

# TACKLING THE GRASSROOTS: APPRAISAL OF CAREER CHOICE AND PROSPECTS OF THE STUDENTS AT A MEDICAL SCHOOL IN TANZANIA

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## ABSTRACT

Tanzania has one of the world's worst doctor-to-population ratio. Ironically, the number of medical graduates who do not practice medicine remains very high. Lack of interest and commitment of the young doctors may greatly contribute to the huge number of non-practicing doctors. We assessed medical students' career views from interest and choice during childhood, their current learning motivations, future career expectations and interest to work in the academia. One hundred and ninety-five students halfway their first year of medical school complete a self-administered questionnaire with a verbal consent sought from each respondent. Four in every ten students had made their decision to become a doctor before or during primary school. Over 5 out of 10 students made their choice during secondary school. Majority chose medicine due to altruistic and humanity reasons and would prefer work in clinical practice in the hospital. Very few would prefer a faculty job. Knowing about the human body, controlling and managing diseases are the main motivating factors. 'Too much to learn' and 'tight schedules' were the most aspect and deterrent factors during the medical school and the medical profession in general. Attaining a higher academic honour such as a professorship would not inspire students into the academia. Majority of students make their medical career choice early in life driven by altruistic reasons. Poor learning environments disenchant them from the passion for the career. More studies are needed to assess and improve the training in medicine.

**Keywords:** Medical students, motivation, career prospects, Tanzania

## INTRODUCTION

Tanzania has one of the least doctor-to-patient ratio of over 1:25,000 which is way below the currently WHO-recommended minimum ratio of 1:10,000 for lower income countries. Only 42% of Tanzania medical graduates work in clinical facilities while 39.6% do not practice at all

(Sikika, 2013). This huge number of medical graduates who choose not to practice medicine hampers the efforts to raise the health workforce to the required levels. While the major reason may be the inability of the public sector to absorb all medical graduates, lack of interest and

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commitment of the young doctors may equally account to the mismatch. Reports of doctors who abandon the medical practicing are commonplace. In Malawi, only about 43% of graduates in medicine work in the public sectors and 40% work abroad although the trends seem to be slightly but positively changing (Zijlstra and Broadhead, 2007; Mendeville et al., 2012). In the UK, for example, close to 8% of young medical graduates leave the profession either temporarily or permanently for several reasons including factors tethered to unfavorable experiences during learning and poor preparations (Beedham, 1996). Studies have associated factors such as poor remuneration, the length of training, facility inadequacy and difficult working schedules to the poor motivation (Paice, 1997). Thus the internal brain waste because of doctors who abandon medicine is enormous, worrisome and unhealthy. Medical schools and especially biomedical sciences specialties are hit with understaffing (Mullan et al., 2011; Manyama et al., 2013), which, in the long run, will further exacerbate the severe shortage of the health workforce and will widen the knowledge and competency gaps due to below-per output of the new medical graduates both in quality and quantity. Efforts to salvage the severe shortage of doctors should start right at the selection of the candidates at enrolment into the medical school coupled with proper training in order become good future doctors

[Leon and Kolstad, 2010; Ferrinho et al., 2011; Russa and Mligiliche, 2014).

Early interest and motivation during the career choice are strong predictors of the future successfulness thereof particularly to medicine which is more of a vocation than an ordinary job (Millan et al., 2005; Leon and Kolstad, 2010; Galton, 2015). Recent views are pointing at the watered down calling in medicine and questions about the vocation in the medical profession are emerging [Astrow, 2013; Galton, 2015]. For example, while medicine is supposed to be a calling, studies have shown that the choice to join the medical school and future medical career may be done by proxies including parents, guardians and teachers [(Ausman et al., 2014)]. This is potentially detrimental to one's future career motivations, growth and successfulness. There are few studies in Africa, and barely none in the East African region, that investigates the motivation and vocation of the students as to when they make their choice of the medical career. The present study aimed at investigating how and when do the medical students choose the career in medicine. And in the wake of the persistent understaffing of medical schools in Africa, we also present findings on students prospects in choosing the faculty jobs in the medical schools particularly the biomedical (basic medical) science teaching positions.

