

## Factors affecting choice of specialty amongst Sudanese house officers and General Practitioners in 3 Sudanese Hospitals

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### Abstract

**Background:** All around the world, there has been an outcry by health officials discussing the shortages/possible shortages in certain specialties of medicine. In this research, we have identified the specialties suffering from this risk in Sudan as well as the cause(s) behind such a manifestation. **Objectives:** **General:** To determine the factors influencing specialty choice amongst Sudanese GPs and House Officers in 3 Sudanese hospitals. **Specific:** To determine the most attractive career paths for recently graduated medical personnel. To determine the factors influencing said career choice. To determine which medical specialties are likely to suffer from shortages in the upcoming future. **Methods:** A total coverage sample of 250 participants was obtained using a questionnaire designed to help achieve our objectives. The data was run through SPSS v.21. **Results:** 71.43% (178) of our respondents were female. 71.43% (178) were between 24-26 years of age. 67% (167) of our respondents were single. 57% (142) of our respondents were House Officers. The most sought after specialty was Obstetrics/Gynecology with 24% (60) of our respondents choosing it as their desired specialty of practice, followed by Internal Medicine at 16% (40). Helping patients was chosen as the primary motivation behind the choice of 24% (60) of our participants, followed by fewer work hours at 12% (30). **Conclusion:** Most recent graduates are single females aged 24-26 years who plan on pursuing Obstetrics and Gynecology as their specialty of choice. They have made this choice because they believe it is the best manner in which they could be of aid to their patients.

Napata College; Specialty preferences

### 1. Main text

#### 1.1. Introduction:

With a vast, unprecedented increase in the scope of medical research led by younger and less traditional researchers, a new interest in research erupted resulting in researchers being of not only a different dynamic than what is traditional, but also in better quality researchers being published on both a national and international level.

In this research we attempt to discuss a topic rarely covered on a local level, that is the factors which drive the recent, different trends in specialty choice amongst young doctors, namely house officers and general practitioners. In our attempt to better understand why these changes have occurred, we reviewed previous literature on the topic (all abroad the Republic of Sudan) as well as developed a questionnaire that aimed to truly bring forth the causes behind these trends once and for all.

## 2. Literature review:

Ever since the dawn of time, humans have fallen ill and passed away as a result of said illnesses as well as a multitude of other causes. Although this is unfortunate, it has resulted in some humans noticing it and attempting to not only understand it, but also acting so they can bring an end to the illness's capability to bring closer our demise. These efforts have resulted in a globally increased life expectancy, decreased juvenile mortality rates, and much, much, more.

Back in the 20<sup>th</sup> century; Dr. Douglas Guthrie – a Scottish surgeon – took it upon himself to tackle the immense literature regarding the history of medicine and articulate it in the form of a book, ergo making it easier for us to understand the different changes that have occurred as far as the field is concerned. The book, titled 'A history of Medicine' was first published in 1945 <sup>[1]</sup>. The ~500-page book is a wonderful read and is of immense help in increasing knowledge regarding how this beautiful art came to be. Since the history of medicine is, at least for the time being, of little concern to us; we will not be discussing it in immense detail. It is, however, of critical importance that we note out that we, as medical students, have noticed an inexcusable, massive lack awareness to the history of medicine amongst medical professionals. We, hereby, demand that efforts be put forth towards increasing physician awareness of medicine as history is a major aspect of any discipline.

## 3. Previous literature on the topic:

Most literature on the topic focused on graduating students, who differ in their view of the world from house officers and G. Ps because they have yet to enter the world of clinical medical practice. Some of the most important factors for someone to wish to study medicine were helping people, scientific interest and the mind-boggling intellectual challenges medicine has to offer <sup>[2-3]</sup>. Of course, it is important that we remember that educational systems around the world differ in how they function, ergo why some literature targets students while some targets practitioners.

