

Which medical specialty do I choose?

The answer of Iraqi graduated doctors working in Basra

Husein J Nayef¹, Huda Adnan Habib Al-Mosawie²

¹ MBChB, High diploma in Medical Education, Basra Health Directorate, Basra, Iraq.

² MBChB, FMCMS Family Medicine, AL-Kindy College of Medicine, Baghdad, Iraq.

Corresponding Author:

Husein J. Nayef, Medical Educationist Basra Health Directorate, Basra, Iraq.
E mail: huseinhasnawi@yahoo.com

ABSTRACT

INTRODUCTION: There are multiple personal and professional factors appear to inspire doctors to choose a future medical specialty. Understanding these factors can help to plan postgraduate training and health manpower programmes.

OBJECTIVE: To determine the preferred specialties of graduated medical doctors working in Basra, and determine the factors behind their preferences.

METHODS: The study was conducted in 38 primary health care centres and seven hospitals in Basra from January - June 2014. A cross-sectional study was adopted with the use of a self-administered questionnaire form. Two hundred ninety six graduated doctors were agreed to participate. Chi-square test and logistic regression were used to test the association between deciding a future specialty and influencing factors.

RESULTS: The most preferred specialties were radiology and ultrasound, gynaecology and obstetrics, surgery, internal medicine, dermatology and paediatrics. Clinical specialties were statistically rated higher than basic medical sciences specialties. Anticipated more abilities and ensuring future development of skills were ranked as the most influencing factors. Gender differences, social backgrounds, role models, and focusing on urgent care were found significantly related to specialty preferences.

CONCLUSION: Multiple factors appear to enhance doctors to choose a future medical specialty. Good understanding of this process can help to plan postgraduate training and health manpower programs.

Key words: Medical education, future career, specialty choice, career choice, Basra.

Iraqi New Medical Journal January 2016;2(1)

INTRODUCTION

Medical education is one of the core part of educational system of any country. It is often assumed that students do not make their career preferences until they have graduated from medical school. However, not only medical school entrants,¹ but even medical school applicants, often have strong preferences for or against some medical careers.²⁻⁴

Many students enter medical school with an idea of which medical specialty they wish to pursue.⁵⁻⁶ However, the selection process begins in earnest during their clinical rotations when they are exposed to the clinical and intellectual environments of the various specialties.⁷

The exploration of specialty choices by

medical students is a hot debate as it affects several important determinants of health care delivery.⁸ Choosing a medical specialty can be either a daunting and confusing experience for some medical students and junior doctors, or a foregone conclusion to others.⁹ According to international studies, a variation is seen in the factors that drive students to make choices of specific career. These factors are changing in the last decades.¹⁰

Choosing medical specialty is one of the most important decisions in medical career, as from one hand; these choices decide the manpower distribution among different medical specialties all over the country, and from the other hand finding a specialty that suits personal abilities, lifestyle, intellectual challenge,

and research potential - among other factors - that agree with each one of them is not an easy process.¹¹

Worldwide, 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.¹²

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.¹³

Studying career preference can help provide important information to aid in planning educational programs, set priorities, and plan for the provision of adequate health care.¹⁴

On reviewing Iraqi medical literatures we found only one study addressing this important topic conducted in Baghdad,¹⁵ the study had targeted final year medical students. No single study was found in Basra. So this study is designed in order to understand the specialties preferred by graduated medical doctors who are working in Basra city and the factors behind their preferences.

METHODS

Study design and setting: A cross sectional descriptive study was conducted at the primary health care centres and hospitals in Basra city from January to June 2014.

Selection of sample: This study was conducted in health institutions of Iraqi Ministry of Health in Basra City. These institutions included all the primary health care centres of the two health sectors of the city, in addition to the seven governmental hospitals.

Inclusion criteria: this study was carried out among all post graduated doctors who were employed at the Ministry of Health institutions and working in city of Basra. They were invited to participate in the study without considering their gender, years of employment, departments, their work position or whether they had any medical specialty or not. No doctor had

been excluded from this study but those who refused to participate.

We distributed the questionnaire forms to doctors working at the primary health care centres after briefing them personally how to fill them in properly. For those who were working in hospitals, we had briefed the chief resident doctors in the hospitals to help his/ her colleagues how to fill in the questionnaire properly.

Procedure: The data was collected using a self-administered questionnaire form that include a list of factors supposed to be effective in selection of specialty after a comprehensive review of relevant topics in the literatures. The questionnaire information was divided into two main sections: **Section I information** consists of a set of 17 questions about the socio-demographic and academic characteristics including age, gender, date of graduation, place of work, social background, parents' age, educational level and jobs, monthly family income, order in the family, home crowding factor, and ability to cover expenses of specialty study. It also includes questions regarding the preferred specialty and whether they are satisfied with their choice of specialty. We tried to make all the questions as closed ended. **Section II information** includes information regarding the factors behind speciality preference or choice, the answers rated into six groups by using a four-point Likert scale ranging from 0 (not significant) to 3 (very significant).

The questionnaire was pretested on 20 randomly selected doctors to ensure clarity of the questions, then, it was revised based on the responses and feedback received.

