

Motivation for Choosing Neurology as a Career, among Students of Baghdad Medical College

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Abstract

Purpose: To test the influence of specific factors on motivation for neurology career and especially the effect of taking neurology course, and the effect of gender on them.

Materials and Method: This is an observational cross-sectional, self-administered questionnaire-based study. Structured online surveys were offered to a random sample of 170 final year students of College of Medicine\University of Baghdad from July to September 2018. Assessment included factors that might influence students' choice of neurology as a future career, gender effect on those factors, and especially evaluating the impact of exposure to neurology course on their determination for choosing neurology.

Results: A total of 150 students responded to this survey (88% responder rate). About 35.3% of the participants anticipated that they would chose neurology as their future career. The strongest motivational factors were: passion in neurology (50%), role model (38%), and prestige (36%). Family and friend's effect and having an illness in the family were less motivating factors. Taking the neurosciences module did motivate the students to choose neurology as their future career (p=0.001).

Conclusion: Neurology is generally well-regarded by students in our college. There was a statistically significant association between choosing neurology as a future career and the influence of studying neuroscience module. Other significant associations were: will to help neurologically ill patients, having passion in neurology, role model, prestige and family pressure.

Keywords: Neurology, career, medical students, neuro-module, Baghdad.

Introduction

It is often thought that undergraduates do not make their career preferences until after they have graduated from medical school. However, not only

entrants of medical schools¹, but even applicants to medical schools, often have strong preferences for or against some medical careers.²⁻⁴ Neurology, it appears, has a reputation among medical specialties of being particularly hard. Particularly interesting is the concept of "Neurophobia," i.e., perception that neurology is a difficult and complicated subject to understand.⁵

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Little is known about the factors that motivate medical students to seek careers in Neuro-medicine. Their choice has been associated with multiple factors, the main ones were intellectual property, helping people with neurological disorders, passion in neurology, role model. Other less chosen factors were prestige, family

and friends influence, having a neurological illness in the family or among friends, and controllable life style.^{6,7,8,9} Academic exposure to neurology course has a very prominent effect on promoting choosing neurology as a future career whether that course was taken before or after graduation.^{6,7,8,10}

Age was seen to affect motivation, older applicants having experience with neurology chose intellectual property over interesting in helping people, while younger ones chose the latter.⁷

Factors that deterred students from choosing neurology were: difficulty of the subject, perception of non-interference, poor quality of life and excessive clinical activities.^{6,11}

As regards gender issue, there is an increase in the number of women in neurology in the United State 'US', but even in the US, woman are still facing gender issues when working in neurology, mostly related to underestimation of their skills, and adverse social expectations.¹²

No study on students' selection of neurology as future specialty was conducted before in Iraq.

This study was conducted with the objectives to evaluate the known factors that influence the student's choice of neurology as a future career, the effect of gender on those factors, and to evaluate the impact of exposure to neurology course on their determination of choosing neurology.

Material and Method

An observational cross sectional survey study was conducted from July to September of 2018 at the College of Medicine, university of Baghdad. Initially 10 students were chosen for a pilot study to assess the accuracy and reliability of the questionnaire, then 170 students were randomly selected from all final (6th) year medical students. Consent was taken from the participants and they were informed of the confidential nature of the survey. Participation was voluntary and unpaid.

Inclusion criteria: 6th grade [final year] medical students of Baghdad University/College of Medicine.

Exclusion criteria: Students who were unwilling to participate or those who incorrectly/incompletely filled the questionnaire were excluded.

The questionnaire gathered information about: Demographic data: including gender; if the students would choose neurology as a career in the future (yes or no); factors related to choosing neurology as a career (family/friends influence, family/friends doctor, family/friends with neurological disorder, being influenced by role model, being influenced by prestige, passion in neurology, interest in helping people with neurological disorders, other cause). Questionnaire about the effect of neurology module included: score of neurology course in second academic year, score of neuroscience module in fifth academic year, did neurology courses in second, fifth academic years affect your motivation for choosing neurology as a future career?

Data management and statistical analysis:

Initial survey forms for the pilot study were on paper and distributed manually to the students, while the final survey forms included in our study were prepared via Google forms, and were distributed online by using Facebook to all of the respondents. The data was encoded and submitted into SPSS (version 24). All the data were set as categorical variables and the descriptive statistics were presented in frequencies, percentages and 95% standard deviations, and confidence intervals. Chi-square test [and fisher exact test when applicable] were used to analyze the significance of association between different variables. Unless otherwise noted, statistical significance we set as $p < 0.05$.