A study of medical students in the USA has shown the increased significance of lifestyle as well as income in the determining of choice of specialty amongst their study population <sup>[4]</sup>, which we kept in mind whilst conducting our research. In that paper (which was written by Dr. Newton and colleagues <sup>[4]</sup>; the variables, as aforementioned, were that of lifestyle and income. Although the paper was published back in 2005, the data it brought light upon is so significant it is nearly impossible to disregard it. The paper concluded the increasing effect both lifestyle and income play in the choice of future specialties by medical students (of course, it is important here that we note that the difference in medical study around the world will result in some of the upcoming literature being of students and some of it being from post-graduates). One other important aspect of this publication is that it found that "Contrary to previous reports, the students' responses indicate they perceived the primary care specialties as lifestyle intermediate compared to other specialties." <sup>[4]</sup>. This paradigm shift is of great significance. The conclusion was articulated by the authors in a manner so eloquent that we have decided to quote it directly here:

"Lifestyle and income have become more important to medical students in their career choice, and the relative influence of these factors varies considerably between specialties. This study suggests that previous efforts to dichotomize careers into those with controllable and uncontrollable lifestyles may mask important

complexities.”<sup>[4]</sup>

Another study also concluded that a controllable lifestyle was the most significant factor contributing to changing specialty choice trends<sup>[5]</sup>. In that study, Dorsey and colleagues decided to tackle a problem similar to ours, but with a different approach. They sought out to determine whether or not lifestyle was a controlling factor in regards to medical specialty choice amongst senior medical students in the US; and, if so, to what extent it poses as a determining factor. In their study, the authors concluded the following:

“Perception of controllable lifestyle accounts for most of the variability in recent changing patterns in the specialty choices of graduating US medical students.”<sup>[5]</sup>

In an article out of neighboring Saudi Arabia<sup>[6]</sup>, the authors recommend a 3-step approach to determining the choice of specialty for students, the steps are as follows:

- 1) Self- understanding
- 2) Career exploration
- 3) Decision making

In a study by Bittaye et al.<sup>[7]</sup>, it was stated that personal intelligence/ability preference and career opportunities were more important factors to the newer generation of students in choosing a medical specialty later in life. In a survey performed by The Association of American Medical School to investigate the factors that influence the choice of medical specialty, some of the factors that were chosen to have strong to moderate influence were; Personality fit (98.3%), Role model influence (78.0%), Future family plans (62.6%) and Competitiveness of specialty (41.1%).

A study which took place in the nation of Israel found results that were quite similar to others from around the world<sup>[8]</sup>. The same study noted that such an occurrence was not unexpected due to a more globalized world and the differences between older and younger generations.

Back in 2008,<sup>[9]</sup> then Director-General of the WHO, Dr Margaret Chan, made it clear in her message in the world health report that she was planning on true advancements in primary health care. The report stated “These avenues are defined in the Report as four sets of reforms that reflect a convergence between the values of primary health care, the expectations of citizens and the common health performance challenges that cut across all contexts. They include:

- 1) universal coverage reforms that ensure that health systems contribute to health equity, social justice and the end of exclusion, primarily by moving towards universal access and social health protection;
- 2) service delivery reforms that re-organize health services around people’s needs and expectations, so as to make them more socially relevant and more responsive to the changing world, while producing better outcomes;
- 3) public policy reforms that secure healthier communities, by integrating public health actions with primary care, by pursuing healthy public policies across sectors and by strengthening national and transnational public health interventions; and
- 4) leadership reforms that replace disproportionate reliance on command and control on one hand, and laissez-faire disengagement of the state on the other, by the inclusive, participatory, negotiation-based leadership indicated by the complexity of contemporary health systems.”

A paper out of neighboring Nigeria<sup>[10]</sup> in which the authors questioned 287 “preresidency medical graduates” (quite similar to our target population, with the exception of nomenclature) concluded a particularly high interest in the fields of surgery and pediatrics to other fields of medicine. The study covered a wide age range (24-53 years), with personal interest being the primary causation behind specialty choice. We hypothesize our work will yield similar results.