Statistical analysis: In order to facilitate the input of collected data, definition of different variables in the questionnaire had put. Age of participants arranged in groups and each group composed of one decade (24-33 years old, 34-43 years old... etc.). Participants divided according to graduation time into five groups: junior doctors, resident doctors, general practitioners, post-graduate students, and specialist doctors. Regarding family monthly income, there is no announced national standard level. We considered a monthly income of above 1,250 USD as good income.

Data collected and handled using the Statistical Package for Social Sciences (SPSS) version 17.0. The Descriptive statistics (Numbers, frequency) were used to describe variables. In addition,

tion, Chi-square test (χ^2) and logistic regression were used to assess the association between variables under the study. P-value <0.05 was considered as the cut-off value for significance.

RESULTS

The total number of doctors working at thirty eight primary health care centres and health institutes was 170 doctors while those who were working in the seven governmental, general and specialized, hospitals in Basra City were 400 doctors. The total number of doctors who accepted to participate in the study and had answered the questionnaire forms was 296. The response rate was 51.9%.

Table 1 shows the socio-demographic characteristics of the population studied. The age of the participants ranged from 24 to 64 years. Male doctors accounted for 153 (51.7%), while female doctors were 143 (48.3%). General Practitioner doctors who answered the questionnaire form were 100 (33.8%). The highest proportion (144; 48.6%) of doctors was post graduate students and specialists doctors. One hundred fifty five (52.4%) of the participants were working in primary health care centres and the remaining were working at hospitals.

The preferred specialty choices of doctors are presented in **Table 2**. The most preferred overall speciality was radiology and ultrasound 48 (16.8%) followed by gynaecology and obstetrics 40 (14 %), and internal medicine 33 (11.5%). The most preferred speciality among male doctors was internal medicine (17.6%), followed by orthopaedics (10.45%), paediatrics (9.8%) and dermatology (9.15%). While in female doctors, the most preferred specialties were radiology and ultra-sounds (27.97%) followed by gynaecology and obstetrics (18.88%), family medicine (12.58%), and dermatology (9%). The less preferred specialties were forensic medicine, psychiatry, laboratory sciences, paediatrics surgery, radiotherapy, biochemistry, physiology, medical leadership (0.33%). Also there was only one case prefer no specialty at all.

In our questionnaire we mentioned 29 factors we thought they are effective in choosing the specialty among graduating doctors, **Table 3** which summarize the participants' answers regarding them. Specialties offer more abilities and those ensure future development of skills were considered the most highly effective.

Table 1: Socio-demographic characteristics of the study population

	Characteristics	No.	%
Gender	Male	153	51.7
	Female	143	48.3
Age	24-33	130	43.9
	34-43	81	27.4
	44-53	60	20.3
	54-64	25	8.4
Graduation time	Junior rotator	43	14.5
	Resident doctor	9	3
	G P doctor	100	33.8
	Specialist doctors	144	48.6
Place of work	PHCC	155	52.4
	Hospital	141	47.6
Social origin	Urban	264	89.2
	Rural	32	10.8
Income	Good income	237	80.1
	Low income	59	19.9
Parent's education level		Father	Mothers
	Illiterate	15 (5.1)	69 (23.3)
	Primary school	43 (14.5)	58 (19.6)
	Intermediate school	27 (9.1)	20 (6.8)
	Tertiary school	36 (12.2)	25 (8.4)
	Diploma	42 (14.2)	47 (15.9)
	College	111 (37.5)	73 (24.7)
	Post graduate	22 (7.4)	4 (1.4)
Parent's age		Father	Mother
	40-49	2 (0.7)	14 (4.7)
	50-59	39 (13.2)	102 (34.5)
	60-69	105 (35.5)	93 (31.4)
	70-79	36 (12.2)	28 (9.5)
	80-89	8 (2.7)	11 (3.7)
	Dead	106 (35.8)	48 (16.2)
Parent's job		Father	Mother
	Retired	86 (29.1)	37 (12.5)
	Civil Servant	143 (48.3)	79 (26.7)
	Military Servant	6 (2)	
	Self employed	61 (20.6)	2 (0.7)
	Housewife		178 (60.1)
Order in family	1st-3rd	192	64.9
	4th and above	104	35.1
House Crowding factor	1	132	44.6
	2	145	49
	3	10	3.4
	4	9	3
Financial to secure study expenses			
	Able	178	60.1
	Unable	118	39.9

Table 2: The most preferred specialties selected by participants

	Speciality preferred	No.	%
1	Radiology & ultrasound	48	16.8
2	Gynaecology & obstetrics	39	13.6
3	Internal medicine	33	11.5
4	Dermatology	27	9.4
5	Paediatrics	27	9.4
6	Family medicine	23	8.0
7	Orthopaedics & rheumatology	16	5.6
8	Community medicine	13	4.5
9	Ear Nose & Throat surgery	11	3.8
10	Ophthalmology	9	3.1
11	Cosmetic surgery	7	2.4
12	Cardiothoracic surgery	7	2.4
13	General surgery	5	1.7
14	Cardiology	4	1.4
15	Emergency medicine	4	1.4
16	Oncology	3	1.0
17	Neurosurgery	3	1.0
18	Anaesthesiology	3	1.0
19	Urology	3	1.0
20	Had not decided yet	1	0.3
	Total	286	100

tive factors in specialty selection. Meanwhile, physician's age and specialty with less hours of practice were the most factors considered non-effective in decision making of specialty selection.

