

Specialty Choices Among Medical Students And Interns In Egyptian Accredited And Non Accredited Faculties Of Medicine.

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ABSTRACT

Background: Worldwide, the process of specialty choices and how the graduates of medical schools select their areas of specialization is a growing concern. **Objectives:** 1) detect and compare specialty preference among Zagazig (non accredited) and Suez Canal (accredited) Universities' medical students and interns 2) study important factors that are considered when choosing the specialties and 3) determine if there is difference in choosing specialties according to gender and accreditation. **Methods:** A cross-sectional study was conducted from January 2011 to May 2011 in Zagazig and Suez Canal faculties of medicine. Using multistage sampling technique, a sample from interns, 4th, 5th and 6th year medical students was included in the study. The sample size was (640) out of 2800 in Zagazig faculty of medicine and (374) out of 681 in Suez Canal faculty of medicine. **Results:** General Surgery have the 1st rank among other specialties in Zagazig faculty of medicine (17.5%) while Obstetrics & gynecology was the 1st choice in Suez Canal Faculty of Medicine (18.0%) with no significant difference between them except for Family medicine specialty which was significantly higher in Suez Canal Faculty of Medicine. Male choices were higher than females with significant differences in the following specialties; General Surgery, Ophthalmology, and Anesthesiology in both universities in addition to Radiology in Suez Canal University. There were no significant difference in most of factors underlying specialty choice between the two faculties except for career opportunities in the Zagazig faculty of medicine and role model in the specialty in Suez Canal faculty of medicine. Regarding gender difference, there were significant differences in nearly all factors in both groups except for family expectations in Zagazig University and role model of specialty in Suez Canal University. **Conclusions:** Our study revealed similarities and differences in specialty preferences and factors influencing these choices among male and female students in both faculties. The main factors affecting specialty choices were students' interest in the career and social aspects and responsibilities with unclear role of accreditation in choosing specialty.

Key words: Specialty choices, medical students and health officers, accreditation.

Introduction

Medical school graduates are an important source of a country's physicians. Choosing their medical specialty is one of the most important decisions they will face in their medical career, as from one hand; their choices decide the manpower distribution among different medical specialties all over the country, and from the other hand finding a specialty that suits the strengths, weaknesses, lifestyle, intellectual challenge, and research potential—among other factors—that agree with each one of them is not an easy process. Determining how the graduates of these schools select their areas of specialization is essential to achieving a balanced distribution of doctors among all specialties (Pei *et al.*, 2006).

Worldwide, the process of specialty choices and the distribution of physician specialization is a growing concern, as these choices may not meet community needs and lead to shortage of physicians in some specialties which may be a problem in certain countries (Brotherton *et al.*, 2004).

It was often believed that selecting a specialty is only a process of personal choice. While in fact there are other important factors influencing it such as; economic factors, social expectation, training opportunities, educational experiences and controllable life style which play important roles in the decision of the students and interns in choosing their specialties. (Anzillotti *et al.*, 2001).

Recent studies show that gender of medical students or interns plays an important role in choosing the type of specialty as it was found that Lifestyle, role models, and expectations associated with gender shape their career plans (Salter, 2007; Fukuda and Harada, 2010).

Educational accreditation is a type of quality assurance process under which services and operations of educational institutions or programs are evaluated by an external body to determine if applicable standards are met. If standards are met, accredited status is granted by the agency (Global Standards for Excellence in Education, 2011). Accreditation of medical faculties ensures quality medical education leads to quality health care. National Authority for Quality Assurance & Accreditation of Education –Egypt (NAQAAE) is the accrediting body for all Egyptian educational institutions in Egypt since year 2007, aiming to support Egyptian

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educational institutes by fostering their quality assurance practices specially those related to student centered education and career guidance (NAQAAE, 2011).

