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RESEARCH ARTICLE

EVALUATION OF PROFESSIONAL SELF-EFFICACY PERCEPTIONS OF MEDICAL SCHOOL INTERN STUDENTS

Yasemin Durduran [1], Esra Hacılar [1*], Mehtap Yucel [1,2]

[1] Faculty of Medicine, Department of Public Health, Necmettin Erbakan University, Konya, Turkey
[2] Bilecik Central Community Health Center, Bilecik,Turkey

ORCID: Y.D. 0000-0003-0455-0627; E.H. 0000-0001-8914-8199; M.Y. 0000-0001-6091-3205

Corresponding author: Esra Hacılar, **E-mail:** drhacilaresra@gmail.com
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ABSTRACT

Purpose: The aim of this study was to assess interns' perceptions of professional self-efficacy and to identify the factors associated with it.
Material and Methods: This is a cross-sectional study. The data of the study, which was approved by the ethics committee, were collected from 204 trainees between September and October 2022 using the face-to-face interview method. Data analysis was performed using the SPSS 27.0 package. The type 1 error level was accepted as 5% for statistical significance.
Results: 62.3% of the study group were female and the median age of the group was 24.00 years. The participants' median score on the self-efficacy sub-dimension of the scale was 60.00. The median self-efficacy score was significant and higher than those who felt inadequate to work in the periphery and those who felt that patients could actively participate in the history, physical and treatment processes during the internship ($p<0.001$).
Conclusion: Professional self-efficacy perceptions of intern doctors; it was found to be higher in those who felt sufficient to work in the periphery and those who felt that patients could actively participate in the history, physical examination and treatment processes during the training period.

Keywords: Professional competence, medical faculty, medical student, medical education

INTRODUCTION

Self-efficacy means that in order for people to use their skills effectively, they must first have confidence in the subject they are interested in (1). In other words, self-efficacy is not about individuals having sufficient talent; it is the belief that one has the necessary ability to do a particular job. Professional self-efficacy is a special type of self-efficacy defined as the competence that the individual feels about being able to successfully perform tasks and responsibilities related to his profession (2).

Professional self-efficacy also expresses an individual's belief and self-confidence in their ability to perform the tasks associated with the profession and to cope with difficulties. Individuals with high professional self-efficacy have more motivation to deal with challenges related to their profession (3). Perceptions of self-efficacy influence cognitive, motivational, emotional and decision-making processes and occupy an important place in the lives of individuals. When these processes are taken into account, it is found that individuals with high self-

efficacy perceptions set higher goals and strive to achieve these goals by making consistent choices (4). Several studies have shown that perceptions of self-efficacy influence individual behaviour. For this reason, questioning and examining self-efficacy can help individuals predict their future behaviour and understand the reasons for that behaviour (4,5,6).

In medicine, a profession that deals with human health, self-efficacy is an important issue. Before starting their professional lives, doctors are required to complete their medical education, which may vary according to society, place and time, but the basic content is globally specific and continues throughout life (7). "Pregraduate Medical Education, National Core Education Programme (UCEP-2020) was established in the early 2000s to train doctors with standardised basic knowledge and skills. The UCEP-2020 defines the basic standards of undergraduate medical education, which includes the knowledge, skills and attitudes that all students in different faculties in our country should acquire during their education. In our country, every faculty provides medical education according to this programme (8, 9, 10). There are two semesters of medical training, a preclinical and clinical period. The first few years are spent on theory and basic skills training, the pre-clinical preparation period (11, 12).

The perception of self-efficacy in the professional and academic success of medical students undergoing such an intensive educational process is an important issue. In the educational process, many factors influence students' perceptions of self-efficacy and these situations should be evaluated according to the students (13). Information about the factors that influence the professional self-efficacy of medical students can be used to investigate the reasons for their lack of self-efficacy and to eliminate these deficiencies and to train medical students with high professional self-efficacy. The aim of this study is to assess intern doctors' perceptions of professional self-efficacy and to identify factors that may be associated with this.

MATERIALS AND METHODS

This is a cross-sectional epidemiological study. Approval was obtained from the Necmettin Erbakan University Meram Faculty of Medicine Ethics Committee for Drugs and Non-Medical Devices (Date: 09.09.2022, Decision No: 2022/3954) and the Meram Faculty of Medicine Dean's Office. In addition, prior to data collection, intern doctors were given detailed information about the study and verbal consent was obtained. The population of the study consists of 238 intern doctors who are in their sixth year of training at Necmettin Erbakan University Meram Faculty of Medicine in the 2022-2023 academic year. The study was conducted with 204 (86%) intern doctors who were trained between 15/09/2022 and 15/10/2022 and who gave verbal consent to participate. Interns who did not agree to participate in the study and who had a missing data collection form were excluded from the study.