The univariate analysis shows that factors which are significant and may play role in choosing specialty among graduating doctors were: gender, social origin and background, role model effect, specialty with less hours of practice, specialty with no or few number of calls, specialty with less working pressure, specialty which offer effective reaction with patients and specialty focus on urgent care. However when we applied multivariate analysis, we found that variables still have association with preferred specialty were: Gender, Social origin and background, Role model effect and Focus on urgent care. (Tables 4-7)

We tried to measure degree of satisfaction among our participants who were already have made their choices. They were 113 specialist doctors. Their satisfaction regarding selected specialty was as follows: Orthopaedics (100%), dermatology (90%), family medicine (86.6%), community medicine (85.7%), surgery (84.6%), gynaecology/obstetrics (75%), internal medicine

(73.3%), radiology and ultrasound (66.6%) and paediatrics (40%). Female doctors were slightly with higher rate of satisfaction regarding their choice (79.16%) than male doctors (78.64%)

DISCUSSION

We chose graduated doctors; a time in which doctors are expected to reach a clearer, if not a definitive view of their future career path. Therefore we had only one doctor (0.3%) who has not yet reached for a decision about future specialty. In contrary to this result, (19.8%) of Saudi⁸ and (62.8%) of Kuwaiti⁹ medical students have failed to reply with a definite choice of specialty selection. This can be explained by the fact that involving in real practice of medicine and exposure to more specialties make graduating doctors less likely to change their choices of future specialty.⁹

Our study has showed that radiology and ultrasound is the preferred specialty by doctors of Basra City and dermatology is the forth. In a similar study conducted in Iraq on the final year medical students of Al-Kindy College of Medicine in 2008, it was reported that the most preferred clinical specialties were internal medicine followed by surgery, paediatrics, and obstetrics and gynaecology.¹⁵ Al-Kindy study were consistent with nearly similar results among medical students obtained from studies done in Saudi Arabia,⁸ Kuwait,⁹ and Jordan.¹⁴

Radiology and ultrasound headed all preferred specialties in this study and especially for female. Many previous studies explained this by the fact that females are influenced in their choice for the career by family-friendly working conditions and by the possibility, to have close relationships to patients, a sizeable income, a short residency, and an own practice.¹⁶ Relative preferences of Doctors working in Basra for dermatology can be attributed to have much less intense schedule of training, few duties (especially overnight), very good financial rewards and relatively normal work-weeks.¹⁷ Increasing scope and popularity of dermatology both in curative and cosmetic domains may also explain this preference. Similar rise¹⁸ and attraction of female to dermatology is shown in another study in Pakistan.¹⁴

In this study, psychiatry, forensic medicine, biochemistry and physiology were the least preferred specialties. Both this study and Al-Kindy study has showed that clinical specialties were

Table 3: Suggested influencing factors on specialty selection and participants' answers summary

	Influencing factors	None Effective	Slightly effective	Moderately effective	Highly effective
1	Age at time of specialty	129 (43.6)	35 (11.8)	76 (25.7)	56 (18.9)
2	Grade point average	77(26)	29 (9.8)	105 (35.5)	85 (28.7)
3	Cultural & social factors	90 (30.4)	38 (12.8)	109 (36.8)	59 (19.9)
4	Prestige	67 (22.6)	54 (18.2)	103 (34.8)	72 (24.3)
5	Self-esteem	46 (15.5)	34 (11.5)	110 (37.2)	106 (35.8)
6	High income	71 (24)	47 (15.9)	110 (37.2)	68 (23)
7	Easy entrance exam	101 (34.1)	37 (12.5)	102 (34.5)	56 (18.9)
8	Teachers advice	105 (35.5)	53 (17.9)	95 (32.1)	43 (14.5)
9	Friends advice	80 (27)	66 (22.3)	109 (36.8)	41 (13.9)
10	Family advice	97 (32.8)	40 (13.5)	111 (37.5)	48 (16.2)
11	Same specialists advice	78 (26.4)	52 (17.6)	108 (36.5)	58 (19.6)
12	Role model effect	85 (28.7)	33 (11.1)	103 (34.8)	75 (25.3)
13	Peers & colleagues effect	66 (22.3)	57 (19.3)	118 (39.9)	55 (18.6)
14	Less working hours	113 (38.2)	25 (8.4)	77 (26)	81 (27.4)
15	Few numbers duties	96 (32.4)	25 (8.4)	67 (22.6)	108 (36.5)
16	Specialty flexibility	68 (23)	38 (12.8)	96 (32.4)	94 (31.8)
17	Low working pressure	94 (31.8)	30 (10.1)	87 (29.4)	85 (28.7)
18	Good training chance	53 (17.9)	35 (11.8)	131 (44.3)	77 (26)
19	Research chance	40 (13.5)	33 (11.1)	131 (44.3)	92 (31.1)
20	Patients close follow up of Patients	45 (15.2)	48 (16.2)	101 (34.1)	102 (34.5)
21	None intense training program	39 (13.2)	38 (12.8)	126 (42.6)	93 (31.4)
22	MoH acceptance condition	71 (24)	34 (11.5)	110 (37.2)	81 (27.4)
23	Effective reactions with patients	34 (11.5)	50 (16.9)	137 (46.3)	75 (25.3)
24	Future skills improvement	28 (9.5)	19 (6.4)	136 (45.9)	113 (38.2)
25	Focus on community health	37 (12.5)	37 (12.5)	124 (41.9)	98 (33.1)
26	Focus on urgent care	80 (27)	39 (13.2)	115 (38.9)	62 (20.9)
27	Special curriculum	36 (12.2)	41 (13.9)	121 (40.9)	98 (33.1)
28	High intellectual content	24 (8.1)	37 (12.5)	127 (42.9)	108 (36.5)
29	Offers more abilities competencies	21 (7.1)	26 (8.8)	122 (41.2)	127 (42.9)

