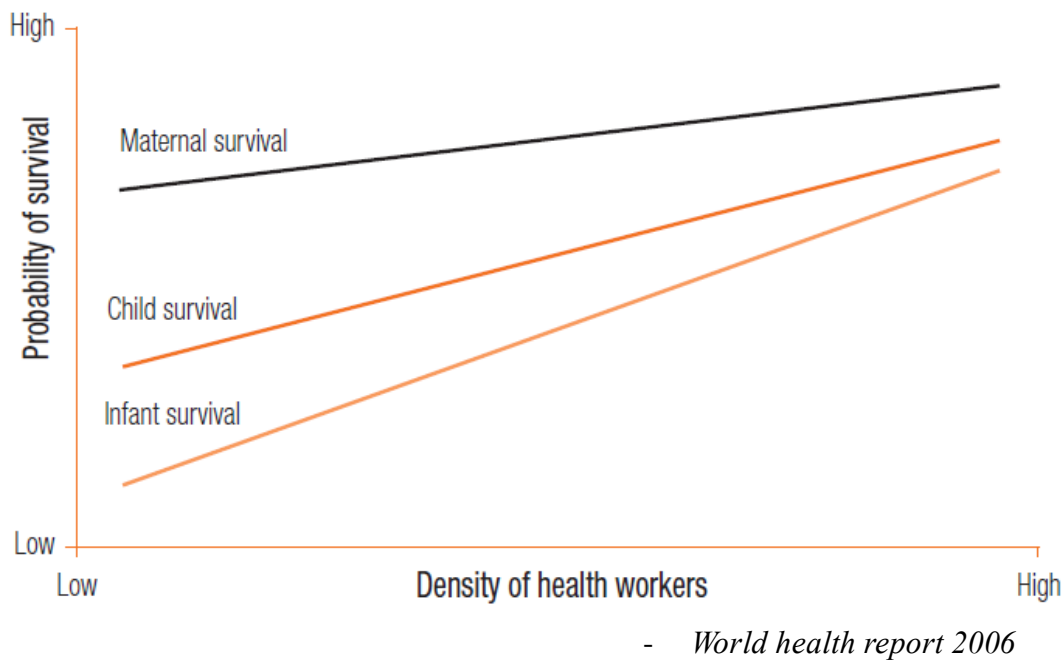
Measuring health workforce migration has been proven difficult. Lack of reliable registration data in both sending and receiving countries, complex migration pathways, and the definition of a migrating health worker's status in the receiving country are some of the obstacles. Some attempts have been made, among them the OECD study in 2007 which reviewed in- and outflow of doctors and nurses for OECD countries. The results showed that almost all European OECD countries rely on the recruitment from other countries to fill their shortages [12]. Similar data have been found in Canada where 22,3% of practicing doctors in 2007 were internationally-educated [13].

There is a great shortage of Health Care Workers (HCW) in a big part of the world. According to WHO's World Health Report (2006) there are currently 57 countries with critical shortages of health personnel (less than 23 HCW per 10000 population). It is equivalent to a deficit of 2,4 million doctors, nurses and midwives worldwide.

The shortages are greatest in the African region, which with only 3 percent of the worlds' HCW has as much as 24 % of the global disease burden. In comparison, North America and Europe combined have 65 % of the HCW in the world working there with only 20 % of the global disease burden [14].

The consequences are clearly shown by the inverse relation between health care worker density and mortality:

Figure 1: Health Care Workers save lives!



3.4 WHO- Code of practice on the International Recruitment of Health Personnel

An increasing flow of health workers from poorer to richer countries naturally has a negative impact on the health situation in the source countries. As a response to an increasing necessity of control of the health migration, the WHO adopted a Global Code of Practice on the 63rd World Health Assembly in 2010 [15]. The active recruitment and the resulting health migration was considered to have become one of the greatest threats to global health in the 21st century.

The aims of the Code can be summarized as follows:

- Establish voluntary ethical frameworks for recruitment of health workers.
- Strengthen health systems in low-income source countries where receiving countries should provide financial and technical support.
- Create a net positive effect by migration where receiving countries should provide training, skill transfer and promote circular migration.

- Prioritize development of domestic health personnel in receiving countries, decreasing the need for recruitment of health workers educated abroad.
- Develop regulatory framework for health worker retention and support capacity building for health information systems and continuous monitoring and evaluation of the health labor market.