Faculty of Medicine, Suez Canal University (FOM-SCU) was established as the first community-oriented/based, problem-based and student-centered medical school in Egypt, this system has been shown to develop better psychosocial skills in students and a better attitude toward patients than students trained in more traditional ways (Caminal *et al.*, 2004). Also the faculty adopting the quality standards and principals and was accredited since (15/5/2010) to be one of the first faculties of medicine which is accreted in Egypt.

As there is a continuous seeking of our medical faculties (including faculty of medicine, Zagazig University) for accreditation in addition to scarcity of national data and researches about specialty choices and factors underlying them. The objectives of our study were to: 1) detect and compare specialty preference among Zagazig and Suez Canal Universities' medical students and interns, 2) study important factors that are considered when choosing the specialties and 3) determine if there is difference in chosen specialty according to gender and accreditation.

Subjects and methods:

Study design and setting:

A cross-sectional study was conducted from January 2011 to May 2011 in two faculties of medicine in Zagazig and Suez Canal Universities.

Study sample and procedure:

Using multistage sampling technique, a random sample from interns, 4th, 5th and 6th year medical students was included in the study. The sample size was (640) out of 2800 in faculty of medicine Zagazig University and (374) out of 681 in faculty of medicine Suez Canal University. Two class rooms (seminars) from each grade in each faculty (regarding medical students) and two shifts in two randomly chosen clinical specialties (General surgery and pediatrics for interns) were randomly selected then the selected classes and shifts were included as cluster where all available students & interns were interviewed. We include three different grades of medical students beside interns due to expected to year to- year fluctuations in the number and percent of medical students choosing different specialties, and attitude change that may occur with time. Students from 1st, 2nd and 3rd grades were excluded from the study because they are to some degree away from exposure to clinical experience in the early years of medical studies and they may haven't formulated a complete picture about clinical specialties.

Tools of the study:

The data were collected after verbal consent from participants through a self administrated questionnaire including data about: age, sex, grade, preferred specialty (the first choice only), lastly they are asked about factors that were considered when choosing their specialty choices as;

- **Family expectations;** what the family encourage and expect the student to be in the future.
- **Career opportunity;** the future opportunity of the career for promotion.
- **Ability to establish their own practice;** the level of difficulties to establish one's own practice, including the practice cost, malpractice costs and practice risk.
- **Role model in the specialty;** referring to the behavior of supervisors, or residents that leads to good impression.
- **Work related hazards;** the incidence of exposure to infections, such as infectious hepatitis, or other infectious diseases.
- **Training period;** length of training required and working hours.
- **High and stable future income;** financial rewards relative to other specialties.
- **Prestige of specialty;** in relation to other medical specialties.
- **Related life style;** personal free time for leisure, family and control of total weekly hours spent on professional responsibilities.
- **Type and number of patients served and the strength of specialty in job market.**

These factors were based on similar published studies (Dorsey *et al.*, 2005 ; Pei *et al.*, 2006; Scott *et al.*, 2008 and Fukuda and Harada, 2010). Answer was either by (Yes or No) and only those who choose the answer "Yes" were presented in tables. The questionnaire was pre-tested on 30 students from different grades to determine the response and applicability of it and changes were made accordingly.

Ethical aspect and administrative approach: necessary official permission was taken out from each faculty. An informed verbal consent was obtained from students and interns.

Data analysis:

The collected data were computerized and statistically analyzed using SPSS (Statistical Package for Social Science) version 19 (IBM, 2010). Percentage for qualitative variables and mean and standard deviation for quantitative variables were calculated. Chi square was calculated to compare between choices between two faculties, gender role in specialties and factors affecting specialty choices. P value (< 0.05) was considered significant difference.