Table 4: Association of Gender with preferred specialty

Preferred Specialty	Gender		Total (%)
	Male (%)	Female (%)	
Gynaecology and Obstetrics	12 (30.0)	28 (70.0)	40 (100)
Medicine*	58 (55.2)	47 (44.8)	105 (100)
Surgery*	66 (55.9)	52 (44.1)	118 (100)
Paediatrics	15 (55.6)	12 (44.1)	27 (100)
Others	2 (33.3)	4 (66.7)	6 (100)
Total	153 (51.7)	143 (48.3)	296 (100)

P-value= 0.042
 * Surgery and medicine here are the sum of all related branches and sub-specialties. According to Iraqi Ministry of Health categorization, surgery includes radiology, ultrasound, ENT, ophthalmology, orthopaedics, emergency medicine, urology, anaesthesiology and others. Medicine includes family medicine, dermatology, community medicine, oncology, psychiatry and others

Table 5: Association of Social origin with preferred specialty

Preferred Specialty	Social origin		Total
	Urban (%)	Rural (%)	
Gynaecology and Obstetrics	37 (92.5)	3 (7.5)	40 (100)
Medicine*	99 (94.3)	6 (5.7)	105 (100)
Surgery*	103 (87.3)	15 (12.7)	118 (100)
Paediatrics	19 (70.4)	8 (29.6)	27 (100)
Others	6 (100)	0 (0)	6 (100)
Total	264 (89.2)	32 (10.8)	296 (100)

P value = 0.006
 * Surgery and medicine here are the sum of all related branches and sub-specialties. According to Iraqi Ministry of Health categorization, surgery includes radiology, ultrasound, ENT, ophthalmology, orthopaedics, emergency medicine, urology, anaesthesiology and others. Medicine includes family medicine, dermatology, community medicine, oncology, psychiatry and others

Table 6: Association of Role model effect with preferred specialty

Preferred Specialty	Effectiveness of Role model (%)				Total (%)
	None	Slightly	Moderately	Highly	
Gynaecology & Obstetrics	8 (20)	3 (7.5)	12 (30)	17 (42.5)	40 (100 %)
Medicine*	31 (29.5)	17 (16.2)	28 (26.7)	29 (27.6)	105 (100 %)
Surgery*	37 (31.4)	7 (5.9)	52 (44.1)	22 (18.6)	118 (100 %)
Paediatrics	5 (18.5)	5 (18.5)	10 (37)	7 (25.9)	27 (100 %)
Others	4 (66.7)	1 (16.7)	1 (16.7)	0 (0)	6 (100 %)
Total	85 (28.7)	33 (11.1)	103 (34.8)	75 (25.3)	296 (100 %)

P value = 0.006
 * Surgery and medicine here are the sum of all related branches and sub-specialties. According to Iraqi Ministry of Health categorization, surgery includes radiology, ultrasound, ENT, ophthalmology, orthopaedics, emergency medicine, urology, anaesthesiology and others. Medicine includes family medicine, dermatology, community medicine, oncology, psychiatry and others

Table 7: Association of Focus on urgent care with preferred specialty

Preferred Specialty	Focus on urgent care (%)				Total (%)
	None effective	Slightly effective	Moderately effective	Highly effective	
Gynaecology and Obstetrics	3 (7.5)	6 (15)	18 (45)	13 (32.5)	40 (100)
Medicine*	40 (38.1)	12 (11.4)	31 (29.5)	22 (21)	105 (100)
Surgery*	29 (24.6)	16 (13.6)	53 (44.9)	20 (16.9)	118 (100)
Paediatrics	6 (22.2)	2 (7.4)	13 (48.1)	6 (22.2)	27 (100)
Others	2 (33.3)	3 (50)	0 (0)	1 (16.7)	6 (100)
Total	80 (27)	39 (13.2)	115 (38.9)	62 (20.9)	296 (100)

P value = 0.003
 * Surgery and medicine here are the sum of all related branches and sub-specialties. According to Iraqi Ministry of Health categorization, surgery includes radiology, ultrasound, ENT, ophthalmology, orthopaedics, emergency medicine, urology, anaesthesiology and others. Medicine includes family medicine, dermatology, community medicine, oncology, psychiatry and others

statistically rated higher than specialties of basic medical sciences, though it is much higher in our study (98.6 % vs. 73.1 %). In this study, we have only two doctors who prefer biochemistry and physiology. The low rate of choice of basic medical sciences is shown by other studies and it is noteworthy. This is of concern because usually there is a shortage of specialists in the basic medical sciences and specialists in primary health care.¹⁹