Although the Code is voluntary and not legally binding, it is the first globally-applicable regulatory framework for international health workforce recruitment.

3.5 Health migration Ethiopia

The consequences from severe health worker shortages in Ethiopia have been described previously under “2.1 About Ethiopia”. It is very difficult to find information about the percentages or numbers of health workers leaving Ethiopia, one can only speculate. A study of medical students in Addis Ababa in 2012 showed that around 53% wanted to emigrate following graduation, particularly to the United States and Europe. There were significant differences between male and female students on their wishes to emigrate, where male students were more likely to desire to emigrate. Only around 30 % preferred working in rural areas upon graduation, and those with rural background were more likely to do so than those with urban background [16]. In 2009/2010, 43 % of the physicians in the country worked in Addis Ababa, where only 3,7 % of the population live [17].

From 1987 to 2006, about 73 % of medical doctors in Ethiopia left the public sector to either migrate overseas or join local NGOs/private sector [18]. The same study showed that in direct interviews with 76 public hospitals outside Addis Ababa there was no specialist in 36 hospitals and no doctor at all in 3 of them in December 2006.

Educating medical doctors is an expensive matter for a state, and should be viewed as an investment in future health care in a country. Where there is great emigration of doctors, it is less of an investment and more of a drain of both economic and human resources. An estimated 29 898 \$ is lost in educational costs of every single medical student migrating from Ethiopia [19].

In 2005, Ethiopia was one of the countries with the highest physician emigration in sub-Saharan Africa. There were at that point 1,971 Ethiopian physicians working in the country

and 359 working in the United States, Canada, United Kingdom or Australia [20]. Similar results were found in 2007 where Ethiopia was ranked among the top 4 countries in Africa with highest emigration fraction to the USA [21].

4 ABOUT THE PROJECT

As a part of an expanding cooperation between Oslo and Jimma University, this project has been possible to realize. Thanks to welcoming arms at Jimma University, I was able to follow some students at practice and especially understand how health resources are distributed and where they are not as much. As a response to my experiences in Ethiopia I got inspired to write about what is causing this situation to continue.

Physicians are essential for a health system to function and low physician density is one of the big causes of health insufficiency in Ethiopia. What are the plans for future doctors in Ethiopia today? Will they be a part of improving the health situation in order to reach the Millennium Development Goals?

I figured thoughts from doctors to be relevant to this question, and for that reason I decided to make a questionnaire for students of medicine in their last year.

Objectives:

1. Understand thoughts and plans among Ethiopian medicine students -before, during and after the studies.
2. Put the results in context with the current health situation in Ethiopia with low physician density.

Specific questions:

- Are Ethiopian students content with their internships? - Are they prepared to work in a hospital and in Primary Health Care? - Are they comfortable working in teams?
- What makes them choose medicine? Are the motives any different between sexes, or students with different backgrounds?
- What are the future expectations of students soon to graduate? Where do they want to work? How many have plans of leaving the country? What factors are associated with staying?

5 METHODS

5.1 Study design

I decided to make a cross-sectional study using a questionnaire of 2 pages. A total of 39 questions were divided into 5 subgroups:

- Internship/teamwork
- Important factors of future workplace
- Motivation for choosing to study medicine
- Future aspirations
- Background

In the first 32 questions I used balanced Likert scales with 4 options, and the last 7 questions about background were tick-boxed (Appendix 1).

5.2 Study population

I decided to focus on the medicine students in their last year of studies, so called C2-students (students in their 2nd clinical year). The reason for that is that they then have had most of their relevant practice, and in Jimma they have also completed their Community Based Education. In total 117 completed surveys were collected. I have results from 94 students at Jimma University (43 graduated in 2014, and 51 graduated in 2013), and the remaining 23 forms are from St Paul's hospital millennium medical college in Addis Ababa (all graduated in 2014).

5.3 Collecting the data

As I didn't have the survey ready when I went to Ethiopia in January 2013, I relied on the contacts I made there during my stay. The survey, when ready in May 2013, was sent by mail. 51 surveys were collected from students graduating in Jimma 2013, and another 43 surveys the following year. In Addis Ababa 23 surveys were collected in 2014. All the responses were sent back to me by mail.