Results:

Table(1) showed the general characteristics of medical students and interns in Zagazig and Suez Canal Universities where they have nearly an equal age; (21.4 ± 1.3) in Zagazig University and (21.2 ± 1.1) in Suez Canal University, most of them were males; (67.03%), (59.9%) respectively and interns (32.81%) in Zagazig university and (31.81%) in Suez Canal University

Rank of the first career choice of medical students and interns in our two faculties was illustrated in Fig (1); where General Surgery have the 1st rank in faculty of medicine, Zagazig University (17.5%) while Obstetrics& gynecology was the 1st one in Faculty of Medicine, Suez Canal University (18.0%) and Rheumatology was the last chosen specialty in both faculties (2.2%), (0.8%) respectively.

By comparing first career choice of medical students and interns in Zagazig University and Suez Canal University we found from Table(2) that there was no significant difference between two faculties except for family medicine specialty which was highly significant in Faculty of Medicine, Suez Canal University(16.5%) in relation to faculty of medicine, Zagazig University(3.1%).

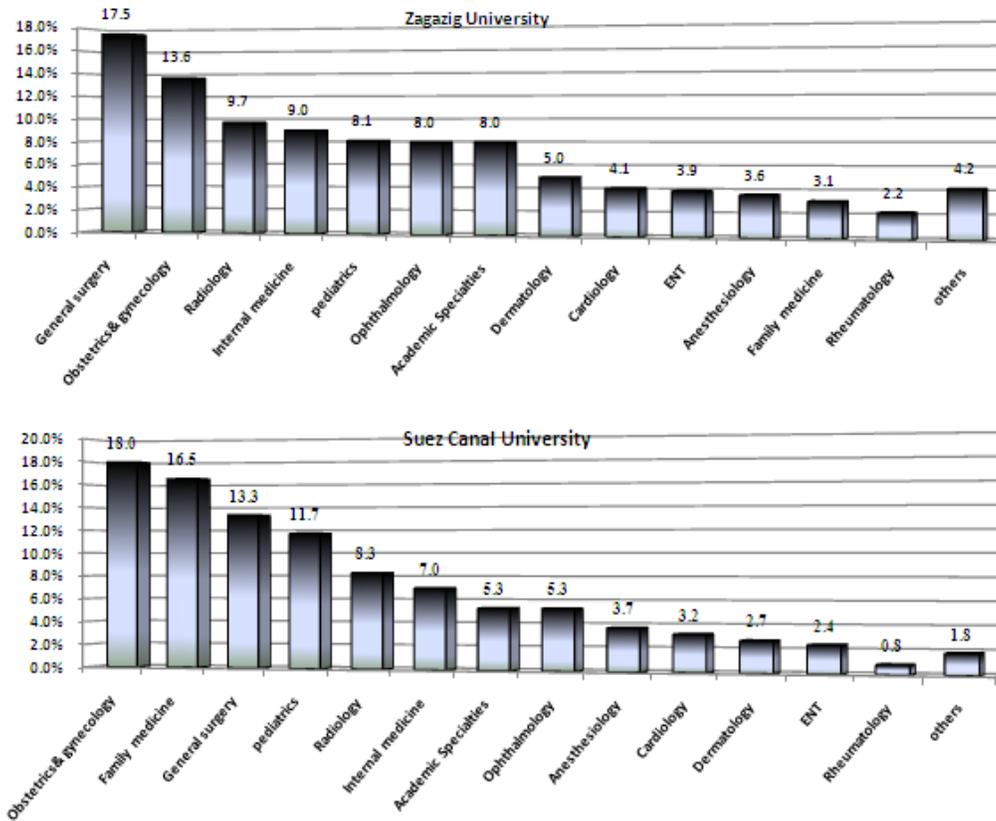
Fig (2) demonstrate Pattern of career choices of medical students and interns by gender in Zagazig and Suez Canal Universities where it was found that male choices were higher with significant difference in Zagazig University regarding the following specialties; General Surgery (261%), Ophthalmology(10.7%) ENT (5.8%) and Anesthesiology (5.1%) while female choices were of higher significant difference in Dermatology (18.0 %), Rheumatology (9.0%), Family Medicine (7.6%) and Academic specialties (24.2%). As regarding Suez Canal University; male choices were significantly higher in General Surgery (19.6%), Radiology (12.0%), Ophthalmology (7.6%), Anesthesiology (5.4%) and ENT (4.0%) and from the other side female choices were significantly higher in Pediatrics (19.3%), Academic specialties (13.3%) and Dermatology (3.3%).