A 2018 study out of Pakistan<sup>[11]</sup> which had obtained 1400 responses (targeted at medical students) concluded

a limited interest in family medicine amongst Pakistani graduate medical students. The study also indicated an enormous gravitation amongst said towards internal medicine, general practice, pediatrics, surgery and EM, respectively. The study was primarily focused on addressing the disaster that was, and still is, the practice of family medicine in underdeveloped nations. The authors had the following to say:

*“Family medicine as a specialty is a multidimensional field of medicine. It deals with not only prevention and screening but also diagnosis and first-hand treatment of many acute and chronic health problems, along with a residency training in the field. In many underdeveloped countries, however, general practitioners (GP) are non-specialists with no training in primary care owing to their little exposure to ambulatory and preventive care.”*

Data, such as that presented in the 2010 paper by Bodenheimer and Pham <sup>[12]</sup>, may play a huge role in motivating medical professionals to take on certain specialties over others. This is, of course, a hypothesis. The hypothesis is based upon our assessment of the 5 personality traits which, as per our hypotheses (fueled by an immense accumulation of knowledge of the human psyche) indicate that doctors, for some part, fit the personality types which manifest themselves as politeness, compassion, understanding, empathy, sympathy, “hard-work”, etc. it is true that doctors are sometimes disagreeable with other doctors, but it is important that we not that medicine suffers from a bureaucracy-like climate (top-down order following) which may greatly contribute to the numerous cases made by medical students on social media as to how they are sometimes mistreated by superior doctors. Of course, this is only a hypothesis and can be wrong. In short, compassionate people may base decisions on data that may indicate suffering of other people.

Back in 2007, a paper by Hin Hin Ko, et. al. <sup>[13]</sup> concluded that proper and adequate exposure to PHC during the training phase and the selection of students who are interested in PHC might be a solution to the decrease in practicing/enrolling primary care physicians’ problem they observed <sup>[13]</sup>. We hypothesize that exposure of medical students to the newer specialties put in place by the SMSB and SMC could result in an increase in their appeal and, ergo, enrollment rates.

Many studies related to this topic focus, as expected, on the rapid decline and decay of family medicine as a practice. This is a worldwide issue. A great example of a paper which attempted to tackle the issue would be that of Thomas Bodenheimer <sup>[14]</sup>. In the paper, Dr. Bodenheimer poses the issue at hand forthrightly – will family medicine, the backbone of any healthcare system, collapse? The article is initiated by the following quote from the American college of physicians:

The American College of Physicians recently warned that “primary care, the backbone of the nation’s health care system, is at grave risk of collapse.” <sup>[15]</sup>

Back in 2017, Dr. Edmond Fernandes published a blog article in THE TIMES OF INDIA <sup>[16]</sup> titled “Why community medicine (public health) is the sexiest profession of the 21st century”. In the blog article, Dr. Fernandes forthrightly addresses the disastrous state of public health. He urges community physicians to address the problem by leading a movement which would revive public health as a sector. In the same blog article, the issue of community medicine “dying” in the eyes of medical students is also addressed; it is hypothesized that this “death” occurs as a result of lack of exposure to field practice. The article is a collection of thoughts, eventually collected and further discussed in Dr. Fernandes’ book <sup>[16]</sup>.

An article out of India by Nandanwar et. al. <sup>[17]</sup> discussing the perception of community medicine as a line of practice amongst medical students concluded the following:

“Students perceptions regarding the field of community medicine showed that community medicine is essential for successful medical practice. But the teachers must make this subject more interesting by giving more practical insight and improving the teaching modalities.” <sup>[17]</sup>

Another study out of neighboring Saudi Arabia <sup>[18]</sup> concluded that the most desirable specialty amongst medical students was Internal Medicine with the primary motivator for students being a willingness to help others during times of need/distress. <sup>[18]</sup>

## **4. Materials and methods:**

### **4.1. Data Collection:**

In our particular scenario, we were fortunate enough to be able to utilize technological advancements (e.g. WhatsApp and email) to aid us in quicker collection of our data.

After meticulously and carefully crafting our questionnaire, taking into consideration all the aforementioned, we uploaded it to Google docs, and met with medical directors of our target hospitals. After inquiring as to the number of G. Ps and House-officers per institution and requesting that we may distribute our questionnaires amongst the hospital's staff; we sent them the link to our questionnaire on Google docs via WhatsApp and e-mail. We also prepared a number of physical copies of the questionnaire in case the hospital administration was to refuse. Luckily, we were met with great welcoming by all those we approached – they all also agreed to have the questionnaire filled online as opposed to the traditional paper and pen method.