5.4 Data analysis

All the data was plotted in and analyzed in IBM SPSS Statistics 20. Frequency analysis was used to measure frequencies of answers on all variables. Since all students didn't answer all questions, the percentages on one specific question are of the total of answers on that particular question. Crosstabs were used to find associations between variables, and the results are here taken from students answering both questions. Pearson Chi-square was used to test for significance between variables, with significance level set at p-value less than 0,05. To make it easier to see relations between variables, the answers on the 4 options of the Likert scales were sometimes fused into 2 – one representing positive attitudes (important/agree/likely), and the other representing negative attitudes (not important/disagree/not likely).

5.5 Ethics

Before sending the survey, it had ethical clearance from Norwegian Social Science Data Services (NSD). As a small introduction of the survey I also informed the students about the anonymity and purpose of the survey (Appendix 1).

6 RESULTS

In Appendix 2 frequencies on all variables are shown.

6.1 Background

The bigger part of the samples was collected at Jimma University (94 of 117). Of the 91 students who responded to the question of gender at Jimma University, 70 were male (76,9%) and 21 were female students (23,1%). The questionnaires collected in Addis Ababa had a gender distribution of 13 male (56,5%) and 10 female students (43,5%).

Table 3: Gender distribution among participating students

	Male students	Female students	Missing answers	Total
Jimma	70	21	3	94
Addis Ababa	13	10	0	23
Total	83	31	3	117

9/10 of the students were between 20 and 25 years, and the rest from 26 to 30 years. The majority of the students have urban background (69,5%). Of the 105 students who answered the question, 32 students had rural background and 30 of them studied in Jimma.

6.2 Internship/teamwork

Overall, the students are content with their internship, and feel they have had enough practice to feel comfortable in their role as a doctor. 96,6 % agree or strongly agree that their internship was relevant for future work. 87,9 % respectively 83,3 % feel they had enough practice to feel comfortable working in hospital and in primary health care.

92,9 % are comfortable working in teams and 81,6 % feel that the program has focused enough on team building.

Three quarters had a good relation to their supervisors, although only 63,8 % felt it was easy to ask their supervisors for help. Female students had better relation to their supervisors than male students and felt it was easier asking them for help. Older students had worse relation to their supervisors than younger students. Students at St Paul's hospital in Addis Ababa felt it was easier to ask their supervisors for help, compared to those studying at Jimma University.

Table 4: Relationship to supervisors

I had a good relation to my supervisors				
		Agree	Disagree	P-value
Gender	Male	57	24	0,027
	Female	28	3	
Age	20-25 years	75	13	0,000
	26-30 years	10	13	
Location of studies	Jimma	66	26	0,133
	Addis Ababa	20	3	
It was easy to ask my supervisors for help				
		Agree	Disagree	P-value
Gender	Male	45	37	0,001
	Female	27	4	
Age	20-25 years	64	25	0,001
	26-30 years	8	15	
Location of studies	Jimma	55	38	0,036
	Addis Ababa	19	4	

6.3 Motivations to study medicine

The most important motivations to study medicine were future career possibilities (105 of 115 respondents answered it to be an important or a very important factor), economy (97 of 116) and helping the community (97 of 116).

Some differences between male and female students were found. 96,8% of female students thought helping the community was an important or very important factor when deciding to study medicine, compared to 79,5% of male students (p-value 0,025). 60,2% of male students and 38,7 % of female students thought economy was a very important factor when choosing medicine.

6.4 Where to work?

When choosing where to work high salary, career possibilities and field of interest seem to be the factors of greatest importance. Almost all of the respondents put these three factors as important or very important (high salary: 96,5%, career possibilities: 95,5% and field of interest: 93,0%).

Working hours and location are especially important among female students compared to male students (p-value: 0,006 and 0,005). Career possibilities and high salary are important to both sexes.

Table 5: Important factors when choosing where to work

		Gender			Age		
		Male	Female	P-value	20-25 years	26-30 years	P-value
Working hours	Important	55	29	0,006	72	12	0,010
	Not important	25	2		17	10	
Career possibilities	Important	77	29	0,538	83	22	0,959
	Not important	3	2		4	1	
High salary	Important	80	29	0,303	85	23	0,300
	Not important	2	2		4	0	
Location	Important	59	30	0,005	78	11	0,000
	Not important	22	1		10	12	
Localneeds	Important	63	28	0,128	80	11	0,000
	Not important	18	3		8	12	

Older students (26-30 years) were less interested in working hours, local needs or location when choosing where to work, compared to younger students (20-25 years). High salary (23 of 23 students) and career possibilities (22 of 23 students) were important in the same group of students.

