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Original

Decision to Study Medicine: Determinants and Specialty Choice

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Abstract

Introduction: The decision to study medicine as a career depends on many factors, including intrinsic (personal) and extrinsic ones to the individual. To be aware of these factors could be useful for curriculum development and student counseling. Therefore, the study was proposed to identify the key factors taken into account to make this decision, intention of specialization and the main areas chosen.

Materials and Methods: This is a descriptive research based on a survey applied to a sample of 84 active medical students of a private university (Universidad de Iberoamerica, UNIBE).

Results: The survey was applied to 84 students, 28.6 % were male and 71.4 % were female. 39.5% reported to have physicians as relatives. The main reason to study medicine was self-conviction without outside influence and motivation due to humanitarian issues. Most of them chose to study this career between 16 and 20 years old. 91.6% of the subjects surveyed has the intention to follow a specialty. The main choices for specialization were Internal Medicine and its specialties; followed by surgery and its related branches.

Conclusion: The study determined an important predominance of females. The main motives to study medicine and follow a specialization are humanitarian and altruistic ones. The areas with the highest demand are Internal Medicine and Surgery. This information might be useful for decision making on undergraduate curriculum management and for planning postgraduate specialization programs.

Keywords: Decision, medicine programs, factors, specialty

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Abbreviations: CCSS, Caja Costarricense de Seguro Social; (Costa Rican Social Security Institution)

CENDEISSS, Centro de Desarrollo Estratégico e Información en Salud y Seguridad Social. (Center for Strategic Development and Information on Health and Social Security)

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According to Blustein, the motivations for choosing a career are intrinsic and extrinsic. Intrinsic motivation depends on the need to perform activities that provide satisfaction.[1] Extrinsic ones depend on external factors such as family or group influence. Furthermore, Krumholtz postulates that there are 4 groups of factors that influence the decision to study certain careers: genetic and cultural, environmental conditions and events, learning experiences and task approach skills.[2] Cultural and genetic characteristics include ability, disability, ethnicity, gender and physical appearance. Learning experiences refer to the events which influence, such as contact with a disease or the presence of high-quality role models. Environmental conditions are mainly of an economic and geographical kind. According to this model, these 4 factors shape the self-belief and define what it is possible for us to achieve according to our environment.[3]

For university authorities responsible for the administration of a curriculum in medicine, it is extremely important to know the reasons that motivated the student's career choice. This allows the identification of students who require reallocation or counseling, and helps to make adjustments to the curriculum in order to allow students to obtain the greatest benefit according to their expectations. Furthermore, it is important to recognize the predominant orientation of the student either towards the practice of general medicine or towards

specialization. This is because students should compare themselves with the current and projected demand in their environment. According to the "Report on the Assessment of Required Medicine Professionals " prepared by Parada *et al* for the Center for Strategic Development and Information on Health and Social Security [Centro de Desarrollo Estratégico e Información en Salud y Seguridad Social] (CENDEISSS) of the Costa Rican Social Security Institution [Caja Costarricense de Seguro Social] (CCSS), the health model currently practiced by our social security system is aimed towards primary attention.[4] Therefore, it is of great importance to have enough general practitioners. Nevertheless, there is also need for specialists, since the projections for the next 10 years (from 2002 when the report was released) estimate that the number of specialists required would exceed one thousand. In conclusion, the demand for professionals in medicine is on the rise and a proportional supply of specialists and general practitioners must be guaranteed.

With the main goal of identifying the factors that determine the vocational orientation of students that enter medical school at a private university in Costa Rica (Universidad de Iberoamérica), this university proposed a study to identify the profile of the student, his or her reasons for studying medicine, intrinsic and extrinsic motivations and the future choice of a specialty. This can be valuable information to guide the postgraduate curricula on medical specialties.

Materials and Methods

This is a correlation-based descriptive research based on a survey applied (given previous consent) to a sample of 84 active students of the *Licenciatura** in Medicine and Surgery at the Universidad Iberoamericana, in San José, Costa Rica, during the period between January and March 2011.

The data collection instrument consisted of 35 questions, which were divided into 4 main sections. The first one, comprising 6 questions, focused on socio-demographic factors. The second consisted of 3 questions, aimed at the factors that determine the decision to study medicine. The third section sought to understand which were the personal motivations to choose to study medicine, for which 23 questions were assigned. In the fourth and final section, the instrument asked about the interest and inclination towards undertaking a medical specialization. For this last part, 3 questions were assigned. Prior to its application, professionals in psychology and medicine working for the university that conducted the study approved the questionnaire.

The variables obtained from the instrument are shown in Table 1.

This study was approved by the Institutional Research Ethics Committee of UNIBE on July 2, 2010. The data obtained from the survey was processed using the SPSS (Statistical Package for Social Sciences version 17, 2008, IBM Corporation, Somers, NY).

