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Occupational Status in BSc Graduates of Nursing, Operating Room, Anesthesia Technology and Midwifery Fields in School of Nursing and Midwifery, Zanjan, Iran

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Abstract

Background and Objective: Assessment of the condition of medical science graduates, especially in the field of nursing and midwifery, is of paramount importance. This research aimed to determine the occupational status in BSc graduates of nursing, operating room, anesthesia technology and midwifery fields in School of Nursing and Midwifery, Zanjan, Iran in the past five years.

Materials and Methods: This cross-sectional research was conducted on 560 graduates of nursing, operating room, Anesthesia Technology, and midwifery fields, graduated from the school of nursing and midwifery during the academic years of 2010-2015. Data were collected through telephone interviews and a researcher-made questionnaire. Data analysis was performed in SPSS version 22 using descriptive and inferential statistics.

Results: In this research, data of 487 out of 560 graduates were analyzed due to the lack of access to some of the individuals. According to the results, more than 85% of graduates from the nursing, operating room, anesthesia technology and midwifery fields, who graduated during 2010-2015, were employed, whereas 3% of the subjects in each field of study were unemployed. Moreover, more than 70% of the employees in each field of study had government occupations.

Conclusion: According to the results of the study, most of the graduates in nursing, midwifery, operating room and Anesthesia Technology fields were recruited by government sections. Awareness of the occupational status and distribution of graduates of fields related to medical sciences can facilitate the estimation of student admission capacity and provide human resources to the community.

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Introduction

One of the key elements of association between scientific knowledge and its applications in the realization of economic enhancements is the higher education system. The most important mission of this system is training expert and efficient human resource due to the possibility of laying the foundation for the development of the country by this group of people (1). However, changes in the structure of societies affect the need for various skills and abilities. Therefore, it is significantly crucial for the higher education system to adapt to these structural changes. In all countries, special attention is paid to the issue of higher education in order to meet the needs of society by training efficient and skilled workforce (2). Higher education has a special place in human capital theory, according to which human resources are in fact holders of capital due to the skills obtained from higher education. It could be stated that educational services are not a form of consumption, but a type of investment performed in the area of human resources (3).

The dual role of human resource in achieving development goals is significantly considered since workforce acts both as the factor for and target of development (4). Given the fact that one of the important factors for sustainable development is the use of all human resources, it seems necessary to pay attention to the outcomes and feedback of the educated population to have constant development and improvement in the society (5). Moreover, increase of human resource in international societies to promote the health level of human beings, decrease of mortality and disabilities and higher elimination of diseases are crucial for achieving development goals (6). In most countries, one of the main factors for providing qualitative and quantitative services is trained human resources. The same applies to the healthcare section of any society (7), where extended healthcare needs have resulted in increased demand for workforce in all countries (8). In addition, the issue of reform in the medical sciences and health section has been taken into account and implemented by all countries of the world. Improvement of health has a special importance among all development goals, achieving of which makes the development process more sustainable (7).

Due to the significant importance of the role of human resources, most countries allocate a considerable budget to the evaluation of the human resources in their medical science section (9). One of the important goals of planning for human resources in the medical

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science is having a sufficient number of efficient and high-quality workforces in this area, which is also important for estimating the needs of the country (7). Generally, the executive units of higher education system are responsible for estimating the society needs for training specialized human resources in the medical sciences and supplying the human resources required by the health and treatment section of universities (10). One of the largest providers of healthcare services is nursing and midwifery groups, which play a major role in the care, promotion, and maintenance of health at different levels of the healthcare system (11). Every year, many resources are spent by the government and families for the education of this group. Therefore, it seems crucial to have knowledge about the condition of related graduates (6). Moreover, education of professional human resources in the healthcare system based on the society needs and changes is one of the important components in the assessment of the efficiency of universities of medical sciences (3).

Today, most of the countries are faced with the crisis of human resources in their healthcare system, one of the most prominent examples of which is lack of workforce in the nursing and midwifery departments. Studies have shown that the highest level of shortage in human resources of nursing and midwifery departments will be observed by 2020, which prevents achieving the global goals of healthcare systems (2). Health care officials have repeatedly pointed out the lack of human resources in nursing and midwifery departments, considering it the cause of some problems in the healthcare system (12). In recent years, one of the main economic, social and cultural challenges of Iran has been the situation of graduates after graduation, especially their occupational status (3). Evaluation of post-graduation status of nursing and midwifery groups can provide important information about the professional roles and performance of graduates for authorities, who can modify the distribution of medical staff according to these data and provide future plans in terms of student admission capacity, graduation condition, necessity of human resources and recruitment conditions (6).