Results

A total of 150 students were included in this study. A responder rate of 0.88. Male respondents totaled 41 (27.3%) and 109 (72.7%) were females. About 53(35.3%) of the participants said that they'll choose neuroscience as their future career and the remaining 97 (64.7%) preferred to choose other specialties. Of 109 female participants 40 (36.7%) were going to choose neuroscience compared to 13 (31.7%) of 41 males, a non-statistically significant difference ($\chi^2 = 0.3247$, $p = 0.569$)

Factors related to choosing neurology as a career:

The number of students motivated by each factor in the survey and its percentage from the whole sample was as follows: interest in helping people with neurological disorder 125 (83%), passion in neurology 77 (51%), role model 57 (38%), Prestige 54 (36%), family/friend with a neurological disorder 49 (33%), family influence 37 (24.7), presence of family/friend doctor 36 (24%).

Figure (1) displays the percentages of students choosing each motivational factor from the sample of students who were willing to choose neurology as a future career.

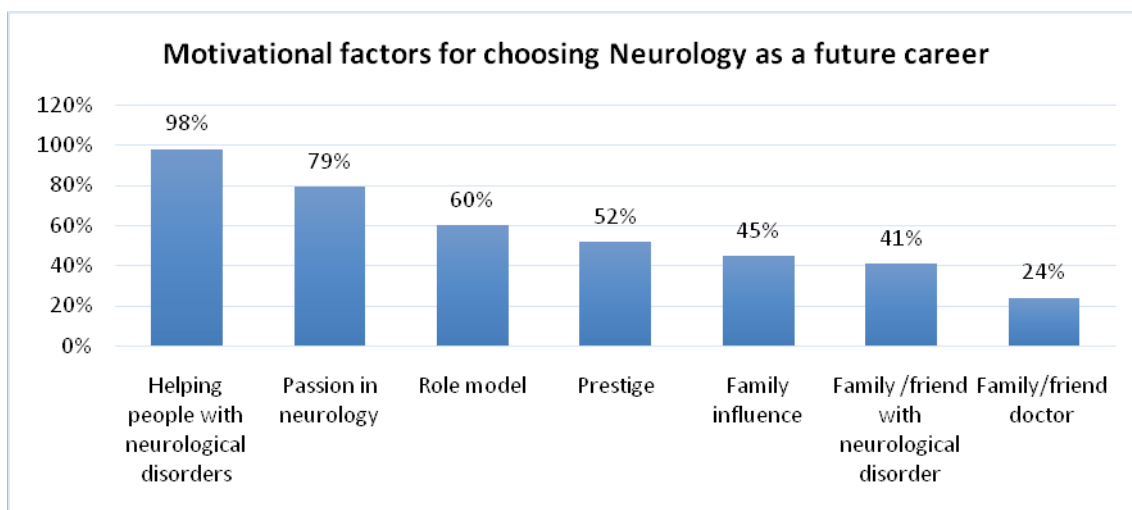


Figure 1: Motivational factors for choosing neurology as a futur career in 53 students who made the choice of neurology as a future career.

Descriptive statistics for motivational factors for choosing neurology per the two choice groups and significance of differences were calculated and are depicted in Table 1.

Table 1: Descriptives and significance of motivational factors for choosing neurology per choice groups

Motivational factors	Did you choose neurology as future career?								Significance	
	Yes (n=53)				No (n=97)				X ²	P
	Fr	Mean	SD	95% CI	Fr	Mean	SD	95%CI		
Interested in neurology due to family influence	24	%45	%6.8	31.4%-72%	13	%13	3.40%	6%-%20	18.747	0.001
Have family/friend doctor that motivates you to choose neurology	13	%24	5.80%	12.4%-35.6%	23	%23	%4	15%-31%	0.013	0.911
Have family/friend with neurological disorder	22	%41	%6	29%-53%	27	%27	4.50%	18%-36%	2.914	0.088
Get influenced by role model	32	%60	%7	46%-74%	25	%25	%4.4	16%-34%	17.42	0.001
Prestige	28	%52	% 6	24%-40%	26	%27	4%	17%-35%	10.076	0.002
Havepassion in neurology	42	%79	%5	68%-90%	35	%36	4.80%	27%-45%	25.559	0.001
Interested in helping people with neurological disorders	52	%98	%1.9	94%-100%	73	%75	%4	67%-83%	12.89	0.001

The association between gender and the factors that influence the students’ choice of Neurology was calculated and presented in Table 2.