As regard factors considered in chosen specialty by male and female medical students and interns in Zagazig and Suez Canal Universities; Table (3): showing that there was no significant difference in most of the factors between two faculties except for career opportunities in faculty of medicine, Zagazig University (75.93%) and Role model in the specialty in faculty of medicine Suez Canal University (79.14).

Fig (3) shows Factors considered in chosen specialty by male and female medical students and interns in Zagazig and Suez Canal Universities, where there was significant difference in nearly all factors in both groups except for family expectations in Zagazig University and role model of specialty in Suez Canal University, the highest male percentage(100.0%) was in career opportunities, ability to establish one's own practice (private) in both faculties in addition to high and stable future income in Suez Canal University, while highest female percentage was in no or little work related hazards of infection in Zagazig University (96.7%) and life style related to specialty is controllable In Suez Canal university(98.7%)

Table 1: General characteristics of medical students and interns in Zagazig and Suez Canal Universities.

Variables	Zagazig University		Suez Canal University	
	No (640)	% (100)	No (374)	% (100)
Age in years: Mean age \pm (SD) years	21.4 \pm 1.3		21.2 \pm 1.1	
Sex:				
Male	429	67.03	224	59.9
Female	211	32.97	150	40.1
Grade:				
4 th year	100	15.63	65	17.37
5 th year	136	21.25	80	21.39
6 th year	194	30.31	110	29.41
Interns	210	32.81	119	31.81