Given the high cost of education in fields of nursing and midwifery, and with regard to the fact that people working in medical science groups directly deal with the lives of humans, evaluation of the status of graduates in medical sciences, especially nursing and midwifery groups, is of paramount important.

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Therefore, it seems necessary to determine the student attraction capacity in nursing and midwifery departments in a way that there would be no excessive number of unemployed students or lack of workforce in these fields of study. Receiving feedback from the graduates as the main customers of the output of the education system can be used to provide the necessary solutions. Given the lack of any report on graduates of nursing and midwifery from the school of nursing and midwifery of Zanjan, Iran in the past five years, and with regard to the importance of this issue, this study aimed to determine the status of graduates of nursing and midwifery school.

Materials and Methods

This cross-sectional and descriptive study was conducted in 2016-2017 on 560 graduates of nursing, anesthesia technology, operating room and midwifery, who were graduated during 2010-2015. Sampling was performed by officials of the education department of the school after receiving the approvals from the research deputy of the university with the ethical code of ZUMS.REC.1396.147. Education department officials referred to educational files of students, then explained the objectives of the research to graduates via phone calls and obtained their informed consent prior to the completion of the research-made questionnaire. Data collection tool included a researcher-made questionnaire consisting of questions on gender, the field of study, graduation year, and occupation. Other questions were designed to evaluate the occupation components, including occupational status, a continuation of education, conscription status, employment related to the field of study, and location of occupation. Validity of the questionnaire was confirmed based on the opinions of 10 faculty members and its reliability was estimated at the Cronbach's alpha of 0.88 using retest. Data analysis was performed in SPSS version 22 using descriptive and inferential statistics.

Results

In this research, data of 487 out of 560 were assessed due to lack of access to the information of some of the graduates. According to the results, 173 (35.5%), 111 (22.7%), 112 (23%), and 91 (18.7%) subjects were graduates of fields of nursing, operating room, anesthesia technology, and midwifery, respectively. In total, 37% of the nursing graduates were male and 63% were female. In addition, 33.3% and 66.7% of the operating

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room graduates were male and female, respectively. Furthermore, 33% of the anesthesia technology graduates were female and 67% were male. Finally, all of the midwifery graduates were female. In terms of occupational status, 86.7%, 90.1%, 97.3% and 94.5% of the graduates of fields of nursing, operating room, anesthesia technology and midwifery were employed, respectively (Table 1).

Table 1: Distribution of Absolute and Relative Frequency of Status of Research Units after Graduation

	Field of Study			
Post-graduate status	**Nursing N(%)**	**OperatingRoom N(%)**	**Anesthesia Technology N(%)**	**Midwifery N(%)**
Employment	150(86.7)	100(90.1)	109(97.3)	**86(94.5)**
Student	4(2.3)	1(0.9)	--	**1(1.1)**
Both	15(8.7)	--	3(2.7)	**4(4.4)**
Soldier	--	9(8.1)	--	**--**
Not specified	4(2.3)	1(0.9)	--	**--**
Total	173(100)	111(100)	112(100)	**91(100)**

Regarding the type of employment, it seems that the majority of individuals were subjected to conscription, and the rest had temporary to permanent or organizational contracts. Among the evaluated departments, the highest recruitment rate was observed in the nursing department, whereas the lowest rate was related to the operating room (Table 2). Moreover, 86.1%, 79.3%, 94.6% and 72.5% of the graduates of nursing, operating room, and anesthesia technology and nursing and midwifery fields had government occupations, respectively (Table 3).