## MATERIAL AND METHODS

One hundred and ninety five students—halfway their first year of medical school—were requested to complete a self-administered questionnaire. The questionnaire bore no identity and respondents were assured of the confidentiality of the information. A verbal consent was sought from the respondents and participation was completely voluntary. A faculty was available to explain to the student in regard to any queries during the filling in of the questionnaires while the filling was entirely personal. The survey involved first years that had experienced the actual life of the medical school including the most abhorred sessions of

dissecting the human cadaver in the subject of anatomy and the tight laboratory schedules common in the first year of studies. Key factors assessed included when they first wished for a career in medicine, the persons who influenced their choice and factors that attracted them to the medical career. Data were entered into an excel sheet as nominal, ordinal or numerical and percentages were used to summarize demographic variables, career choice and career prospects. Qualitative outcome variables included the level of current motivation, future career plans, type of medical practice expectations and a possibility of taking up the

faculty job. Analysis of association of ordinal data was accomplished using IBM-SPSS (version 20)

using a Chi Square test and a p-value of  $\leq 0.05$  were considered significant.

## RESULTS

A total of 195 students successfully filled in the questionnaire that met criteria for analysis. The mean age for participants was 22 years with majority of students being male (69.7%). Over half of the students (51.3%) made the decision

to go to the medical school during the secondary school while an appreciable 37.4% had made the choice very early on either in or before primary school.

**Table 1: Participants demographics and motivation to join the medical school**

Variable	N	% valid
<i>First time to consider being a doctor</i>		
Before primary school	18	9.2
During primary school	55	28.2
During O-level	100	51.3
During A-level	19	9.7
During certificate/diploma college	1	0.5
Other	2	1.0
Total	195	100.0
<i>Who influenced your decision</i>		
Father	19	9.7
Mother	22	11.3
Both parents	26	13.3
Teacher	16	8.2
Relative/Friend	13	6.7
Self	85	43.6
Other/None	14	7.2
Total	195	100.0
<i>Level of interest before medical school</i>		
Very interested	155	79.5
Somewhat interested	28	14.4
Was Neutral	8	4.1
Uninterested	2	1.0
Other	2	1.0
Total	195	100.0
<i>Level of interest after joining medical school</i>		
Very interested	111	56.9
Somewhat interested	63	32.3
Neutral	18	9.2
Uninterested	3	1.5
Other	0	0.0
Total	195	100.0

About 1 in 10 students chose the medical school in their later years of pre-university education (A-level or college). Over 4 out of every 10 students chose the medical school at their own while 37.0% were either influenced by one or both of the parents. The proportion of the students who chose the medical school by their mother's influence (11.3%) was slightly higher than those who were influenced by the father (9.7%) but statistically insignificant ( $\chi^2= 0.53$ ,  $df=1$ ,  $p=0.47$ ). One in ten students was influenced

by the teachers. Relatives and friends caused an influence to 7.6% of the students. Nearly 8 out of 10 students were very interested with being a doctor before joining the medical school but that proportional had fallen to 6 out of 10 at the time of the survey with the decline being statistically significant ( $\chi^2= 32.98$ ,  $df=1$ ,  $p=0.0$ ). The percentage of indifferent to uninterested students to being a doctor rose from only 2% before joining medical school to over 10% at the time of the survey (Table1).