Following the literature review for the research, a data collection form was prepared (6-9,11). This form is made up of 33 questions and three sections. The first part of the form, consisting of five questions, covers the socio-demographic characteristics of individuals, and the second part, consisting of 11 questions, includes questions about medical school and specialty preferences. The last section consists of the Scale of Doctor Candidates' Perceptions of Importance and Self-Efficacy Regarding Professional General Competencies, developed by Başusta and Elçin in 2014. The scale is a two-way scale consisting of 17 statements, with each item having a score from one to five. Thus, interns rated each statement by marking the appropriate number in the "IMPORTANCE" column and their belief in their own competence in the "SELF-EQUALITY" column. On the one hand, the students' level of self-efficacy is determined in relation to 17 situations defined by the scale using the same items. On the other hand, it aims to reveal the students' perception of the importance of these 17 situations. A 5-point Likert structure was preferred for the responses to the scale items (5 points: highest level category, 1 point: lowest level category). High scores on both sides of the scale reflect high self-efficacy and high importance. During the development of the scale used, Cronbach alpha reliability coefficients were found to be 0.930 for self-efficacy and 0.910 for importance (14). The Cronbach alpha coefficient calculated for this sample in which the study was conducted was 0.940 for self-efficacy and 0.968 for significance. Data collection forms were administered to volunteer participants under observation.

Statistical analysis of data was performed using IBM SPSS Statistics, version 27.0 (IBM Corp, Armonk, N.Y., USA). When summarising numerical data, medians, Q1 and Q3 values, numbers and percentages were used to summarise categorical data. The suitability of the data for normal distribution

was checked using visual and analytical methods. Mann-Whitney U test and Kruskal-Wallis H test were used to compare categorical data with numerical data that did not fit the normal distribution. Binary comparisons were made using the Mann-Whitney U test in groups with significant Kruskal-Wallis H test results, with Bonferroni correction. Statistically, cases were considered significant if the p-value was less than 0.05.

RESULTS

The median age of the 204 intern doctors included in the study was 24.00 (23.00-24.00) years. 62.3% (n=127) of participants were women and 52.5% (n=107) had income equal to expenditure. The socio-demographic characteristics of the participants are shown in Table 1.

It was determined that 18.1% (n=37) of the participants had a loss of semester and/or internship while studying at the medical school. 67.6% (n=138) of the intern doctors stated that the medical school did not meet their expectations in terms of profession, 45.1% (n=92) were not satisfied with studying in the medical school, and 23.5% (n=48) did not want to re-choose the medical school. 55.9% (n=114) of the participants stated that they preferred medical school because they wanted to, 55.4% (n=113) because they wanted to be useful to people, and 54.9% (n=112) because they had a job guarantee (Table 2). 67.2% (n=137) of participants reported that they felt the training they received at medical school was inadequate for working as a general practitioner, and 82.8% (n=169) reported that they felt inadequate for working in peripheral areas after graduation. 46.1%

Table 1. Socio-demographic characteristics of the participants

Characteristics		n (%)
Gender	Female	127 (62,3)
	Male	77 (37,7)
Income status	Income less than expenses	62 (30,4)
	Income equal to expenses	107 (52,5)
	Income more than expenses	35 (17,1)
Ehere they live now	Stay with their family	87 (42,6)
	At home with friends	66 (32,4)
	Home alone	37 (18,1)
	In the student dormitory	14 (6,9)
Presence of doctors among first-degree relatives	Yes	43 (21,1)
	No	161 (78,9)

Table 2. Characteristics of doctors in training with regard to medical education

Characteristics	n (%)
Loss of semesters and/or internships in medical school	
Yes	37 (18,1)
No	167 (81,9)
The state of medical education meeting professional expectations	
Yes	66 (32,4)
No	138 (67,6)
Satisfaction with medical school	
Yes	112 (54,9)
No	92 (45,1)
Want to choose medical school again if they had the right to choose	
Yes	82 (40,2)
Don't know	74 (36,3)
No	48 (23,5)
Reasons for choosing medical school*	
For their own sake	114 (55,9)
Helping people	113 (55,4)
Because it is a job guarantee	112 (54,9)
The dignity that medicine brings	98 (48,0)
High income	78 (38,2)
Family request	58 (28,4)

* Participants stated more than one reason for preference.