Gender differences were found in clinical specialty preferences (see table 4). Among male doctors, the most preferred specialties were internal medicine, followed by orthopaedics, paediatrics and dermatology. Among female doctors, the most preferred specialties were radiology and ultra-sounds followed by gynaecology and obstetrics, family medicine, and dermatology. This result is nearly similar to observations in other studies conducted in Jordan,¹⁴ Saudi Arabia,²⁰ and Egypt.²¹ Turner et al has observed the same result in European countries. Obstetrics and gynaecology was the second most preferred specialty of female doc-

tors (18.88%). This high prevalence is similar to findings from Japan, Jordan, Turkey, and Switzerland.^{5,14,22,23}

Unexpected displacement of obstetrics and gynaecology to the second rank from female doctors' perspective may be due to heavy workloads and uncontrollable lifestyle, rather than lack of enthusiasm for this specialty. Still male doctors did not consider obstetrics and gynaecology one of their preferred fields of work (7.48%). From Saudi Arabia, Al Faris et al has reported a male preference of gynaecology and obstetrics of 4 % while Khader et al from Jordan reported 1%. Possibly, this very low interest in obstetrics and gynaecology by male doctors reflects the conservative socio-cultural environment in Islamic countries. In contrast to this Figueiredo et al has reported a preference of 18% and 16% by two cohorts of male students from Brazil. The fact that more women than men opted for gynaecology and paediatrics could be explained by presence of more same sex role models.²⁴

Statistically significant gender differences were noted in various earlier studies from Turkey,⁵ Jordan,¹⁴ Japan,²² India,²⁵⁻²⁶ Pakistan,²⁷ and Trinidad.²⁸ However, a recent study from China has shown evidence of changing patterns in the traditional gender based choices.²⁹

Work-family-lifestyle balance influences career decisions, work structures and locations. This balance is important not only for female medical students, but many male students now see balance in their lives as a high priority and some young male doctors are interested in part-time work.³⁰ Ultimately there is no right and wrong when it comes to maintaining a work-life balance, and it's also a changing process as people's needs and wishes change.³¹

Bundaberg et al found that half of female prefer specialty with few duties schedule. This is compatible with the fact that females were more interested in "Controllable lifestyle specialties" which allow more personal time for leisure, and family as this is suitable to the nature of females and their family responsibilities. A study from Jordan,¹⁴ and Huda and Yousuf from Pakistan¹⁸ have documented this result in their studies. In agreement with Sanfey et al, Carolyn et al, Mwachaka and Mbugua, Harris et al, Redman et al, Salter, and Scott et al studies which revealed the same results. Earlier research showed that females were more ready than their male peers to compromise career aspirations for family life.³²⁻³⁵

With a steady feminization of medicine in the world, scenarios of having male dominant speciality has changed and lifestyle and income will continue to get priority for choice of specialty.³⁶ A study done in Egypt found that even males think that life style and social life are among the important factors to be considered during choosing the specialty.²¹

Gender segregation in speciality preference has been found already in medical school.²⁴

In our study, the high-ranked choices for male doctors (internal medicine, surgical specialties and pediatrics) were consistent with the results of studies conducted in non-western universities such as Khader et al in Jordan. Azizzadeh et al and Gargiulo et al showed that 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.²¹ Blakemore et al and Fysh et al have observed popularity for surgery among female which reflects the worldwide decreasing dominance of men in this specialty, but it is not revealed in this study, since female selection for surgical specialties was only (7.6%). Lack of female role models and decision to have a family were blamed for this.³⁷ Some female doctors may not feel that they fit into a particular speciality because of the cultural condition in some branches of the profession for example general surgery.³⁸

Our study has showed that 12.85 % of female doctors (third best choice for female) and 3.26 % of male have chosen family medicine as preferred speciality. For women work-family balance is a major motivational factor to choose family medicine.²⁴ The observation that family medicine was a low popularity speciality choice among the male doctors needs further attention. Despite the importance of family physicians to the health care system and the fact that we have only 113 (4.27%) primary health care centres applying family medicine system,³⁹ male doctors' interest in primary care is still lower than expected. Pugno et al and Senf et al studies have revealed less interest in family medicine in many countries.^{5,28,40-41}

Gender differences regarding career choice appear to be a combination of attitudinal factors, such as type of preferred patients and work and lifestyle preferences.⁴²

In our study, other specialties like biochemistry, radiotherapy, laboratory sciences, physiology, hematology and forensic medicine have got preference rate of 2% only. A possible explanation for this could be the availability of clinical branches, a general enthusiasm to treat patients directly and least financial reward.

Our study has showed that the most highly effective factors considered by male doctors to affect their choices were: Offering more abilities (40.5%), more self-esteem (35.9%), close follow-up with patients and high intellectual content (30.7%). while factors affect choices of female doctors were: No or low on-calls schedule (50.3%), development of future skills (46.8%), offering more abilities (45.5%), high intellectual content (42.6%).

If we compare this result to the answers of final year students in Al-Kindy Medical College which was personal interest (33.3%) and anticipated higher income (29%) in both genders,¹⁵

we can notice that practicing medicine added more wisdom and experience to our participants' choices.

In our study, we found both personal and professional factors to be significant in doctors' choices. This is in agreement with the results of studies from Kuwait, Jordan, Japan, Canada, Turkey, and the USA.^{1,5,9,14,22,43-45} We postulate that this may be due to the cultural and geographical proximity.