There were no significant differences between students of rural and urban backgrounds on their preferences where to work.

6.5 Future expectations

Nine out of ten students think it is likely or very likely that they work in a hospital in 5 years, and 8 out of ten in 10 years. Almost all of the students studying in Addis Ababa expect to work in a hospital in this period of time (100% after 5 years and 95,5% in ten years).

About ¼ (24,3%) can see it likely to work in primary health care within the next 5 years. The percentage is then reduced to about 12,5% after 10 years. Almost all of them find it equally likely to work in a hospital though (12 out of 14 students).

Students in Addis Ababa thought it more likely to work in primary health care within 5 years compared to the students in Jimma (p-value 0.000).

Female students and students with an urban background also seem to be more likely to work in primary health care, even though the numbers weren't statistically significant in this study. Of the female students, 35,5 % after 5 years, respectively 20,0 % after 10 years see it likely to work in primary health care. The same numbers of the students with urban background are 31,4 % after 5 years and 15,5 % after 10 years.

The students with motivation to help the community were more likely to work in primary health care (p-value: 0,027).

Table 6: Factors related to working in Primary Health Care

Work in Primary Health Care in 5 years' time						
		Very likely	Likely	Not likely	Not likely at all	P-value
Gender	Male	3	13	25	39	0,133
	Female	5	6	8	12	
Age	20-25 years	8	15	29	35	0,078
	26-30 years	0	4	4	16	
Location of studies	Jimma	4	14	21	49	0,000
	Addis Ababa	4	5	12	2	
Background	Urban	8	14	19	29	0,159
	Rural	0	5	13	14	
Help the community	Important	8	19	29	38	0,027
	Not important	0	0	4	13	

About three out of four students find it likely or very likely that they will work in private sector (74,6 % in 5 years and 73,2 % in 10 years). The students for which location and local needs were important factors when choosing where to work were more likely to work in private sector (p-value: 0,000 and 0,042).

Table 7 presents some factors related to working abroad. 59,4 % (66 of 111 students) answered it to be likely or very likely that they work abroad in 5 years. In 10 years that number is up to 73,4 % (80 of 109 students). Female students seem to be slightly less likely to emigrate (48,4 %, and 66,7 %), although the numbers aren't statistically significant (p-value 0,139). Older students were more likely to work abroad than younger students in 10 years' time (p-value 0,027).

Of those who thought it not important to help the community as a motivation to study medicine (17 students), 100% thought it likely that they worked abroad in both 5 and 10 years' time.

The students who reported not to have a good relation to their supervisors were more likely to work abroad within the next five years (p-value: 0,005). Those who referred it not to be easy to ask their supervisors for help were also related to working abroad in both 5 and 10 years (p-value: 0,000 and 0,002).

Table 7: Factors related to working abroad

Work abroad in 5 years				
		Likely	Not likely	P-value
Gender	Male	51	29	0,139
	Female	15	16	
Age	20-25 years	49	38	0,251
	26-30 years	16	7	
Background	Urban	44	29	0,338
	Rural	15	15	
Good relation to supervisors	Agree	44	40	0,005
	Disagree	21	4	
Easy to ask supervisors for help	Agree	32	39	0,000
	Disagree	33	6	
Helping the community	Important	49	45	0,000
	Not important	17	0	
Work abroad in 10 years				
		Likely	Not likely	P-value
Gender	Male	60	19	0,327
	Female	20	10	
Age	20-25 years	58	27	0,027
	26-30 years	21	2	
Background	Urban	50	21	0,768
	Rural	22	8	
Good relation to supervisors	Agree	58	23	0,355
	Disagree	21	5	
Easy to ask supervisors for help	Agree	43	25	0,002
	Disagree	36	4	
Helping the community	Important	63	29	0,007
	Not important	17	0	

7 STRENGTH AND WEAKNESS OF THE INVESTIGATION

The study population of last year students soon to graduate hopefully gives a good idea about how doctors in the beginning of their career think and act. The anonymity of the survey was also important to ensure truthful answers.

Likert scale on all questions made it difficult to prioritize the different variables as more important than others. It would have been interesting to know which factors were most important for the students, rather than just to know that all factors were important.

Gender distribution: Only 27,2 % of the students were female, and the gender distribution between the two Universities were also very different. At JU only 23,1 % were female, whereas at St Paul's Hospital female students constituted 43,5 % of the answering students.