Table 3. Intern doctors' opinions on medical faculty education and specialty preferences

Characteristics	n (%)
Whether the medical school education is sufficient to work as a general practitioner	
Enough	24 (11,8)
Don't know	43 (21,0)
Not enough	137 (67,2)
Feel sufficient to work in the field	
Yes	35 (17,2)
No	169 (82,8)
Ability of patients to actively participate in the history, physical examination and treatment processes during the internship.	
Yes	110 (53,9)
No	94 (46,1)
Departments in which you would like to receive specialised training	
Basic Sciences Departments	20 (9,8)
İnternal Medicine	110 (53,9)
Surgical Departments	74 (36,3)
Important factors influencing branch preference*	
Loving the department they prefer	161 (78,9)
Suitable for personal ability and interest	148 (72,5)
To have time for myself and my family	127 (62,3)
Possibility of professional satisfaction	122 (59,8)
Working hours, number of attacks	119 (58,3)
Salary amount	106 (52,0)
Risk level and level of responsibility of the department	98 (48,0)
Medical Specialist Examination score	81 (39,7)
Possible exposure to violence	78 (38,2)

* Participants stated more than one reason for preference.

(n=94) of intern doctors in training reported that they were unable to actively participate in the examination and treatment of patients during their training. It was found that all participants (100%) wished to undertake specialist training at some point in their career. It was found that 53.9% (n=110) of registrars wanted to specialise in internal medicine, 36.3% (n=74) in surgery and 9.8% (n=20) in basic sciences (Table 3). The median score of the participants in the "Importance and Self-Efficacy Perceptions of Physician Candidates Scale" from the importance part is 81.00 (70.00-85.00), and the median score from the self-efficacy part is 60.00 (52.00-69). There was a significant difference between the genders of participants in terms of the median total score obtained from the Importance section ($p<0.05$). The difference was due to the fact that the median total score of women was higher than that of men. According to the socio-demographic characteristics of the individuals, the self-efficacy scores were found to be similar ($p>0.05$) (Table 4).

The importance and self-efficacy scores were significantly higher among those who reported that studying at the Faculty of Medicine met their professional expectations. The importance and self-efficacy scores of those who were satisfied with studying at the Faculty of Medicine were also significantly higher than those who were not satisfied ($p<0.05$) (Table 5).

Self-efficacy scores were higher among those who felt their training was insufficient to work as a general practitioner than among those who felt it was sufficient and were undecided (p<0.001). The self-efficacy scores of those who felt competent to work in the periphery were higher than those who did not feel competent (p<0.001). The self-efficacy scores of those who reported that they could actively participate in the history, physical examination and treatment processes during the internship were significantly higher than those who reported that they could not participate (p<0.001). It was found that the self-efficacy scores of those who said they wanted to study basic sciences in specialty training were significantly lower than those who said they wanted to study internal medicine and surgery (p=0.016) (Table 6). to study internal medicine and surgery (p=0.016) (Table 6).

Table 4. Comparison of scale sub-dimension scores and socio-demographic characteristics

Characteristics	Importance sub-dimension		Self-efficacy sub-dimension	
	Median (Quarterly 1-3)	p	Median (Quarterly 1-3)	p
Gender				
Female	82,00 (74,00-85,00)	**0,002**	59,00 (52,00-67,00)	0,607
Male	77,00 (66,00-84,00)		61,00 (50,50-70,50)	
Income status				
Income less than expenses	81,00 (68,75-84,00)		58,00 (50,75-69,50)	
Income equal to expenses	81,00 (71,00-85,00)	0,855	61,00 (52,00-69,00)	0,989
Income more than expenses	80,00 (70,00-85,00)		64,00 (50,00-69,00)	
Where they live now				
Stay with their family	80,00 (69,00-85,00)		57,00 (51,00-67,00)	
At home with friends	82,00 (72,00-85,00)	0,204	62,00 (54,75-69,00)	0,626
Home alone	81,00 (71,50-84,50)		59,00 (50,50-73,00)	
In the student dormitory	75,50 (54,25-81,75)		58,00 (50,00-70,75)	
Presence of doctors among first-degree relatives				
Yes	81,00 (69,00-85,00)	0,998	59,00 (53,00-67,00)	0,656
No	81,00 (70,00-85,00)		60,00 (51,00-69,50)	