**Table 2: Reason for interest and expectations in the medical career**

Variable	First choice		Second choice	
	N	% valid	N	% valid
<i>Motivation to go to medical school</i>				
Inborn personal interest	77	39.5	36	18.5
Advice from family and friends	27	13.8	36	18.5
Because I did well in science subjects	8	4.1	33	16.9
Because doctors make good money	8	4.1	9	4.6
Because doctors are highly respected	5	2.6	6	3.1
Quest to serve humanity	52	26.7	66	33.8
Other	18	8.2	9	4.6
Total	195	99.0	195	100.0
<i>Most interesting thing about studying medicine</i>				
Know human body structure and function	81	41.5	43	22.2
Managing personal and own family health	20	10.3	20	10.3
Managing diseases in society	70	35.9	70	36.1
Contact with patients of all sorts	14	7.2	18	9.3
Financial reward	5	2.6	35	18.0
Other	5	2.6	8	4.1
Total	195	100.0	194*	100.0
<i>Most uninteresting thing about studying medicine</i>				
Too much to learn/memorize	69	37.1	28	16.0
Many exams	30	16.1	21	12.0
Tight schedules in medical school and after	40	21.5	34	19.4
Conservative discipline	0	0.0	8	4.6
Low pay/salary	13	7.0	38	21.7
Other (years of training, poor teaching)	34	18.3	46	26.3
Total	186*	100.0	175*	100.0
<i>Most uninteresting thing about being a doctor</i>				
Lack of personal life	38	20.4	39	23.1
Job stress/and too much work	84	45.2	44	26.0
Negative public perceptions of doctors	30	16.1	14	8.3
Low income levels	10	5.4	21	12.4

Conservative discipline	3	1.6	13	7.7
Low pay/salary	21	11.3	37	21.9
Other	0	0.0	1	0.6
Total	186*	100.0	169*	100.0

\*Fewer respondents to the question than the total sample

"In-born personal interest" and "Quest to serve humanity" were the most cited motivations for choosing the medical profession (39.5% and 26.7% respectively) while "Money", "Respect" and "Excellent Performance in High School" were least cited as the motivations (4.1%, 2.6% and 4.1% respectively). When the first and second choices were considered together, "in-born personal interest" and "quest to serve humanity" still scored highest as the motivating factors. Excellent graded in high school was strongly favoured by many participants as the second motivating factor equalling the score of "in-born personal interest" (18.5%). Knowing the human body, controlling and managing diseases were

the most expectations from the participations scoring 41.5% and 35.9% respectively whereas financial reward scored only 2.6%. Nearly 4 out of 10 students thought "too much to learn" was the most boring aspect of being a medical student but no student (0%) thought medicine was a conservative discipline. Over 2 in every 10 students saw considered the tight schedules as a deterrent in the medical school and the medical job. Again poor financial reward did not seem to bother most of the students (only 7.0%). There were other miscellaneous factors constituting 18.3% of participants which included the "Many years of training to be a doctor" and "Poor teaching methods in medical school" (Table 2).

**Table 3: Career goals and expectations**

Variable	First choice		Second choice	
	N	% valid	N	% valid
<i>After graduation, area you intend to work in</i>				
Biomedical sciences/academic	26	13.3	79	42.0
Clinical practice	134	68.7	35	18.6
Medical administration, policy etc	29	14.9	44	23.4
Non-medical (business, journalism etc)	3	1.5	10	5.3
Political position	0	0.0	5	2.7
Religious ministry	2	1.0	13	6.9
Other	1	0.5	2	1.1
Total	195	100.0	188*	100.0
<i>Type of workplace you intend to work for</i>				
Medical school/academia in health	14	7.2	40	20.6
General government hospital	107	54.9	34	17.5
Private practice	24	12.3	41	21.1
International missionary	14	7.2	20	10.3
Policy at Ministry of Health	6	3.1	10	5.2
Research Institute	20	10.3	30	15.5
Public health/administration	9	4.6	15	7.7
Other	1	0.5	4	2.1
Total	195	100.0	194*	100.0