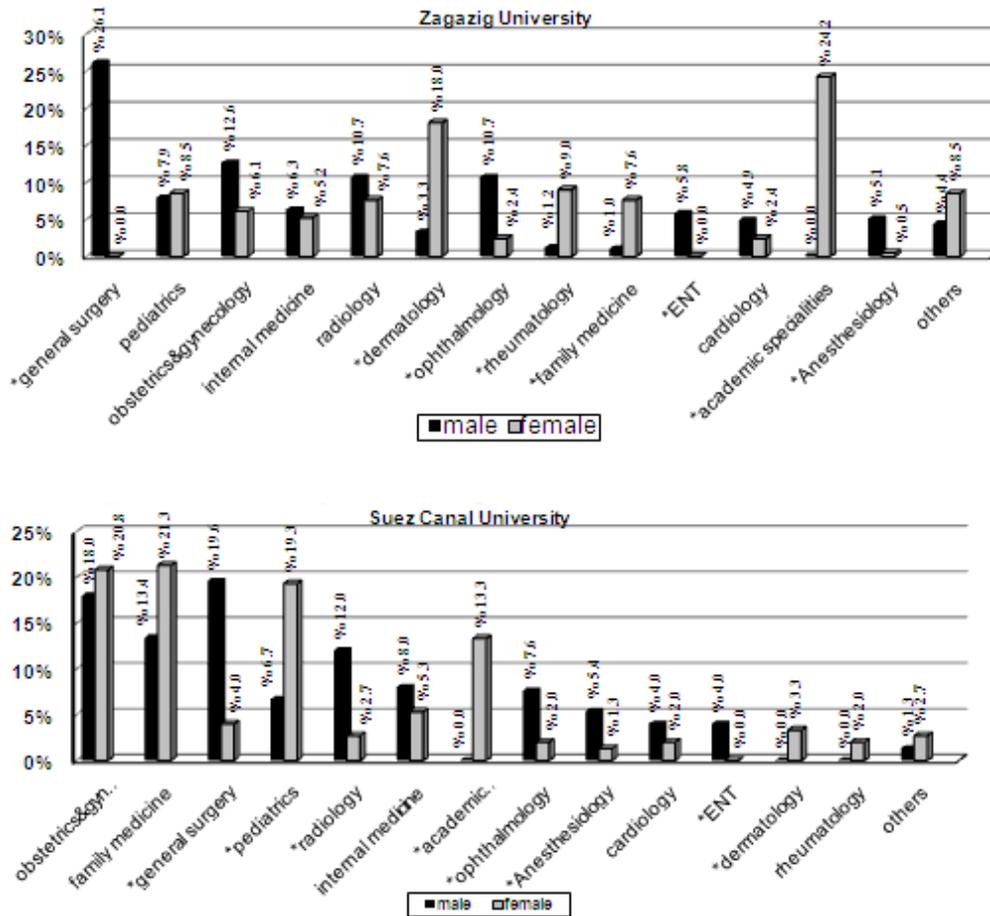
ENT: Ear, Nose & Throat

Fig. 1: Ranking of the first career choice of medical students and interns in Zagazig and Suez Canal Universities.

Table 2: Comparing first career choice (arranged alphabetically) of medical students and interns in Zagazig and Suez Canal Universities.

Specialty	Zagazig University		Suez Canal University		χ^2	P
	No	%	No	%		
Academic Specialties	51	8.0	20	5.3	2.10	0.1468
Anesthesiology	23	3.6	14	3.7	0.00	0.9593
Cardiology	26	4.1	12	3.2	0.27	0.6034
Dermatology	32	5.0	10	2.7	2.65	0.103
ENT	25	3.9	9	2.4	1.21	0.2716
Family medicine	20	3.1	62	16.5	55.68	0.0000*
General surgery	112	17.5	50	13.3	2.70	0.1002
Internal medicine	58	9.0	26	7.0	1.12	0.289
Obstetrics & gynecology	87	13.6	67	18.0	3.094	0.0785
Ophthalmology	51	8.0	20	5.3	2.10	0.1468
pediatrics	52	8.1	44	11.7	3.24	0.0720
Radiology	62	9.7	31	8.3	0.40	0.5275
Rheumatology	14	2.2	3	0.8	1.97	0.1602
Others	27	4.2	7	1.8	3.32	0.0683
Total	640	100.00	374	100.0		

*Significance difference (p<0.05)



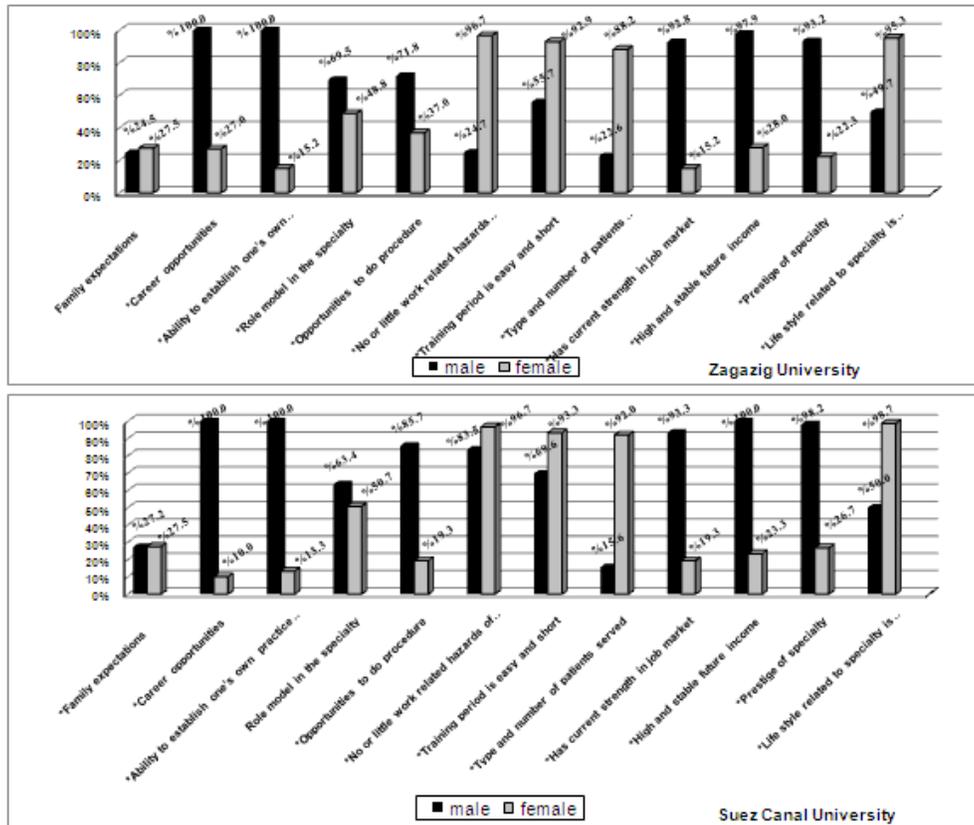
*Significance difference (p<0.05)