Table 2: Significance of the effect of gender on motivational factors for choosing neurology as a future career

Motivational Factors	Male (n=41)		Female (n=109)		X ² test statistic	P-value
	Fr.	%	Fr.	%		
Interested in neurology due to family influence	9	22%	28	26%	0.224	0.636
Have a family/friend doctor that motivates you to choose neurology	15	37%	21	19%	4.899	0.027

Motivational Factors	Male (n=41)		Female (n=109)		X ² test statistic	P-value
	Fr.	%	Fr.	%		
Have a family/friend with neurological disorder	12	29%	37	34%	0.296	0.586
Get influenced by role model	16	39%	41	38%	0.025	0.874
Prestige	21	51%	33	30%	5.672	0.017
Have passion in neurology	18	44%	59	54%	1.247	0.264
Interested in helping people with neurological disorders	34	83%	91	83%	0.102	0.935

The effect of Neuroscience modules: The distribution of students according to their scores at the end of the second and fifth grade neuroscience modules per choice groups, and significance of their differences, was calculated and depicted in Table 3.

Table 3: Significance of association of students’ scores of neuroscience modules and choosing neurology as a future career.

End module scores		Would you choose neurology as your future career?				X ² Test statistic	P-value
		Yes (n=53)		No (n=97)			
		Fr.	%	Fr.	%		
Score category in neuroscience (second grade)	Excellent	6	11.3%	14	14.4%	2.611	0.625
	Very good	15	28.3%	24	24.7%		
	Good	22	41.5%	36	37.1%		
	Average	5	9.4%	17	17.5%		
	Borderline pass	5	9.4%	6	6.2%		
Score category in neuroscience (fifth grade)	Excellent	0	0.0%	5	5.2%	7.507	0.115
	Very good	16	30.2%	23	23.7%		
	Good	22	41.5%	28	28.9%		
	Average	7	13.2%	25	25.8%		
	Borderline pass	8	15.1%	16	16.5%		

Of males: 5,10,14,10,2 in 2nd grade and 1,6,18,6,10 in 5th grade had excellent, very good, good, average and borderline scores respectively. The respective results for females were 15,29,44,12,9 in 2nd grade and 4, 33,32,26,14 in 5th grade (p<0.05 for both grades).

The student’s perception of the motivational effect of taking the neuroscience module of the fifth year, and of both the second and fifth year, on their perceived choice of selecting Neurology as a future career was calculated and depicted in Figure 2. The difference was found to be statistically significant ($\chi^2=62.060$, p<0.001).

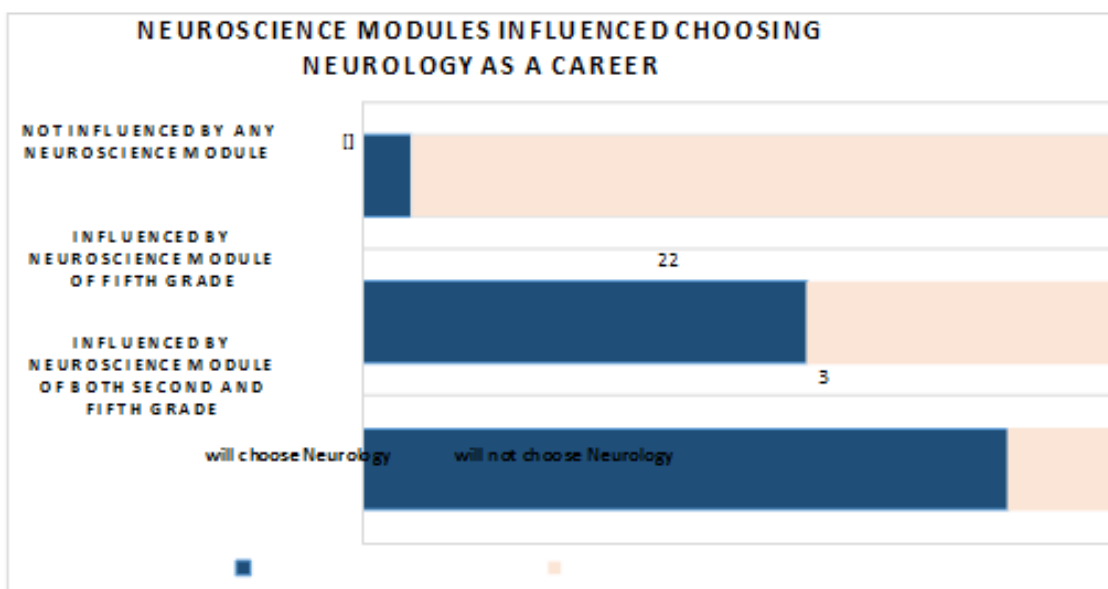


Figure 2: A component bar chart showing the number of students per each influence group and their perceived choices for choosing Neurology as a career.