\*Fewer respondents to the question than the total sample

**Table 4: Career in the biomedical academia**

Variable	First choice		Second choice	
	N	% valid	N	% valid
<i>If you chose biomedical sciences, discipline you would go for</i>				
Anatomy	31	25.2	29	25.2
Biochemistry	14	11.4	14	12.2
Microbiology/immunology	11	8.9	11	9.6
Pathology	14	11.4	15	13.0
Parasitology/Entomology	3	2.4	6	5.2
Pharmacology	8	6.5	16	13.9
Physiology	40	32.5	21	18.3
Other	2	1.6	3	2.6
Total	123*	100.0	115*	100.0
<i>Motivation to choose career in biomedical sciences</i>				
Fits my interest and aptitude	70	56.5	25	25.3
Prestige in society	1	0.8	12	12.1
Higher chance to become a professor	1	0.8	8	8.1
Want to be a prominent researcher	39	31.5	35	35.4
Little chance of malpractice/job security	2	1.6	7	7.1
Not motivated in biomedical	10	8.1	3	3.0
Biomedical pay more	1	0.8	7	7.1
Other	0	0.0	2	2.0
Total	124*	100.0	99*	100.0
<i>Strongest motivation to choose a career in clinical discipline</i>				
To fulfill my interest and aptitude	71	37.2	89	50.6
Helping many patients with diseases	114	59.7	63	35.8
High social prestige / esteem	0	0.0	7	4.0
Clinicals pay more	5	2.6	15	8.5
Other	1	0.5	2	1.1
	191*	100.0	176*	100.0

\*Fewer respondents to the question than the total sample

Majority of the students overwhelmingly preferred clinical practice (68.6%) as their first choice versus other medical related jobs such as administration or policy (14.9%) and the academia in biomedical sciences (13.3%). A trace of students (3.0%) would abandon the medical career altogether and enter into business, journalism or even religious ministry but not politics. When asked for their second choice, a job in biomedical science academia was favored by the majority of participants (42.0%) which is higher than medical administration or policy (23.4%) and clinical practice (18.6%). A

huge number (54.9%) preferred working in the general government hospitals significantly higher than those who would work in the private hospital (12.3%), medical research institutes (10.3%) or medical schools (7.2%) (Table 3).

When assessed on the possibility of working in biomedical academia, the students chose those departments whose subjects are taught in the first year with Physiology (32.5%), Anatomy (25.2%) and Biochemistry (11.4%) favored in that order. When the second choice was considered, preferences changed slightly with



Anatomy (25.2%) scoring highest followed by Physiology (18.3%) and Biochemistry (12.2%). While respondents could have limited exposure thereof, biomedical courses in the second year were not strongly favored but an appreciable proportion chose Pathology (11.4%), Microbiology (8.9) and Pharmacology (6.5%). Choosing a career in biomedicine was due to interest and aptitude (56.5%) and becoming a renowned researcher (31.5%). Attainment of a professorship status or prestige in the society

both at 0.8% apiece was not a motivation for students to choose a career in biomedicine or even in clinical sciences. Similar reasons for choosing to join the medical school would be used to choose the type of job after graduation which included helping patients (59.7%) and personal satisfaction (37.2%) as the major ones and, likewise, less than 3% of respondents would think the medical job pays well (Table 4).

## DISCUSSION

The present work has shown that students make their medical career choice at a tender age before they graduate from secondary education. This early career choice may be interpreted as a vocational choice or a calling (Millan et al., 2005). A big proportion of respondents chose the medical career at their own decision. This is important in respect of the career achievement (Gąsiorowski et al., 2015). Other studies have shown that children are either persuaded or forced to choose the career according to the wishes of the parents, guardians and even teachers but this tendency may be consequential in terms of career dissatisfaction (Ferrinho et al., 2011; Ausman et al., 2013). In the present study nearly 4 out of every 10 students were influenced by one or both parents—generally higher than it was reported elsewhere (Al-Dabal, 1998). It should be noted that the parental influence can either be of coercive or persuasive type—both with delicate differences and effects to the child's career. In the present study the distinction of the type of influence was not established due to the newness of the respondents to the questionnaires and research in general. Although statistically insignificant, more students were influenced by mothers than their fathers—which could be due to the fact that mothers spend more time with children or because there are more single parent families reared by women than those reared by men. In agreement with other studies, a large number of students become disenchanted after entering the medical school and this disenchantment

trend may continue even after graduation as they assume the actual career [Leon and Kolstad, 2010; Gąsiorowski et al., 2015]. Studies have suggested that the mentoring and role modelling by the faculty is vital for student learning achievements and career success (Tosteson, 1979; Skeff and Mutha, 1998; Mwachaka and Mbugua, 2010) but in many instances it is either insufficient or in-existent altogether (Cruess et al., 2008; Benbassat, 2014). The decline in the level of enthusiasm after entering the medical school is worrisome and is likely to be due to the poor learning approaches in universities, experiencing the actual reality of the medical school or simply the loss of sheer excitement and delusions after obtaining admission to the medical school.