Table 5. Comparison of scale sub-dimension scores with characteristics related to medical education

Characteristics	Importance sub-dimension		Self-efficacy sub-dimension	
	Median (Q1-3)	p	Median (Q1-3)	p
Loss of semesters and/or internships in medical school				
Yes	78,00 (64,50-84,00)	0,121	59,00 (50,00-71,00)	0,919
No	81,00 (72,00-85,00)		60,00 (52,00-69,00)	
The state of medical education meeting professional expectations				
Yes	83,00 (72,75-85,00)	**0,047**	64,00 (53,00-71,00)	**0,019**
No	80,50 (69,75-84,00)		59,00 (50,75-67,00)	
Satisfaction with medical school				
Yes	83,00 (73,25-85,00)	**0,019**	63,00 (53,00-71,00)	**0,004**
No	79,00 (68,25-84,00)		56,50 (50,00-65,00)	
Want to choose medical school again if they had the right to choose				
Yes	82,00 (73,50-85,00)		62,00 (53,00-71,00)	
Don't know	81,00 (65,75-85,00)	0,608	57,50 (51,00-67,00)	0,147
No	79,00 (70,00-85,00)		60,00 (50,00-68,50)	

Table 6. Comparison of Scale Sub-Dimension Scores with Intern Doctors' Medical Faculty Education and Specialty Preferences

Characteristics	Importance sub-dimension		Self-efficacy sub-dimension	
	Median (Q1-3)	p	Median (Q1-3)	p
Whether the medical school education is sufficient to work as a general practitioner				
Enough	79,50 (67,00-85,00)		65,50 (56,00-71,00)	
Don't know	82,00 (73,00-84,00)	0,983	67,00 (55,00-74,00)	**<0,001**
Not enough	81,00 (70,00-85,00)		57,00 (50,00-65,50)	
Feel sufficient to work in the field				
Yes	80,00 (66,00-85,00)	0,973	70,00 (61,00-76,00)	**<0,001**
No	81,00 (70,50-85,00)		57,00 (51,00-67,00)	
Ability of patients to actively participate in the history, physical examination and treatment processes during the internship.				
Yes	81,00 (72,75-85,00)	0,141	63,00 (55,00-71,25)	**<0,001**
No	79,00 (63,75-85,00)		56,00 (49,75-65,00)	
Departments in which you would like to receive specialised training				
Basic Sciences Departments	79,50 (57,75-84,00)		53,00 (47,25-58,50)	
İnternal Medicine	81,50 (70,75-85,00)	0,548	60,00 (52,00-68,25)	**0,016**
Surgical Departments	80,50 (71,75-85,00)		61,00 (52,00-71,25)	

DISCUSSION

In this study, which was conducted to assess the professional self-efficacy perceptions of intern doctors and to identify the factors that might be associated with it, it was found that about two thirds of intern doctors did not meet the professional expectations of the Faculty of Medicine and about half of them were not satisfied with their studies at the Faculty of Medicine. In the studies conducted, it was found that the rate of those who were satisfied with their studies at the Faculty of Medicine was at least 70.0% (15). In this study, about a quarter of the intern doctors said that they would not choose to study medicine again if they had the choice. In Aker et al.'s study of newly graduated intern doctors in 2020, the rate of doctors who would not choose medical school again was found to be 33.3%, and in Atılgan et al.'s study of intern doctors in 2020, this rate was found to be 42.7% (9,16). Differences in these rates may be a consequence of the inability to choose a profession according to personal characteristics and the intensive training process.

In this study, the three most common reasons why intern doctors prefer to go to medical school are their own desire, to be useful to people and to secure a job. Similar studies among medical students have found that the most common reason for preferring to study medicine was the answer 'own desire' (9,17). Other similar studies have found that the desire to help people is the main reason for preference (8,16). In order to cope with all these difficulties, the fact that they will be doing their own work and the desire to help people play an important role.

In this study, more than half of the intern doctors said that they felt that the training they had received at medical school was not sufficient for them to work as general practitioners, and 82.8% said that they felt inadequate to work in peripheral areas after graduation. The fact that medical training is mainly provided in tertiary care settings and that intern doctors continue to work in non-tertiary care settings after graduation can be seen as a reason for this concern. This finding highlights the need to tailor training content to the settings in which graduates are likely to work and the patients and diseases they are likely to encounter. The study found that all intern doctors wanted to specialise, mostly in internal medicine and then in surgery. In the literature, it was found that similar results were obtained in studies conducted with internists, the desire to specialise was high and the most preferred departments were in the field of internal medicine (17, 18, 19). The importance

of primary health care for sustainable health care is undisputed. For this reason, it is considered necessary to examine the factors that may lead to the tendency of medical students to specialise and to emphasise the importance of primary health care services in medical education.