Fig. 2: Distribution of career choices of medical students and interns by gender in Zagazig and Suez Canal Universities.

Table 3: Factors considered when choosing specialty by male and female students and interns in Zagazig and Suez Canal Universities.

Factors	Zagazig University (No=640)		Suez Canal University (No=374)		χ^2	p
	No	%	No	%		
Family expectations	511	79.84	287	76.73	1.17	0.277
Career opportunities	486	75.93	239	63.90	16.18	0.000*
Ability to establish one's own practice (private)	432	67.50	244	65.24	0.44	0.504
Role model in the specialty	408	63.75	296	79.14	25.64	0.000*
Opportunities to do procedure	491	76.71	285	76.20	0.01	0.912
No or little work related hazards of infection	386	60.31	221	59.09	0.10	0.751
Training period is easy and short	401	62.65	245	65.50	0.71	0.398
Type and number of patients served	283	44.21	173	46.25	0.32	0.572
Has current strength in job market	430	67.18	238	63.63	1.17	0.279
High and stable future income	479	74.84	259	69.25	3.45	0.063
Prestige of specialty	447	69.84	260	69.51	0.00	0.969
Life style related to specialty is controllable.	460	71.87	250	66.84	2.61	0.106

*Significance difference (p<0.05)



*Significance difference (p<0.05)

Fig. 3: Factors considered when Choosing Specialty by male and female students and interns in Zagazig and Suez Canal Universities.

Discussion:

During the period of medical study, medical students exposed to a variety of experiences in many specialties. These experiences are so important because they form the basis for the student's ultimate career choice. A cross sectional study was conducted to compare the choices of two groups of students and interns; one from faculty of medicine that seeks accreditation (Zagazig University) and another accredited one (Suez Canal University).

Our results demonstrate that our sample in both faculties has nearly equal age and most of them were males and interns.

Regarding the selected choices by our students and interns we found that they select the same range of specialties in both universities. The first specialty choice of our medical students was general surgery in Zagazig University group (17.5%) and Obstetrics &gynecology in the Suez Canal group (18%) which is agreed with the finding of other studies done to investigate career choices (Huda and Yousuf, 2006; Aslam *et al.*, 2011) and this may be considered to great extent indifferent between both faculties as both of these specialties belongs to major general specialties of medicine also they depends on technique and surgical procedure.

On viewing other specialty choices of both groups we can found that the choices were nearly similar where they were ranged from major "hot" specialties as General Surgery, Obstetrics &Gynecology, Pediatrics and Internal medicine to other "cold" specialties as; Cardiology, Rheumatology, Dermatology, Ophthalmology, Radiology and Anesthesiology, beside presence of Family medicine which reflects national interest in this specialty which has high rank of choice (2nd rank) in Suez Canal's students while it was (12th) among Zagazig university's students. Also we noticed that Academic specialties have a place in the top 13 specialty choices(the most chosen one was microbiology specialty and the least was pharmacology) which were mainly chosen by female students as they found them more stable, comfortable and satisfy their needs in the same time. These ranges of chosen specialties are coordinate with the results of other studies (Aslam *et al.*, 2011).