It is propitious that money and prestige—the two most common career motivating elements—were not the main reasons to choose the medical career. The opposite would mean that failure to achieve these satisfactions, which almost always is the case with health jobs, one's career prospects would be perilous. Our findings on the influence of money and prestige as motivations are consistent with previous reports which have been considered to be the key to a successful medical career. For years, the medical profession has demanded vocational virtues in patience, altruism, self denial and humility (Borges et al., 2013; Galton, 2015) but some studies contradict these assertions (Girasek et al., 2011; ; Astrow, 2013). Therefore, these core values may not

flourish when the expectations are largely pegged on money and prestige. The fact that most respondents were motivated by being able to serve humanity and inborn personal interests need to be nurtured in order to create doctors with a true calling to the profession. Previous reports found that the motives to choosing a medical career may change during the course of the training (Leon and Kolstad, 2010; Gąsiorowski et al., 2015). Consistent with previous results, tight schedules and too much information to learn in form of memorization were abhorred by many respondents but respondents did not think medicine is inherently conservative. This may mean that, probably, the advent of newer teaching and learning methods, albeit insufficient, tend to excite the students.

Only a little less than 1 in 10 respondents would prefer a faculty position as compared to more than 5 in 10 who preferred working in a general government hospital. This study affirms the precarious situation and does not point to any hope for the good future regarding the consistent poor staffing in medical schools particularly in Africa. Our work goes further to compare clinical and biomedical discipline preferences and the situation is even bleaker for the teaching jobs in biomedical disciplines. In agreement with our findings, several studies have shown consistent understaffing of universities particularly in biomedical disciplines in sub-Saharan Africa (Mullan et al., 2011; Manyama et al., 2013). Deliberate efforts coupled with tangible solutions by university administrations and policy makers at institutional, national and regional levels are needed to remedy this anomaly that threatens the healthcare provision on the African continent. While the major biomedical courses in anatomy, physiology and biochemistry are taught in similar conditions, the clear preference in the order of physiology, anatomy and biochemistry cannot be underestimated. Possible reasons of varying preferences are previously reported including inspiring students and role modelling (Tosteson, 1979; Skeff and Mutha, 1998; Cruess et al., 2008; Mwachaka and

Mbugua, 2010; Gąsiorowski et al., 2015) and therefore universities should quickly adjust to the current challenges of educational and training needs. The number of students who would leave the medical profession was apparently insignificant (3.0%) but still raising eyebrows—given the fact that most medical students start to lose interest during their senior years of study and therefore these results may not be directly informative. Attaining a higher academic honour such as a professorship did not inspire students into the academia. This is a glimmer than reported elsewhere in which just a little more than half of respondents viewed taking a faculty job positively (Greenberg et al., 2013). Innovative approaches need to be devised in order to keep the succession and supply of new faculty into our medical schools. Raising faculty morale, student mentorship, role modelling and retaining quality graduates as extensively reviewed previously (Bickel and Brown, 2005; Mwachaka and Mbugua, 2010) would be of enormous impact. In conclusion, majority of students make their medical career choice early in life driven by altruistic reasons which are important for a successful career. Poor learning environments disenchant them from the passion for the career which, in a long run, contributes to the shortage of health workforce both qualitatively and quantitatively. More studies are needed to assess, evaluate and improve the training in medicine including the entry criteria other than secondary and high school grades, role modelling and mentorship in order to improve the health workforce in the country and beyond.

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### Competing interest

We have no competing interest to declare.

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