Although influence of role models was significant in our study, but it was not among the most influential factors (see **table 3**). Our results have showed that female doctors pay more weight to role models than males, and especially in gynaecology and obstetrics and paediatrics. This is similar to other studies which showed more women than men reported having had a role model, and they appear to work best in an environment without negativity toward one's chosen speciality.⁴⁶

Lack of mentors and role models are one of gender-specific barriers to women career success and satisfaction.⁴⁷ Females are discouraged from specialities such as surgery as there are few female surgeons to be a role model. Consequently they turn to other specialities that have more female representation such as paediatrics, and gynaecology and obstetrics.⁴⁸

Our results have revealed a substantial association between social backgrounds with preferred specialty (see **table 5**). Among doctors of rural background, paediatrics was the most preferred specialty (25%). Family medicine was not preferred speciality in contrast to research continues to support the existence of a positive relationship between a student's rural background and choice of family medicine.⁴⁹

Another significant relation found between focusing on urgent care and preferred specialty (see **table 7**). Female doctors considered this factor highly effective (21.67%) little bit more than males (20.26%). This association revealed more in gynecology/obstetrics (77.5%) and pediatrics (70.37%). Association of urgent care and female gender and gynecology was shown in a study in Gambia.¹⁹ High chance of exposure to complications in these two branches of medicine and the tendency to ensure close physician-patient relationship may explain this association.

Previous studies have found that economic factors were uniformly important considera-

tions for selecting a specialty.⁵⁰⁻⁵⁹ In contrast to our result which showed that "high income" was assigned low weights by doctors on their choices of specialties. Governmental financial support of post graduate study and the fact that 60.1 % of participants in our study were already able to cover expenses of their post graduate study may explain the above result. Analysis by gender revealed that the weight of "high income" for male doctors (26.14%) was higher than that for female (19.58%). This sounds logical in our culture which depends on male in their provision of monthly income.

In our study both female and male doctors have a comparable level of satisfaction regarding their choice (79.16 % versus 78.64 %). This in contrast to McMurray et al⁶⁰ who has found women more dissatisfied than men.

Scarcity of national data and researches about speciality choices and factors underlying them represented a great difficulty to compare our results with other national ones. The response rate for the questionnaire is acceptable, the return rate at health care centres was (91.17%), but it was only (35.25%) at hospitals. The self-reported reasons for choice may have been influenced by the actual working conditions in the residency, or expectations of and experiences with specialties. The cross-sectional design might have limited the scope of this study. More research and expanded factors are demanded on this topic on large sample to come out findings with more precision and externally validated.

CONCLUSIONS

1. The most preferred specialties chose by graduated doctors working in Basra were radiology and ultrasound, gynaecology and obstetrics, surgery, internal medicine, dermatology and paediatrics.
2. The most preferred specialties among male were internal medicine, orthopaedics, paediatrics and dermatology, while among female were radiology and ultra-sounds, gynaecology and obstetrics, family medicine, and dermatology.
3. Clinical specialties were statistically rated higher than basic medical sciences specialties.
4. Multiple factors appear to enhance doctors

to choose a future medical speciality. Anticipated more abilities and ensuring future development of skills were ranked as the most influencing factors.

- Gender differences, social backgrounds, role models and focusing on urgent care were found significantly related to specialty preferences.