Background distribution: 30,5 % of the students had rural background, and almost all with rural background (30 of 32) studied at JU. Answers depending on background may be confounded with answers depending on their place of studies.

Since the study was made in Ethiopia, and not distributed by me, it is naturally less controlled than if I would have been there myself distributing the survey. I relied on others to distribute and recollect the questionnaire. Were the circumstances for the different groups of students the same, when filling out the questionnaire? Did they get enough time? Did they sit far enough from each other to not be influenced by the answers from the student sitting next to him or her?

Another weakness of the investigation was the time elapsed between the groups of students answering the survey. The first group was collected in June 2013 at the very end of their studies, and the other in February 2014, with almost half a year to go before finishing their studies.

8 DISCUSSION

Medicine students and migration

A few years ago, the Ministry of Health in Ethiopia decided to increase the yearly intake of students to medical schools in the country from 250 to 1000 per year [5]. St Paul's Hospital Millennium College was one of the schools enrolled in this strategy. The first classes are now graduating and we might begin to notice an increase in graduates. Even so, this study shows that almost 75 % of the students have intentions of leaving the country within 10 years. 59,4 % thought it likely to leave within 5 years. Similar numbers were found in a study of students in Addis Ababa in 2012 where 53 % wanted to leave following graduation [16]. The only factor related to staying in the study from 2012 was gender, where female students were less likely to emigrate. Also in this study the percentage of students staying were higher among female students, but not statistically significant.

The greater part of all students considered all the factors asked for as important to their choice of studying medicine, especially economy and career possibilities. That is also clear when asked which factors are of importance when choosing where to work, where economy and career possibilities were rated highest of all, consistent with other studies [22, 23]. A study from Ghana showed that when raising salaries for physicians in the home country in the so called ADHA-project 1999, the emigration was reduced with around 10 % the following 6 years before they stopped the project [23].

The students with motivation to help the community before starting the studies were more likely to stay in the country the next 5- and 10 years. Recruitment at St Paul's Hospital Millennium College in Addis Ababa already focuses on uptake of more female students and students from emerging areas in the country. In addition to that, this study shows that recruitment of students with more altruistic reasons for studying medicine might lead to an increase in graduates staying in the country. This was also suggested in the study of medicine students in Addis Ababa in 2012 [16].

As much as 25 % of the students did not have good relation to their supervisors and 35 % found it difficult to ask their supervisors for help. These students were also more likely to work abroad than those with good relations to their supervisors. 1/3 of medical students in Addis Ababa in 2012 were dissatisfied with studying medicine and felt the standard of

medical education was below their expectation [16]. Good learning environment and focus on good relations between students and supervisors may change some intentions of practice abroad after graduation, in addition to the better learning exchange that naturally comes from it.

On the subject of internal migration, 43 % of the physicians in the country works in Addis Ababa where only 3,7 % of the population live [17]. In 2012 it was shown that only around 30 % of students in Addis Ababa intended to initiate their practice in rural areas [16]. This study didn't examine the matter whether the students prefer to work in urban or rural areas, but the vast majority of students thought it likely to work in private sector. The public sector already suffers from critical shortages of physicians [18], especially in rural areas where working conditions are poor and there is lack of resources. The result is a malfunctioning public sector in areas with the poorest population who cannot afford higher private sector costs.

Where lays the responsibility?

It is obvious that migration of physicians in Ethiopia is a problem too big for a developing country to handle alone. The efforts that are being made towards reaching the WHO Developing Goals on health are big. Even so, Ethiopia would need to double their GDP per capita of health expenses to have the slightest chance of reaching them [5]. Financial resources in investments in education as well as human capital of ambitious, gifted people are lost from Ethiopia directly to already well developed health care systems in other parts of the world. There is little the health care system in Ethiopia can do to compete with high salaries and equipment in wealthy nations.

The Code of Practice from 2010 is as mentioned before, the first globally-applicable regulation strategy in terms of reducing negative effects of health migration between countries. An evaluation of the impact of the Code was made 8-10 months after the adoption was made in 2011. It included 42 individuals in Australia, Canada, UK and USA that were directly involved in regulating, setting policies about, and/or practicing active recruitment of health workers from developing countries. There it was stated that less than half were aware of the Code, and 83 % of respondents believed that non-binding codes have little or no effects at all on decisions in their country [24].