Table 1. Variables obtained from the data collection instrument. UNIBE. January-March, 2011

- Socio-demographic: age, gender, marital status, place of origin, presence of relatives that are doctors (classified by degree).
- Age at which the decision to study medicine was taken.
- Variables modulating decision making to study medicine: family pressure, contact with disease, relatives that are doctors, TV programs, guardians, friends or parents' friends.
- Reasons for choosing medicine.
- Reasons for pursuing specialty.
- Type of specialty.

Table 2. Distribution by age group and sex of the sample of medicine students. UNIBE. January-March, 2011.

	Sex		
Age	**Female**	**Male**	**Total**
20-25 years	42	10	52
26-30 years	16	11	27
31-35 years	3	2	5
Total	61	23	84

Source: Medicine Student Survey, Universidad de Iberoamérica, 2011

Results

A total of 84 surveys were obtained, but several questionnaires showed some incomplete answers, this missing data did not exceed 5.0% of total responses. The majority of respondents (38.8%) came from the province of San José, 12.9% from Cartago and an identical percentage from Heredia. The distribution by gender showed a frequency of 24 males (28.6%) and 60 females (71.4%). The age distribution shows a clear predominance in the age group between 20 to 25 years (61.6%), with a mode of 22 years (Table 2).

With respect to the distribution by marital status, most of the respondents are single (88.2%). In the case of age-marital

*Translators Note: There is no direct translation to English of the degree "Licenciatura"; however, it is a degree equivalent to a Doctor of Medicine (MD) degree in the United States and a Bachelor of Medicine, Bachelor of Surgery (MBBS) in the United Kingdom.

Table 3. Distribution of average scores of the preferences to pursue a career in medicine reported by medicine students. (Maximum score possible = 5 points). UNIBE. January-March 2011.

Reason	Mean
Personal satisfaction	4.80
Develop personal abilities and skills	4.74
Intellectual self-fulfillment.	4.67
To help others	4.67
To have goals and challenges	4.60
To contribute to society	4.59
Continuous progress	4.58
To contribute to scientific knowledge	4.41
To provide protection for their families	4.38
To work with people	4.37
To attain success	4.12
To explain to others the different diseases	3.86
To be independent	3.83
To be a role model for others	3.76
Desire to exercise leadership	3.35
To have employment certainty	3.27
To be original and different	2.81
To acquire high social status	2.27
To earn a lot of mone	2.27
To please my parents and relatives	2.19
To have fame	1.93
To avoid demanding jobs	1.36

Source: Medicine Student Survey, Universidad de Iberoamérica, 2011

status relationship, although most respondents in the 20-25 years age group are single in a ratio of approximately 4 to 1, in the 26-30 years and 31-35 years age groups, the ratio is only 1.5 to 1.

To the question about having any relatives that are doctors, the answer was affirmative in 39.5% of the cases. For those respondents whose answer was affirmative, most replied that the relative was an uncle/aunt or cousin. In only 8.1% of cases, it was the father and in only 2.3% of cases it was the mother.

In order to assess the determinants for the decision to study medicine, a scale of 1 to 5 points was defined to assign each of the reasons to study medicine. After obtaining the average for each reason with respect to the entire population, the top three reasons in descending order were: personal satisfaction, to develop personal skills and intellectual self-fulfillment. Only a minority of respondents said that they took the decision because of family pressure (Table 3). The majority of the respondents indicated that the age at which they decided to study medicine was between 16 and 20 years (57.0%). Only 15.1% indicated an age of less than 10 years.

With regard to interest in undertaking a specialty, 91.6% of respondents answered affirmatively. The percentage of undecided was only 7.1%. As to the motivation to make a specialty, most of those who said that it would allow them to help other people, were women in a ratio of 3 to 1 with respect to men. This ratio is virtually the same in all of the reasons assessed, including the one referred to obtaining a higher income.

As to the actual specialty, internal medicine and its subspecialties prevailed with a 27.9%, followed by surgery and related sciences with 14%. (Figure 1).

Discussion

The subject of vocational orientation has been widely studied and has stirred several theoretical proposals to explain career choice. At very early stages vocational orientation adopts even unrealistic forms, and it is not until adolescence that a transition occurs towards a more realistic reasoning about the consequences and responsibility of choosing a career. Donald Super proposed in his vocational choice theory 6 stages:[5]

- Crystallization stage (ages 14-18)
- Specification stage (ages 18-21)
- Implementation stage (ages21-24)
- Stabilization stage (ages 24-35)
- Consolidation stage (age 35)
- Readiness for retirement stage (age 55)