Table2: Employment status of graduates of different disciplines

Field of study	Graduate date	Employment status				Frequency	Fisher test p-value
			organizational contracts	conscription	employment	total	
Nursing	2011	Frequency	3	1	21	25	0.000
		percent	12.0	4.0	84.0	100.0	
	2012	Frequency	10	3	9	22	
		percent	45.5	13.6	40.9	100.0	
	2013	Frequency	3	20	8	31	
		percent	9.7	64.5	25.8	100.0	
	2014	Frequency	4	40	2	46	
		percent	8.7	87.0	4.3	100.0	
	2015	Frequency	3	30	2	35	
		percent	8.6	85.7	5.7	100.0	
	total	Frequency	23	94	42	159	
		percent	14.5	59.1	26.4	100	
Operating Room	2012	Frequency	16	7	1	24	0.000
		percent	66.7	29.2	4.2	100.0	
	2013	Frequency	0	23	0	23	
		percent	0	100.0	0.0	100.0	
	2014	Frequency	3	24	1	28	
		percent	10.7	85.7	3.6	100.0	
	2015	Frequency	0	24	0	24	
		percent	0.0	100.0	0.0	100.0	
	total	Frequency	19	78	2	99	
		percent	19.2	78.8	2.0	100.0	
Anesthesia Technology	2012	Frequency	18	1	6	25	0.000
		percent	72.0	4.0	24.0	100.0	
	2013	Frequency	11	16	0	27	
		percent	40.7	59.3	0	100.0	
	2014	Frequency	0	29	0	29	
		percent	0.0	100.0	0	100.0	
	2015	Frequency	0	30	0	30	
		percent	0.0	100.0	0.0	100.0	
	total	Frequency	29	76	6	111	
		percent	26.1	68.5	5.4	100.0	
Midwifery	2010	Frequency	9	2	4	15	0.000
		percent	60.0	13.3	26.7	100.0	
	2011	Frequency	14	0	1	15	
		percent	93.3	0.0	6.7	100.0	
	2012	Frequency	3	14	2	19	
		percent	15.8	73.7	10.5	100.0	
	2013	Frequency	2	15	1	18	
		percent	11.7	83.3	5.6	100.0	
	2014	Frequency	0	21	0	21	
		percent	0.0	100.0	0.0	100.0	
	total		28	52	8	88	
			31.8	59.1	9.1	100.0	

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Table3: Absolute and relative frequency distribution of the graduates by type of organization / office

	Field of Study			
organization/office	**Nursing** **N (%)**	**Operating Room** **N (%)**	**Anesthesia Technology** **N (%)**	**Midwifery** **N (%)**
Governmental	149(86.1)	88(79.3)	106(94.6)	66(72.5)
Nongovernmental	8(4.6)	9(8.1)	5(4.5)	23(25.3)
Military	7(4)	1(0.9)	---	---
etc.	1(0.6)	2(1.8)	1(0.9)	---
Not specified	8(4.6)	11(9.9)	---	9(2.2)
Total	173(100)	111(100)	112(100)	91(100)

In terms of location of occupation, most of the graduates were employed in their own city, in a way that 82.7%, 12.1%, and 5.2% of nursing graduates reported their employment city was their hometown, another city and no specification, respectively. On the other hand, 73% of the operating room graduates were employed in their hometown, whereas 17.1% were working in another city and 9.9% did not determine their employment city. For anesthesia technology department, 96.4% of graduates were recruited in their own hometown, whereas 3.6% were working in another city. In addition, 91.2%, 6.6% and 2.2% of the midwifery graduates were employed in their hometown, working in another city or did not specify their city, respectively. Regarding the type of employment, 91.9% of the nursing graduates had relevant jobs to their fields of study, whereas 0.6% and 7.5% had irrelevant occupations and did not specify this issue, respectively. On the other hand, type of occupation of 88.3% of the operating room graduates was relevant, while 1.8% had irrelevant jobs and 9.9% of the relevance of jobs was not specified.

For the graduates of Anesthesia Technology field, 98.2% had relevant occupations, whereas 1.8% had irrelevant jobs. Finally,

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95.6%, 1.1% and 3.3% of midwifery graduates had relevant and irrelevant jobs and did not specify this notion, respectively. In March to April 2015, 91.9% of nursing graduates were employed, whereas 2.9%, 1.2% and 4% were unemployed, student, and did not determine their status, respectively. During the same time, 90.1%, 9%, and 0.9% of operating room graduates were employed, unemployed and student, respectively. Regarding the current occupational status of Anesthesia Technology graduates, 99.1% of the participants were employed during the mentioned time, whereas 0.9% where unemployed. On the other hand, 97.8% of the midwifery graduates were employed and 2.2% of them were unemployed during March to April 2015.