### **4.2. Data management and analysis:**

Following completion of the collection of the data, the data was run through v.21 of SPSS for purposes of analysis.

### **4.3. Results:**

As expected, we analyzed the data in a manner which would assure we took into account all variables, ergo permitting us to bring forth the most accurate data possible.

All of our collected data was analyzed using IBM SPSS Statistics v.21 after having been collected in the aforementioned fashion.

In summary, our findings were as follows:

- 1) Our total number of participants was 250
- 2) Most (71.43%) of our respondents identified as female, while the remaining 28.57% identified as male
- 3) Most (again 71.43%) of our respondents were between 24 and 26 years of age, the remainder were between 21 and 23 years of age.
- 4) 67% of our respondents were single, 28% were married and 5% were engaged
- 5) 57% were house officers
- 6) 28.6% of our respondents chose Obstetrics and Gynecology as the specialty they plan on perusing, followed by Internal Medicine (and subs) and Surgery at 19.0% and 14.3%, respectively.

- 7) The number one cause our respondents used for their respective choice was helping patients (28.6%), followed by fewer work hours (14.3%).
- 8) A total of 0 respondents chose specialties such as psychiatry, community medicine, ENT, etc...

Shown below is are the figures and tables associated with our findings:

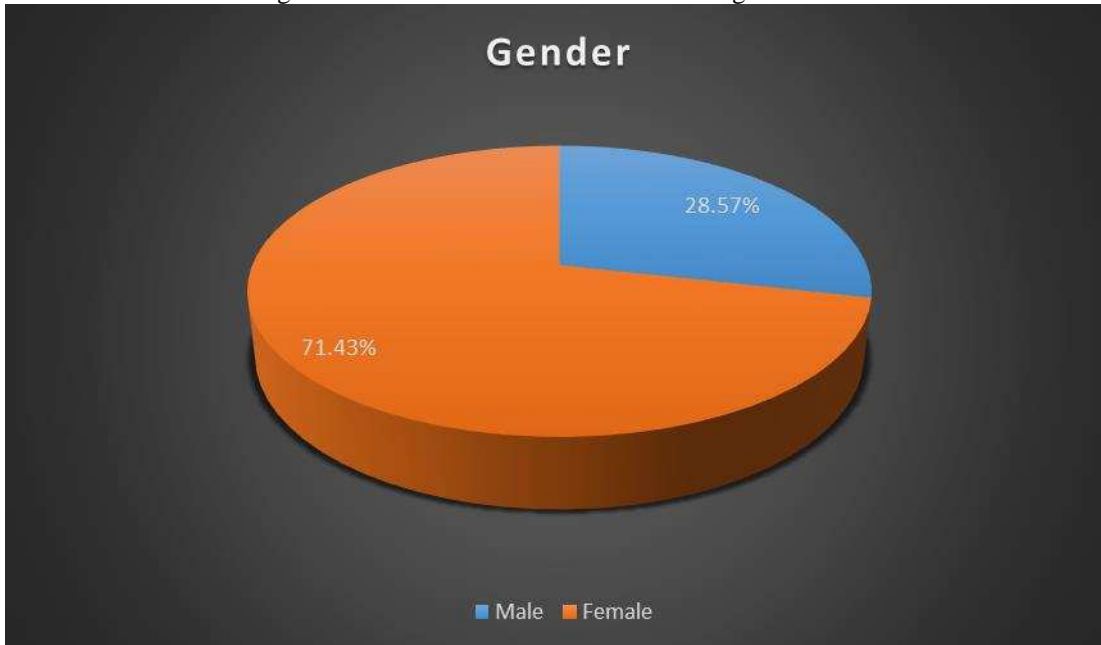


Figure 4.1.