Should active recruitment of health workers from sub-Saharan Africa be viewed as a crime, as suggested in an article by E. Mills in 2008 [25]? Would the WHO Code of Practice then be of more use? So far, the Code only gives suggestions on how to pay back some of the losses to delivering countries. Maybe that is only a first step to something more binding, and ethically more just? Active recruitment of health personnel from developing countries with critical shortages of health workers is directly causing health insufficiency and could be viewed as violation of human rights [26].

Even so, the matter is way more complicated than just punishing those who actively recruit. The individual freedom of movement and of choosing his or her own future should be taken in consideration. Local improvements of salaries, resources, working hours and workload should be of those dimensions that would make people want to choose to stay. Especially salary and possibilities to development in their roles as doctors seem to be of great importance, in this study as well as others [22, 23]. To achieve this, national initiatives should be accompanied by the support from the rest of the global health society.

9 CONCLUSION

Ethiopia is on a good way to fill their basic health demands, but shortages of physicians still remain critical, especially in rural areas.

Two-thirds of the students saw it likely or very likely to work abroad within 5 years, and as much as 73,4 % within 10 years. Factors related to staying with statistical relevance in this study were helping the community as a motivation to study medicine, young age, and good relations to their supervisors. Gender also seems to be a relevant factor, and has been shown statistically significant in other studies [16].

As a summary, the reasons for emigrating are complex and probably a sum of many different factors. Attitudes before studying, experiences during studies, personal preferences on work location, as well as low payment and lack of career possibilities are all examples of elements forming the decision to leave the country.

To make people choose to stay in the country, local improvements of sufficient dimensions have to be made, and the ones of most importance in this study, as well as others [22, 23, 27], seem to be higher salaries and future career possibilities. Focus on recruitment of students to medical school with genuine interest in helping the society and improvements in relations between students and supervisors may also generate more graduates motivated to serve the country.

In a developing country as Ethiopia, with not enough resources for basic health care, it is difficult to find the funding for specialized health care. To be able to make good enough local improvements to retain own workforce, lost resources in educational costs and human health capital from emigrating physicians should be repaid by the developed part of the world. So far, WHO's International Code of Practice on recruitment of health personnel has had little effect on that matter.

Maybe it is time for a mandatory Code of Practice?

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Appendix 1 - Survey

Introduction

My name is Sandra Johansson and I am a medical student in my fourth year at Oslo University, Norway. I am conducting this survey as a part of my student project, and the data collected will be used for this purpose only. It is anonymous and will only take a couple of minutes to complete. Please mark only one box per answer.

Internship / Teamwork	Strongly disagree	Disagree	Agree	Strongly Agree
My internship was relevant for future work as a doctor				
I had a good relation to my supervisors				
It was easy to ask my supervisors for help when needed				
I had enough practice to feel confident working in a hospital				
I had enough practice to feel confident working in primary health care				
I am comfortable working in teams				
I am comfortable taking instructions from other health workers with greater experience in the field				
I am good at delegating tasks I don't have capacity to do myself				
The program has focused enough on team building				

When deciding where to work, how important is:	Not important at all	Not very important	Important	Very important
High salary?				
Career possibilities?				
Field of interest?				
Working hours?				
Location?				
Local needs?				
How important were following factors to you, when you decided to study medicine?				
Future career possibilities				
Economy				
Expectations from environment				
Personal interest				
Helping the community				

In 5 years time, how likely is it that you:	Not likely at all	Not very likely	Likely	Very likely
work in a hospital?				
work in primary health care?				
work in a private clinic?				
work abroad?				
are specialized/in specialization?				
work in your field of interest?				
In 10 years time, how likely is it that you:				
work in a hospital?				
work in primary health care?				
work in a private clinic?				
work abroad?				
are specialized/in specialization?				
work in your field of interest?				

BACKGROUND

Where do you study?	Oslo	Jimma	Addis Abeba	
Gender:	Male	Female		
Age:	20-25	26-30	31-35	>35
How did you grow up?	Urban	Rural		
Have you studied at the university/college before?	Yes		No	
How many years did your mother go to school?	0	1-6	7-12	
	13-16	>17		
How many years did your father go to school?	0	1-6	7-12	
	13-16	>17		

Appendix 2 – Results

Frequencies of answers from students and the valid percentages in parenthesis.