One of the main contributions of Super's vocational choice theory has been the emphasis he assigns to the self-concept in taking this decision. Later, in 1959, John Holland adds his own theory and establishes that the choice of an occupation depends on personal needs and what provides him or her self-fullfilment.[6] This includes the possibility to perform their skills and abilities, express their attitudes, as well as assimilate problems and roles. Also in this regard, Bandura developed the social learning theory in which genetic and learned factors influence the individual's self-efficacy.[7] So, if a person believes that he or she possess the skills to succeed in a particular occupation, and that

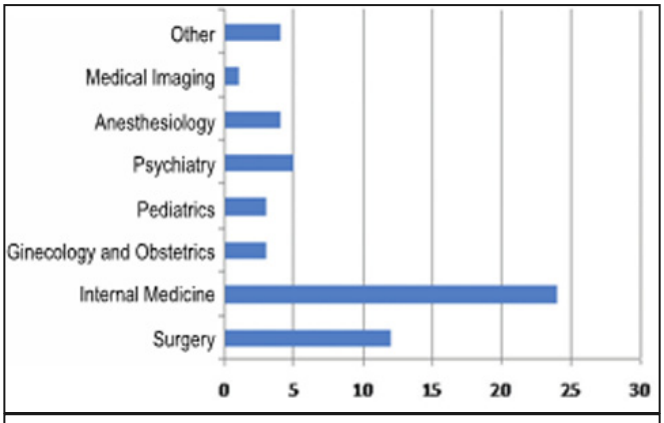

Figure 1. Preferred medical specialties according to the opinions expressed by students in the sample, as percentage of students. UNIBE. January-March 2011.

Source: Medicine Student Survey, Universidad de Iberoamérica, 2011

pursuing that occupation will bring success in life, he or she will persevere in studying and training to achieve it.

Under the premise of the latter theory, it can be deduced that it is more likely that a student with the skills and the best vocational profile to be a doctor will maintain interest in the career and finish it. Acknowledging this allows for appropriate counseling and eventually a reduction in dropout and fail rates on the courses of the medicine curriculum. This study showed, for the analyzed population, predominance of females and of a motivation based primarily on self-fullfilment. Similarly, Soria *et al* found that the motivation to enter this career was mainly altruistic and humanitarian.[8]

On gender differences, Millán *et al* found greater emotional maturity and sensitivity among female medicine students, while male students showed a strong sense of utilitarianism and of competition.[9] The present study did not find an important difference on this utilitarianism between the sexes. Apart from these differences in the psychological profile, it has been shown that women must face more obstacles than men to enter medical school. According to Reed *et al*, domestic responsibilities, discrimination, rigidity of the career structures and psychological barriers are some of the adverse situations for women to choose medicine as a career.[10]

The intention to specialize and which were the main choices were also evaluated. On the same aspect, Wright and *et al* investigated the choice between general medicine or specialty by students in three medical universities in Canada. They identified that out of 519 respondents, only 20% chose general practice as a first option.[11] According to the authors, this has negative implications on the availability of general practitioners. In the case of this research, the choice for general medicine or family medicine was particularly low. In this regard, Shadbolt highlights that the crisis for general practitioners highlights the importance to increase the motivation of new students towards general medicine.[12] One reason why many students do not consider becoming a general practitioner is that they do not think it intellectually satisfying, which could be an incorrect stereotype. On this, Jordan *et al* explain how early exposure in the training to specialists in family medicine might motivate them to pursue that professional area and change the incorrect perception about it.[13]

In our study, most of the respondents indicated they made the decision to study medicine at an age between 16 and 20, which corresponds to an overlap between the age of crystallization and specification of Super's stages. Therefore, if planning to increase the availability of general practitioners, it would be necessary to conduct an early motivational strategy. This is so important that Bunker highlights the need to include in the prevocational stage of the medicine student's training, exposure to family practice and to motivate towards this alternative.[14] Finally, Thistlewaite proposes as an alternative to foster an increase in the percentage of students that choose to be a generalist or at least to practice family medicine; to show the flexibility, autonomy and holistic advantages it offers.[15]

Although it was not evaluated in this study, there are other factors that influence the choice of specialty, such as the type of personality. Thereon, Petrides *et al* found that in the case of internal medicine, students showed affinity for research, while those who chose surgical specialties were more practical.[16] The choice of specialty may vary, and only 20% of students enter the specialty they had planned at the beginning of their career studies.[17] Scott *et al* show that influence of a medical tutor that can either support or dissuade them from the decision is among the factors related to the change of specialty choice.[18]

In summary, this study confirms, like others, that humanitarian reasons prevail as motivators for deciding to study medicine. No important family influences were identified. There is very little interest to continue as general practitioners. The motivation to specialize is primarily altruistic and of self-fulfillment and not economic. It must be recognized that the research undertaken did not explore other potential factors that might condition the decision to study medicine and the influence of other factors in choosing a certain specialty; which could encourage a further study. Despite these limitations, this research allows academic authorities to identify the student's motivations and to take them into account in the review of the curriculum.

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