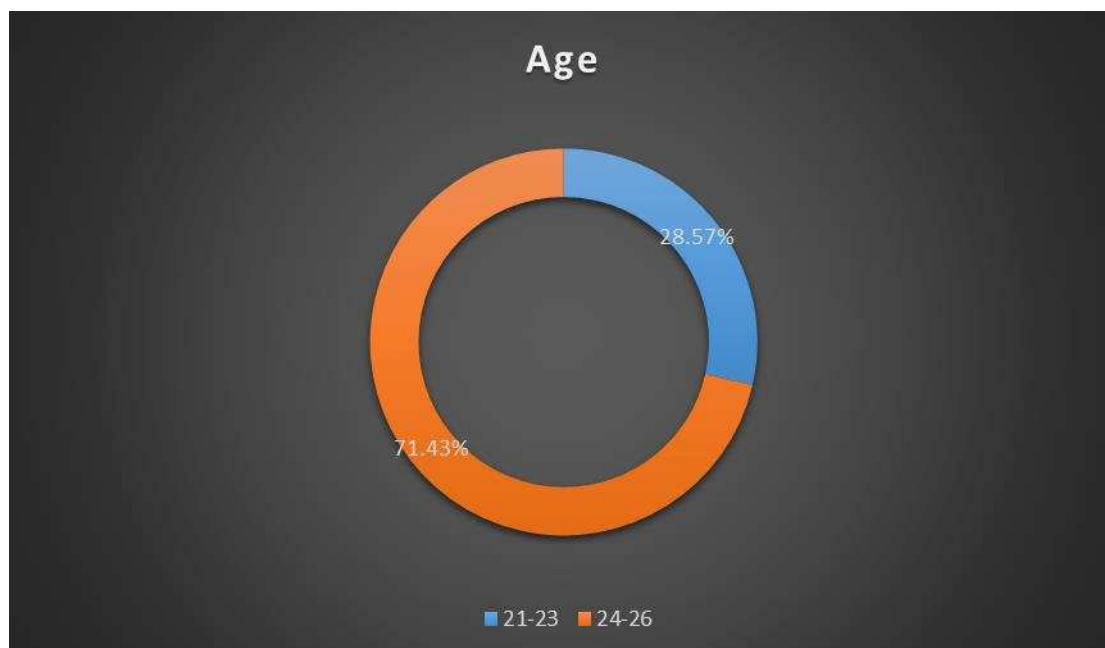


Figure 4.2.

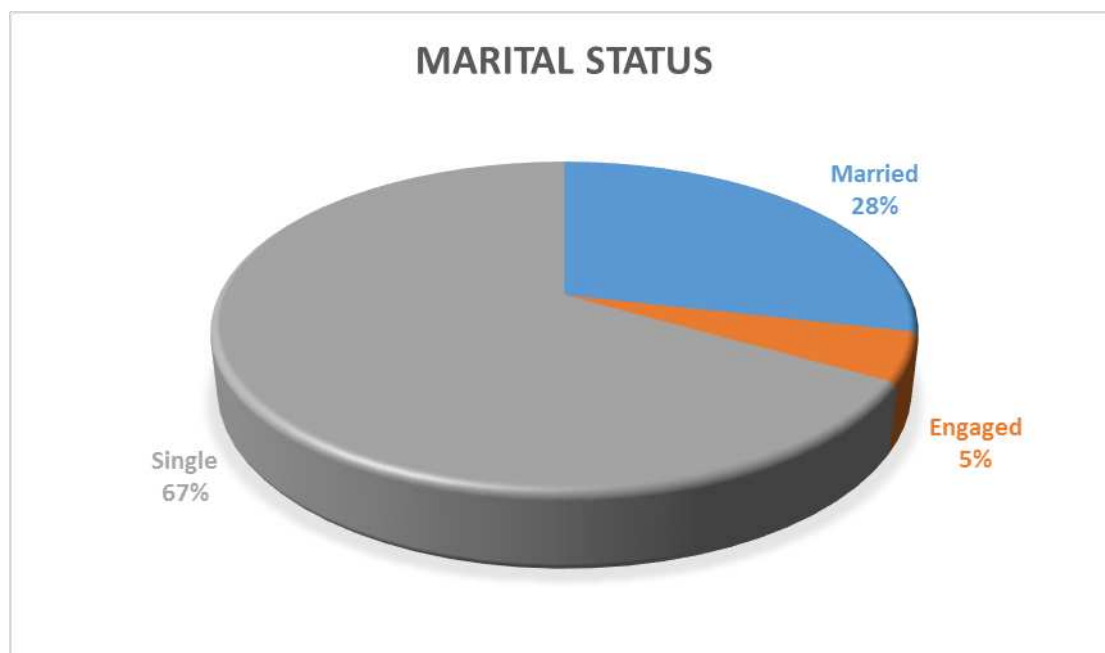


Figure 4.3.