REFERENCES

- Wright B, Scott I, Woloschuk W, Brenneis F, Bradley J. Career choice of new medical students at three Canadian universities: family medicine versus specialty medicine. *CMAJ* 2004;170:1920-1924.
- McManus IC, Lefford F, Furnham AF, Shahidi S, Pincus T. Career preference and personality differences in medical school applicants. *Psychology, Health and Medicine* 1996; 1:235-248.
- Hutt R, Parsons D, Pearson R. The timing of and reasons for doctors' career decisions. *Health Trends* 1981; 13:17-20.
- Zeldow PB, Preston RC, Daugherty SR. The decision to enter a medical speciality: timing and stability. *Medical Education* 1992; 26:327-332.
- Dikici MF, Yaris F, Topsever P, Fillz TM, Gurel FS, Cubukcu M, Gorpelloglu S. Factors affecting choice of specialty among first-year medical students of four universities in different regions of Turkey. *Croat Med J* 2008; 49:415-420.
- Scott IM, Wright BJ, Brenneis FR, and Gowans MC. Whether or wither some specialties: a survey of Canadian medical student career interest. *BMC Medical Educ* 2009; 9:57.
- Charles Weissman, Rachel Yaffa Zisk-Rony, Josh E Schroeder, Yoram G Weiss, Alex Avidan, Uriel Elchalal and Howard Tandeter. Medical specialty considerations by medical students early in their clinical experience. *Israel Journal of Health Policy Research* 2012; 1:13.
- Mahmood SI, Kumar A, Al-Binali A, Borleffs JC. Specialty preferences: trends and perceptions among Saudi undergraduate medical students. *Med Teach* 2012; 34 suppl: 551-60.
- Al-Fouzan R, Al-Ajlan S, Al-Saleh M. Factors affecting future specialty choice among medical students in Kuwait. *Med Educ Online*, access date 2012 December 20; 17: 1-7, <http://www.ncbi.nlm.nih.gov/pubmed/23272649>
- Soethout MBM, Ten Cate TJ, Ven der wal G. Factors associated with the nature timing and stability of specialty career choices of recently graduated doctors in European countries, a literature Review. *Med Educ* 2004; 9:24.
- Chang PY, Hung CY, Wang KI, Huang YH, Chang KJ. Factors influencing medical students' choice of specialty. *J Formos Med Assoc*; 105(6):489-96.
- Brotherton SE, Rockey PH, Etzel SI. US graduate medical education, 2003-2004. *Journal of the American Medical Association* 2004; 292(9):1032-1037.
- Anzellotti K, Kamin DS, Sunshine JH, Forman HP. Relative attractiveness of diagnostic radiology: assessment with data from the National Residency Matching Program and comparison with the strength of the job market. *Radiology* 2001; 221(1):87-91.
- Khader Y, Al-Zoubi D, Amarin Z, Alkafagei A, Khasawneh M, Burkan S, El Salem K, Omari M. Factors affecting medical students in formulating their specialty preferences in Jordan. *BMC Medical education* 2008; 8:32.
- Al-Mendalawi MD. Specialty preferences of Iraqi medical students. *Clin Teach* 2010 Sep; 7(3):175-9.
- Gensch K: [Occupational decisions of young physicians and possible future consequences for the provision of medical care. Results of an anonymous questionnaire]. *Gesundheitswesen* 2007; 69:359-370, [in German].
- Start Medicine.com. [Online] Available from: <http://www.start-medicine.com/app/specialtychoice.asp> [Accessed 18th June 2014]
- Huda N, Yousuf S. Career preference of final year medical students of Ziauddin Medical University. *Educ Health* (Abingdon) 2006; 19: 345-53.
- Mustapha Bittaye, Akin-Tunde Ademola Odukogbe, Ousman Nyan, Bintou Jallow and Akinyinka O Omigbodun. Medical students' choices of specialty in The Gambia: the need for career counseling. *BMC Medical Education* 2012; 12:72
- AL-FARIS, E., KALANTAN, K., AL-ROWAIS, N., AL-MAHDI BALLA AL-NOOR, M., AL-UMRAN, K., KABRAAH, M., BADWI, I. & JAR-ALLAH, J. Career choices among Saudi medical students. *Academic medicine* 1997; 72: 65.
- El Seifi OS, Mortada EM. Specialty Choices Among Medical Students And Interns In Egyptian Accredited And Non Accredited Faculties Of Medicine. *Current Science International* 2011; 1(1): 12-19.
- Saigal P, Takemura Y, Nishiue T, Fettes MD. Factors considered by medical students when formulating their specialty preferences in Japan: Findings from a qualitative study. *BMC Med Educ* 2007; 7:31.
- Buddeberg-Fischer B, Klaghofer R, Abel T, Buddeberg C. Swiss residents' specialty choices – impact of gender, personality traits, career motivation and life goals. *BMC Health Serv Res* 2006; 6:137.
- Diderichsen S, Johansson EE, Verdonk P, Lagro-Janssen T, Hamberg K. Few gender differences in specialty preferences and motivational factors: a cross-sectional Swedish study on last-year medical students. *BMC Medical Education* 2013;13:39.
- Vaishali, Sudeepa D, Suvarna M. A study on career preferences and attitude towards the rural health services among the graduating interns of a medical college in Bangalore rural. *Int J Biol Med Res* 2012; 3(2):1577-1580.
- Gour N, Srivastava D, Adhikari P, Shahi A, Sharma MK, Mahajan PC. Specialty Preference Among Medical Students and Factors Affecting It. *Online J Health Allied Scs* 2011; 10(2):12.
- Rehman A, Rehman T, Shaikh MA, Asif A, Kafil H, Yasmin H. Pakistani medical students' specialty preference and the influencing factors. *J Pak Med Assoc* 2011; 61 (7): 713-8.
- Baboolal NS, Hutchinson GA. Factors affecting future choice of specialty among first-year medical students of the University of the West Indies, Trinidad. *Med Educ* 2007; 41: 50-6.
- She L, Wu B, Xu L, Wu J, Zhang P, Li E. Determinants of career aspirations of medical students in southern China. *BMC Med Educ* 2008 Dec 11; 8:59.
- Tolhurst M Helen and Stewart M Stephen. Balancing work, family and other lifestyle aspects: a qualitative study of Australian medical students' attitudes. *Med J Aust* 2004; 181 (7): 361-364.
- Abi Rimmer. How should working times change for trainees? *BMJ Careers*. [Online] Available from: http://careers.bmj.com/careers/advice/view_article.html?id=20015362 [Accessed 18th June 2014]
- Drinkwater J, Tully MP, Dornan T: The effect of gender on medical students' aspirations: a qualitative study. *Med Educ* 2008; 42:420-426.
- Sanfey HA, Saalwachter-Schulman AR, Nyhof-Young JM, Eidelson B, Mann BD: Influences on medical student career choice: gender or generation? *Arch Surg* 2006; 141:1086-1094.