Internship / Teamwork	Strongly disagree	Disagree	Agree	Strongly Agree
My internship was relevant for future work as a doctor	2 (1,7)	2 (1,7)	19 (16,4)	93 (80,2)
I had a good relation to my supervisors	7 (6,1)	22 (19,1)	53 (46,1)	33 (28,7)
It was easy to ask my supervisors for help when needed	10 (8,6)	32 (27,6)	54 (46,6)	20 (17,2)
I had enough practice to feel confident working in a hospital	2 (1,7)	12 (10,3)	60 (51,7)	42 (36,2)
I had enough practice to feel confident working in primary health care	16 (14,0)	3 (2,6)	43 (37,7)	52 (45,6)
I am comfortable working in teams	3 (2,7)	5 (4,5)	62 (55,4)	42 (37,5)
I am comfortable taking instructions from other health workers with greater experience in the field	4 (3,5)	11 (9,6)	45 (39,1)	55 (47,8)
I am good at delegating tasks I don't have capacity to do myself	7 (6,2)	23 (20,4)	48 (42,5)	35 (31,0)
The program has focused enough on team building	7 (6,1)	14 (12,3)	66 (57,9)	27 (23,7)

When deciding where to work, how important is:	Not important at all	Not very important	Important	Very important
High salary?	0	4 (3,5)	36 (31,6)	74 (64,9)
Career possibilities?	0	5 (4,5)	40 (35,7)	67 (59,8)
Field of interest?	1 (0,9)	7 (6,1)	35 (30,7)	71 (62,3)
Working hours?	3 (2,7)	24 (21,4)	50 (44,6)	35 (31,3)
Location?	2 (1,8)	21 (18,6)	45 (39,8)	45 (39,8)
Local needs?	1 (0,9)	20 (17,7)	56 (49,6)	36 (31,9)
How important were following factors to you, when you decided to study medicine?				
Future career possibilities	1 (0,9)	9 (7,7)	45 (39,1)	60 (52,2)
Economy	5 (4,3)	14 (12,1)	33 (28,4)	64 (55,2)
Expectations from environment	5 (4,4)	21 (18,4)	40 (35,1)	48 (42,1)
Personal interest	5 (4,3)	15 (13,0)	35 (30,4)	60 (52,2)
Helping the community	3 (2,6)	16 (13,8)	34 (29,3)	63 (54,3)

In 5 years time, how likely is it that you:	Not likely at all	Not very likely	Likely	Very likely
work in a hospital?	2 (1,8)	8 (7,1)	47 (41,6)	56 (49,6)
work in primary health care?	51 (45,9)	33 (29,7)	19 (17,1)	8 (7,2)
work in a private clinic?	9 (7,9)	20 (17,5)	54 (47,4)	31 (27,2)
work abroad?	17 (15,3)	28 (25,2)	33 (29,7)	33 (29,7)
are specialized/in specialization?	3 (2,7)	7 (6,2)	48 (42,5)	55 (48,7)
work in your field of interest?	2 (1,8)	7 (6,2)	43 (38,1)	61 (54,0)
In 10 years time, how likely is it that you:				
work in a hospital?	8 (7,1)	13 (11,6)	39 (34,8)	52 (46,4)
work in primary health care?	66 (58,9)	32 (28,6)	11 (9,8)	3 (2,7)
work in a private clinic?	11 (9,8)	19 (17,0)	39 (34,8)	43 (38,4)
work abroad?	11 (10,1)	18 (16,5)	44 (40,4)	36 (33,0)
are specialized/in specialization?	3 (2,7)	9 (8,0)	26 (23,2)	74 (66,1)
work in your field of interest?	0	7 (6,3)	26 (23,4)	78 (70,3)
BACKGROUND				
Where do you study?	Jimma: 94 (80,3)		Addis Abeba: 23 (19,7)	
Gender:	Male: 83 (72,8)		Female: 31 (27,2)	
Age:	20-25: 89 (78,8)		26-30: 24 (21,2)	
How did you grow up?	Urban: 73 (69,5)		Rural: 32 (30,5)	
Have you studied at the university/college before?	Yes: 11 (9,8)		No:101 (90,2)	
How many years did your mother go to school?	0: 18 (16,2)		1-6: 32 (28,8)	
	7-12: 27 (24,3)		13-16: 23 (20,7)	
	>17: 11 (9,9)			
How many years did your father go to school?	0: 21 (18,6)		1-6: 33 (29,2)	
	7-12: 17 (15,0)		13-16: 22 (19,5)	
	>17: 20 (17,7)			