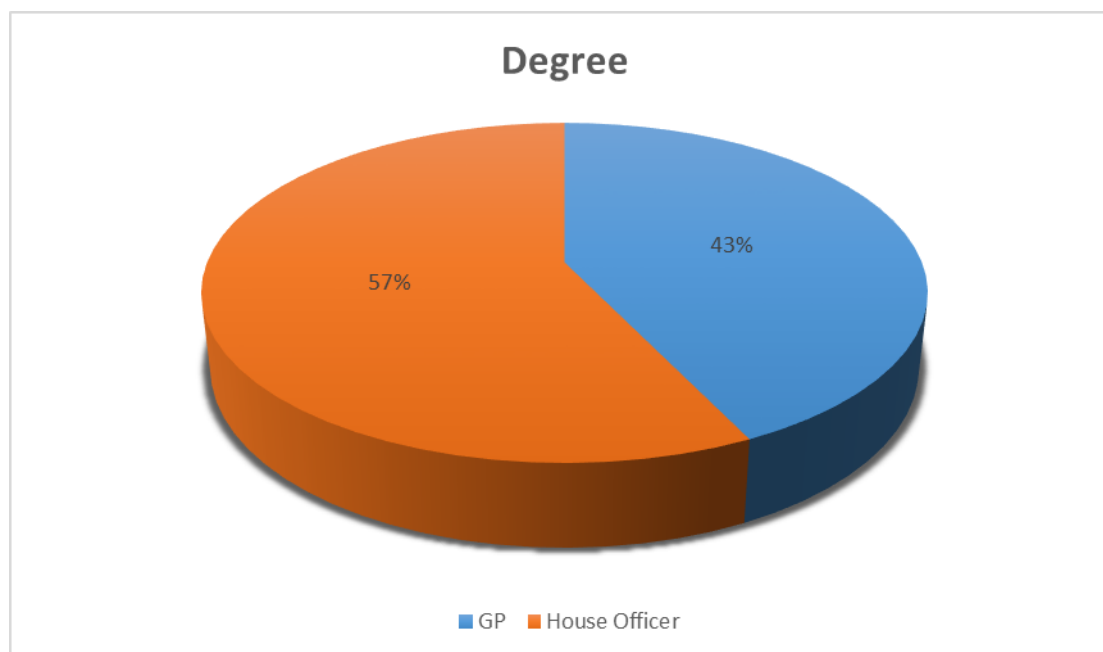


Figure 4.4

**Which medical specialty do you see yourself seeking?**

Table 4.1

	Frequency	Percent	Valid Percent	Cumulative Percent
Internal Medicine (and subs)	40	19.0	19.0	19.0
Surgery	30	14.3	14.3	33.3
OB/GYN	60	28.6	28.6	61.9
Pediatrics and Child Health	10	4.8	4.8	66.7
Ophthalmology	20	9.5	9.5	76.2
Dermatology	20	9.5	9.5	85.7
Orthopedics	10	4.8	4.8	90.5
Cardiology	10	4.8	4.8	95.2
Did not make a choice yet	10	4.8	4.8	100.0
Total	210	100.0	100.0	



Table 4.2

**Why did you choose said specialty?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Financial compensation	10	4.8	4.8	4.8
Fewer hours of work	30	14.3	14.3	19.0
Social prestige	10	4.8	4.8	23.8
Better suited academic requirements	10	4.8	4.8	28.6
Decreased work stress	20	9.5	9.5	38.1
Social factors	20	9.5	9.5	47.6
Time in operating room(theater)	10	4.8	4.8	52.4
A quickly advancing specialty	10	4.8	4.8	57.1
Increased opportunities for research	10	4.8	4.8	61.9
Illness of a friend/relative	10	4.8	4.8	66.7
Employment experience /influence	10	4.8	4.8	71.4
Helping patients	60	28.6	28.6	100.0
Total	210	100.0	100.0	

Following this, we analyzed our findings and compared them to the variables (gender, age, and degree). P-values of less than 0.05 were designated 'significant'.