Discussion

Neurology was the career of choice for 35.3% of students in this study, suggesting that neurology is generally well-appreciated by our students. In comparison to Gupta N. et al study⁶ in which only 19% of students were willing to choose neurology.

The percentage of female students in our college is very high, constituting 54.4% in a prior study¹³ and around 72.7% in this study. Therefore gender related motivational issues to neurology must be addressed.

Analyzing the factors that are related to choosing neurology: 24.7% said that their families had an influence on their interest, whereas Gupta N. et al study showed that only 2% of the students reported family influence and pressure.⁶ This rather big difference could be due to cultural difference and differences in family involvement in students' life between different societies. There was not gender difference regarding this factor.

For the family/friend neurologist influence, 24% agreed that having a family/friend neurologist doctor motivated them to pick neurology. After extensive research this was not tested by other studies as a relating factor, although it shows a large effect on students in this study. However this study didn't reveal any significant association between this factor and the will to choose neurology as a future career. However this study did

show that males are more prone to be affected by that factor than females ($p=0.027$).

Students who have a family/friend with a neurological disorder were 32.7%, this was also not tested by other studies. However this study didn't show any significant association between this factor and choosing neurology as a future career at 0.05 level of significance, however the result was significant at 0.10 level. No gender difference was found in this study.

Having a role model influenced 38%, which is consistent with the findings of Thomas R. which had 37% influence on the students.⁸ This factor is consistently reported in most studies about motivation in neurology.^{6,7,8} This came here as the third highest factor that motivated students in our sample before prestige and family/friends impact, which largely agrees with earlier studies.^{6,7,8} This equally affected both genders in this study.

Considering neurology as a prestigious job inspired 54 (36%), on the other hand Gupta N.⁶ showed that 18% considered neurology as a prestige job. This might be because considering neurology as prestige might signal cultural grounds for this difference. In our study this significantly affected males more than females ($p=0.017$).

Passion in neurology was shown to affect more

than half of the students and without gender related differences, this agrees with the findings of Gupta N.⁶ in which also about more than half of the students (52 %) were passionate and interested in neurology as a job. Passion in neurology was one of the commonest factors related to picking neurology among students in this study. Also this agrees with most studies.^{6,7,8}

Students who reported having an interest to help people with neurological diseases were 83.3%. Also 82.6% were interested in helping people with neurological diseases in the study of Albert D¹⁰. This agrees with most studies.^{6,7,8} In our study this included all students who would and wouldn't choose neurology as a future career, males and females alike, but surprisingly it was much lower in the group who didn't will to choose neurology as a future career that the difference was significant! Interest in helping people came first before passion in neurology, this agrees with older studies about younger students being motivated by interest in helping people as contrasted with older more experienced trainees in neurology which preferred intellectual content.⁷

Meanwhile, for the effect of neuroscience modules and the students' choice of neurology, there was no statistically significant association between students' score and their choice of neurology as a future career, and the same applies to gender effect on scores, this finding agrees with Goni U. et al which also stated having no gender associated difference with different scores.¹⁴

This study revealed a statistically significant association between choosing neurology as a future career and the influence of neuroscience of 2nd and 5th grade. These findings are supported by all prior studies^{6,7,8,10} all of which reported the effect of undergraduate or postgraduate courses in neurology on future choice of neurology as a career.

Conclusion:

Neurology is generally well-regarded by students of our college.

There was a statistically significant association between perception of choosing neurology as a future career and factors of: will to help neurologically ill patients, having passion in neurology, role model, prestige, and family pressure, in a descending manner.

There was a statistically significant association between the perception of choosing neurology as a

future career and the influence of studying neuroscience module.

Ethical Clearance: The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Iraq

Conflict of Interest: The authors declare that they have no conflict of interest.

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