The most important factors that may influence the specialty preference of intern doctors in this survey who say they want to specialise are that they like the specialty they prefer and that it matches their personal skills and interests. It is also noteworthy that the risk level of the department, the TUS score and the likelihood of being exposed to violence are the last factors. Similarly, the studies conducted found that the professional satisfaction of the chosen department is the most important factor (7, 20). These findings highlight the importance of professional satisfaction and personal attention in the choice of specialty, despite the challenging training process and working conditions. It is also worth noting that the recent increase in violence in the health sector affects the choice of specialty, but does not prevent professional satisfaction.

This study found that the self-efficacy sub-dimension scores were significantly higher for those who reported that their medical training met their professional expectations and for those who were satisfied with their medical training. Vocational self-efficacy is an individual's assessment of the skills needed to perform a job (21). Although this situation may be related to career choice without taking into account individual characteristics, it remains a prediction as full causality was not questioned in our study.

In this study, the median self-efficacy sub-dimension scores of intern doctors who felt their medical school training was inadequate for working as a general practitioner were significantly lower than those of those who felt it was adequate and those who were undecided. It was also found that the median self-efficacy score was significantly higher than that of those who felt it was insufficient to work in the periphery and those who felt they could actively participate in the history, physical examination and treatment of patients during the training period. It was found that the mean self-efficacy score of those who said they wanted to train in basic sciences in specialty training was significantly lower than that of those who said they wanted to train in medical and surgical sciences. Some studies have found a negative relationship between individuals' perceptions of professional self-efficacy and burnout (22, 23, 24). A meta-analysis of 114 studies by Stajkovic et al. reported a strong correlation between individuals' perceptions of professional self-efficacy and their performance (25). Similar studies with intern doctors have found that doctors' self-efficacy beliefs about some basic professional skills are low (8,9). Our findings and studies suggest that perceptions of professional self-efficacy are an important issue to consider. It can be seen that intern doctors with low perceptions of professional self-efficacy do not feel confident enough to practice in the field, and tend to prefer basic science and move away from clinics during specialisation. This may be due to the anxiety caused by the uncertainty of the problems that intern doctor may face after graduation.

CONCLUSION

Interns' perceptions of professional self-efficacy; it was found to be higher among those who said that the medical faculty education met their professional expectations, those who were satisfied with the medical faculty education, those who felt competent to work in the periphery, and those who said that they could actively participate in patient-related processes during the internship period. In addition, perceptions of professional self-efficacy were lower among those who felt that the medical faculty education was insufficient to work as a general practitioner and among those who stated that they wanted to receive basic science education in specialty training. In line with these findings, it can be concluded that increasing the professional self-efficacy perceptions of intern doctors, and therefore medical students, may be effective both in terms of working life and specialty preferences. To this end, the first step should be to strengthen the content of training to give them the skills to deal with the problems they are likely to encounter in the environments in which they are likely to work in the future. Medical education should be prepared to give priority to the health needs of society and students should be trained in subjects directly related to these problems. In addition, areas of application in medical education should be prepared based on society, and learning activities should be organised within society. Early exposure to the problems they are likely to encounter in the environments in which they will work in the future can help students to cope with these problems more easily. For all these reasons, the emphasis should be on student-centred, problem-solving education with

active participation. Their knowledge should be reinforced by practical training using animations based on real examples in simulation laboratories. All theoretical and practical knowledge and experience required for basic medicine should be taught. Postgraduate medical education and continuing medical education should be emphasised as well as pregraduate education. With such changes and updates in the education system, it is possible to gain competence in the practice of medicine on one's own.

Limitations

Our study had several limitations. Due to the cross-sectional design of the study, it was not possible to assess the long-term causal relationships between different factors related to professional importance and self-efficacy. In addition, only residents trained at a medical faculty were included in the study. It is an important limitation that doctors and residents working in different institutions and in different specialties were not included in the study. Despite the above limitations, this study provides important findings in identifying the factors associated with interns' professional meaning and self-efficacy. It also highlights the need to review medical education and contributes to the literature on the importance of this issue.

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