- 1) Choice of specialty \* gender = 60 females choosing Ob/Gyn, ergo resulting in the aforementioned percentages. This had a P-value of .239
- 2) Choice of specialty \* age = 60 individuals ages 24-26 years old choosing Ob/Gyn. This had a P-value of .170
- 3) Choice of specialty \* degree = 60 G.Ps choosing Ob/Gyn. This had a P-value of .055.

Following this, we analyzed the cause of choice (referred to as cause below) vs the aforementioned variables. Our findings were as follows:

- 1) Cause \* gender = 60 females chose helping patients as their primary motivator. This had a P-value of .114
- 2) Cause \* age = 50 individuals ages 24-26 years of age chose helping patients as their primary motivator. This had a P-value of .645
- 3) Cause \* degree = 40 G.Ps chose helping patients as their primary motivator, while 30 house officers chose fewer work hours as their primary motivator for their choice. This had a P-value of .158

## 5. Discussion:

Our results were in line with all the aforementioned literature as far as the variables resulting in medical graduates choosing their respective lines of practice. In addition to the results, our work showed many of our respondents choosing aiding/helping patients as their primary motivator to choosing a specialty. As expected, and was the case for the literature above perceived lifestyle changes associated with specialties (whether or not they are true) seem to have influenced our respondents' choices. Our work also showed the likelihood of certain specialties (e.g.: community medicine and psychiatry) suffering from shortages of practitioners, both examples received 0 responses from our respondents'. Other results were, in short, 'in line' with those concluded by our colleagues from all over the world.

The argument illustrated in the literature review chapter of this research by Nandanwar <sup>[17]</sup> is a sensible, logical, coherent and direct one. We do agree with them that teaching staff do play a role in guiding medical students towards certain specialties (you always hear the story of how a professor made someone rethink what specialty to practice (for better or worse)).

In short, our study was in excellent correspondence and reported similar data to the available literature. The primary difference was that a greater percentage of our respondents reported an interest in Obstetrics and Gynecology as opposed to other researches.

## 6.1 Conclusion(s):

In conclusion, we have found that:

- 1) A majority of Sudanese doctors will choose their specialty based on what they believe will be of greatest aid to their patients.
- 2) A highly centralized, at least as is believed by post-graduates, healthcare system exists in the nation of Sudan.
- 3) Younger physicians place financial compensation higher in their hierarchy of choices as opposed to relatively older physicians
- 4) Fields such as community medicine, clinical immunology and psychiatry are expected to suffer from shortages in the future.

- 5) There appears to be a surge in the number of female physicians in Sudan.

Greatest specialty of interest to younger physicians is Ob/GYN

## 6.2 Recommendation(s):

We recommend a paradigm shift of the Sudanese medical education system which will allow better exposure to misrepresented fields of medicine (previously discussed).

We also recommend greater exposure to fields expected to suffer from future shortages as well as studies into the psychological aspect of these specialties so as to determine the reasoning behind the disdain displayed by young graduates.

Another recommendation of ours would be the mandating of frequent update courses and examinations amongst practicing physicians (especially those who happen to be educators) so as to virtually guarantee that students cease to receive anachronistic information on how medicine is practice as well as the latest updates on the ever-expanding art that is medicine.

And finally, we recommend educational faculties + educationalists look into their policies in order to aid in the occurrence of the necessary paradigm shift for the disaster to be avoided.

## 6.3 Acknowledgement:

This work would not have been possible if it weren't for the 250 individuals who responded as well as individuals who immensely aided us in collecting data such as Dr. Tahalil Seifeldein Edris Mahmoud, MD of Royal Care International Hospital (RCIH), Khartoum, Khartoum, Sudan.

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