34. Gender equality in speciality choice (Swedish title: jämställt specialitetsval). https://www.slf.se/upload/Lakarforbundet/Trycksaker/PDFer/Utbildning/j%C3%A4mst%C3%A4llt_specval_webb.pdf. [Accessed 12th July 2014]
35. Johansson EE, Hamberg K. From calling to a scheduled vocation: Swedish male and female students' reflections on being a doctor. *Med Teach* 2007 Feb; 29(1):e1-8.
36. Bedanta Roy, Indrajit Banerjee, Brijesh Sathian, Monami Mondal, Sai Sailesh Kumar, Chhanchu Gopal Saha. Attitude of Basic Science Medical Students towards Post Graduation in Medicine and Surgery: A Questionnaire based Cross-sectional Study from Western Region of Nepal. *Nepal Journal of Epidemiology* 2011; 1(4):126-134.
37. Lefevre JH1, Roupert M, Kerneis S, Karila L. Influences on medical student career choice: gender or generation? Career choices of medical students: a national survey of 1780 students. *Med Educ* 2010; 44(6):603-12.
38. MEDICAL CAREERS. Speciality Choice and Women in Medicine. [Online] Available from: http://www.medicalcareers.nhs.uk/postgraduate_doctors/women_in_medicine/specialty_choice_and_women_in.aspx [Accessed 12th July 2014]
39. Annual Statistical Report 2013. Iraqi Ministry of Health. [Online] Available from: <http://www.moh.gov.iq> [Accessed 20th June 2014]
40. Aydin S, Yaris F, Sahin ME, Ozer C, Ozkomur E. Students' perceptions of their undergraduate medical education. *Saudi Med J* 2005; 26:1484-6.
41. Buddeberg-Fischer B, Klaghofer R, Stamm M, Marty F, Dreiding P, Zoller M, et al. Primary care in Switzerland- no longer attractive for young physicians? *Swiss Med Wkly* 2006; 136:416-24.
42. Tanja Maiorova, Fred Stevens, Albert Scherpbier & Jouke Van Der Zee. The impact of clerkships on students' specialty preferences: what do undergraduates learn for their profession? <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2923.2008.03008.x/abstract>
43. Dorsey ER, Jarjoura D, Rutecki GW. Influence of controllable lifestyle on recent trends in specialty choice by US medical students. *JAMA* 2003; 290:1173-1178.
44. Newton DA, Grayson MS. Trends in career choice by US medical school graduates. *JAMA* 2003; 290:1179-1182.
45. Hauer KE, Durning SJ, Kernan WN, Fagan MJ, Mintz M, O'Sullivan PS, Battistone M, De Fer T, Elnicki M, Harrell H, Reddy S, Boscardin CK, Schwartz MD. Factors associated with medical students' career choices regarding internal medicine. *JAMA* 2008; 300:1154-1164.
46. Kutob RM1, Senf JH, Campos-Outcalt D. The Diverse Functions of Role Models Across Primary Care Specialties *Fam Med* 2006;38(4):244-51.
47. Julie L. Welch, MD, Heather L. Jimenez, MD, Jennifer Walthall, MD, and Sheryl E. Allen, MD, MS. The Women in Emergency Medicine Mentoring Program: An Innovative Approach to Mentoring. *J Grad Med Educ* 2012; 4(3): 362-366.
48. Philip Maseghe Mwachaka and Eric Thuo Mbugua. Specialty preferences among medical students in a Kenyan university. *Pan Afr Med J* 2010;5:18.
49. Janet H. Senf, , Doug Campos-Outcalt, , MPA, and Randa Kutob. Factors Related to the Choice of Family Medicine: A Reassessment and Literature Review. *J Am Board Fam Med* 2003;16(6): 502-512.
50. Yang MJ, Tsai JH. Specialty choices of students at a College of Medicine and relevant factors. *Medical Education* 1999;2:15-22. [In Chinese]
51. Kao MY, Lu PH, Li MP, et al. Medical students' speciality preferences and exploration of relevant factors. *Medical Education* 2000;4:23-37. [In Chinese]
52. Babbott DL, Gerald S, Weaver SO, et al. Medical student attitudes about internal medicine: a study of US medical school seniors in 1988. *Ann Intern Med* 1991; 114:16-22.
53. Newton DA, Grayson MS, Whitley TW. What predicts medical student career choice? *J Gen Intern Med* 1998;13:200-3.
54. Azizzadeh A, McCollum CH, Miller CC 3rd, et al. Factors influencing career choice among medical students interested in surgery. *Current Surgery* 2003;60:210-13.
55. DeWitt DE, Curtis JR, Burke W. What influences career choices among graduates of a primary care training program? *J Gen Intern Med* 1998; 13:257-61.
56. Kiker BF, Zeh M. Relative future income expectation, expected malpractice premium cost, and other determinants of physician specialty choice. *Health Soc Behav* 1998; 39: 152-67.
57. Rosenthal MP, Diamond JJ, Rabinowitz HK, et al. Influence of income, hours worked, and loan repayment on medical students' decision to pursue a primary care career. *JAMA* 1994; 271:914-7.
58. Phelps CE. Physicians in the Marketplace, Health Economics, 2nd edition. Reading, MA: Addison-Wesley, 1997: 185-215.
59. Fincher RM, Lewis LA, Rogers LQ. Classification model that predicts medical students' choices of primary care or non-primary care specialties. *Acad Med* 1992; 67:324-7.
60. McMurray JE, Linzer M, Konrad TR, Douglas J, Shugerman R, Nelson K: The work lives of women physicians: results from the Physician Work Life Study. *J Gen Intern Med* 2000; 15:372-380.

Abbreviation list: Primary Health Care Centre (PHCC), United States Dollar (USD), Statistical Package for Social Sciences (SPSS), General Practitioner (GP), Ear, nose and throat surgery (ENT)

Conflict of interest: Authors have nothing to declare.

Funding: Authors received no funds to complete this study a part from self funding.