When comparing the chosen specialties between two faculties we found that there were no significance differences between their choices except for family medicine where it was significantly higher in Suez Canal

group compared to Zagazig University group. This may be due to that in faculty of medicine, Suez Canal University the family medicine department was established since longer time as a separate department with a full capacity of staff members as well as the great interest of the faculty with community health problems and community based learning so a lot of the students accept the idea to be a family health practitioner while in Zagazig University the family medicine department is still a growing department also the students and interns undergo traditional way of learning or patient centered study (except in their study in community medicine department) which was reflected on their thinking to be specialist rather than general practitioner.

Although the females in our study represented about from third to fourth of our sample, they were under-represented in their choices of surgical specialties and technical ones in both group of faculties, while we can found that female choices were higher in less technical specialties and relatively comfortable ones (except their choice for Obstetrics & Gynecology in Suez Canal University) with significant difference in Dermatology and Academic specialties in both universities, Rheumatology & Family medicine in Zagazig University and Pediatrics in Suez Canal University. We can say in another word that our female students in both groups were more interested in what is called "Controllable lifestyle specialties" which have been defined as those that allow more personal time free of practice requirements for leisure, family, and control of total weekly hours spent on professional responsibilities (Bundaberg *et al.*, 2003) as this is suitable to the nature of females and their family responsibilities and their need for more time for their social life also we must consider that few or even absence of the female doctors to act as role model in surgical careers is an important factors to discouraged them from these specialties. This is in agreement with other studies having the same results (Sanfey *et al.*, 2006; Carolyn *et al.*, 2010 and Mwachaka and Mbugua, 2010).

Higher female choices to Obstetrics & gynecology in Suez Canal University may be due to culture, social and religious factors which still affect the choice and practice of this specialty as many female patients prefer female doctor of Obstetrics & gynecology specially in rural areas and this agrees with another study which concluded that among general medical specialties female usually prefer Obstetrics & gynecology and pediatrics (Khader *et al.*, 2008).

Male choices were higher in the specialties that need surgical procedures or special techniques with significant differences in; General Surgery, Ophthalmology, ENT and Anesthesiology in both groups and Radiology in Suez Canal University. These specialties almost have heavy workloads but at the same time have more prestigious careers in the medical field, high income and high chance of successful private practice which males usually looking for, and this agrees with other studies (Azizzadeh *et al.*, 2003 and Gargiulo *et al.*, 2006).

Factors considered during choosing the specialty are of greater importance to be known to understand the driven forces behind career choice; our study showed that the most important factor that was considered during choosing the specialty in Zagazig, faculty of medicine was family expectations which also was the 2nd highest one in Suez Canal faculty of medicine, and we were to some degree not surprised from that as there is still a great respect to the family and the view of parents in our community. This finding agrees with those other studies which concluded that family role can influence individuals' career behaviors (Corkin *et al.*, 2008 and Nedjat *et al.*, 2006). Most of other factors under study were nearly similarly considered by the students and interns of both faculties with no significant differences between them except for career opportunities and role model of specialties. Career opportunities which was significantly higher in Zagazig faculty of medicine was co ordinating with their 1st choice (General Surgery) and this is in agreement with another study conducted to detect reasons that could affect students' decision to pursue surgical specialties as a career, where, "prestige" and "career opportunities" were found to be highly positive aspects (Fukuda and Harada, 2010).

Role model in the specialty which was significantly higher in Suez Canal University group was explained by several studies that stated that the accreditation may affects staff members' leadership and their better understanding of their job contribution (Davis *et al.*, 2007). Also early and great interaction between them and their students which has a great influence on them when choosing a specialty. Conversely, lack of role models can leave medical students without the drive to pursue a career that they might otherwise have been interested in. Research findings showed that of all the sources of information available to medical students, role models were the most important specially when this role model is from the same sex of the student (Bundaberg *et al.*, 2003 and Mwachaka and Mbugua, 2010).

Controllable life style related specialty, was stated by high percentage of our participants and this may indicate that the ability to control lifestyle is becoming increasingly important in the decision making process of medical students and this agrees with the results of a study done at three medical schools where the number of students selecting a specialty with a controllable lifestyle significantly increased while intake to the specialties with non-controllable lifestyles significantly dropped (Salter, 2007). Also we can found that opportunities to do procedure, high and stable income, prestige of specialty have high percent, while type and number of patients served has the least percent in both groups and also this agrees with other studies that found that factors most likely to influence the specialty choice decision-making process were types of procedures and techniques involved exposure to a positive role model in the specialty, and ability to balance work and personal life (Fukuda and Harada, 2010).

Regarding gender differences in factors underlying specialty choice we can found that there were significant differences in nearly all factors in both groups except for family expectations in Zagazig faculty of medicine and role model of specialty in Suez Canal faculty of medicine with higher male percentage in factors related to the future of the career as career opportunities, ability to establish one's own practice (private), strength in job market, high and stable future income and prestige of specialty. While females are more likely to consider other factors as; no or little work related hazards of infection, training period is easy and short, type and number of patients served and life style related to specialty is controllable from which we can notice that the female beside their thinking in their career and future jobs they also give great interest to their social and personal life when deciding to chose the specialty. We also noticed that there was no great differences in these factors between the two faculties as social factors are the main driven ones. This gender difference agrees with other studies which has nearly the same results (Gjerberg, 2002; Wendel *et al.*, 2003 and Mwachaka and Mbugua, 2010). Also we noticed that about half of our male students (49.7%) in Zagazig faculty of medicine and (50.0%) in Suez Canal faculty of medicine were considering the controllable life style related to specialty . This indicates that even males think that life style and social life are among the important factors to be considered during choosing the specialty. From all above finding we can notice that the specialty choices and factors underlying them were nearly the same in the accredited faculty of medicine (Suez Canal University) and the non-accredited one (Zagazig University), this may be explained by the social role that has a great effect which was considered the same between both faculties. Also, faculty of medicine, Zagazig University has several steps in its way for seeking accreditation.

Conclusion and Recommendation:

Our study revealed similarities and differences in specialty preferences and factors influencing these choices among male and female students in both faculties. From all these factors we can found that the main factors which affected the specialty choices were; students' interest in the career and social aspects and responsibilities with unclear role of accreditation in choosing specialty. This study can serve as a pilot for future, more comprehensive studies following up the students from the early years in medical school to the actual time they choose the specialties. Also, those factors affecting specialty choices which are related to educational process must be more promoted by faculties' specially in specialties which may have deficient number of physicians. There is also a need for increasing awareness between medical students and interns about career choices in order to match the career preferences of students with the demands of the labor market. We also recommend conducting further studies to detect the effects of accreditation on career choices of medical students.

Limitations of the study:

Our study have the following limitations: scarcity of national data and researches about specialty choices and factors underlying them and finding the effects of accreditation on the students' choices represented a great difficulty for us to compare our results with other national ones. Also, this study was conducted in only two faculties of medicine, we think it must be perfumed national wide to get a complete picture about specialties and factors affecting them. Lastly factors under study may be expanded to analyze other factors related to demographic characteristics and educational system.

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Authors contributions:

Omnia.S.El seifi designed the study methodology and the questionnaire, analyzed the data statistically and wrote the manuscript. Eman M. Mortada conducted the practical phase, and submitted the paper. Both authors revised the manuscript and have seen and approved the final version.

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