Discussion

According to the results of the current research, only one-third of graduates in the four fields of study had permanent and temporary-to-permanent contracts, and the rest were subjected to conscription. However, it was demonstrated that there was a higher level of students with volunteer job in recent years, which might be due to being obligated to work at first and then being recruited through permanent and temporary-to-permanent contracts. In total, while about one-third of nursing graduates had permanent contracts, only one-tenth of operating room, anesthesia technology and midwifery graduates had this type of contract and the rest of the participants had temporary to permanent contracts. In a research by Bakhshi et al., the occupational status of graduates of Rafsanjan University of Medical Sciences was assessed, concluding that 60% of the participants were employed in a government or non-government institute and 36% of the subjects were unemployed. The mentioned research was conducted on graduates of 1992-1998 and included the graduates of medical fields, such as nursing, midwifery, laboratory sciences, anesthesia technology, operating room and radiology. According to the aforementioned study, the highest employment rate was related to the field of nursing (80%), whereas the lowest rate of occupation was observed in operating room graduates (35%). This difference between the graduates of operating room and anesthesia technology in terms of occupation rate might be due to different durations and a higher need for anesthesia technology and operating room graduates by healthcare centers and different levels of education (13).

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In another study, Teymouri et al. assessed the occupational status of operating room graduates of nursing faculty of Kermanshah. According to their results, 86% of the graduates were employed, which is in line with our findings. However, 48.5% of the graduates of the mentioned research attended higher education courses. Therefore, it seems that the significant difference between the two studies might be the different educational level of the participants since subjects of the current research had BSc, whereas participants of the study by Teymouri et al. had an associate degree. This indicated that those with an associate degree had a higher tendency toward continuing education, compared to subjects with BSc (14). According to the results of the current study, more than 70% of employees of all fields of study were employed by government sections and a small number of these individuals were recruited by the private sector. Among the participants, the highest employment rate (25%) by the private sector was observed in the midwifery graduates. Similar studies have found the same result regarding the low employment rate of graduates of medical fields by the private sector (6), which is indicative of the high recruitment rate by the government centers. It should be noted that the private sector must increase its employment rate to reduce the unemployment rate of the country and just relying on the government will solve this problem in our community. However, special attention must be paid to this area by the private sector due to the importance and sensitivity of the health of society in the sustainable improvement and development of the community and with regard to the special role of human resource in the healthcare section.

On the other hand, results of the current study demonstrated that more than 50% of employees were working due to obligatory conscription. In terms of permanent contracts, the highest and lowest rates were observed in nursing (24.3%) and operating room (1.8%) groups, respectively. Given the temporary nature of conscription, lack of considering the relevant employees would lead to increased rate of unemployment. The high rate of employment through conscription has been observed in similar studies. However, 85.7% of the subjects passing their obligatory conscription reported that this course increased their occupational motivation and had a significant role in recruitment of graduates (13). According to the results of the present study, most of the graduates of all four fields were working in their hometown.

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In this regard, the highest (96.4%) and lowest (73%) rates were allocated to the Anesthesia Technology and operating room graduates. However, more than 70% of all subjects were working in their hometown, which reflects the unwillingness of graduates to immigrate to other cities for work. Nevertheless, it seems logical to recruit graduates of each field based on the needs of each city. According to the results of the present study, more than 88% of the graduates of all fields had relevant jobs, which might be due to proper occupational condition for these individuals. Another reason is being interested in their field of study. One of the major drawbacks of the present research was lack of full access to all graduates and partial completion of some of the researchers through telephone. Results of the current research can be used in management, education and research sections. In this regard, our findings could be applied to review the student acceptance capacity, graduation conditions, necessity of conscription, and recruitment conditions of graduates of nursing, operating room, anesthesia technology and midwifery fields.

Conclusion

According to the results of the current research, the majority of nursing, midwifery, operating room and anesthesia technology graduates had governmental jobs and there was a significantly low rate of employment in the private sectors. On the other hand, most of the employees in the governmental sections were recruited due to conscription. Given the obligatory nature of conscription and voluntary extension of the course of conscription by some of the graduates, this course can vary two to four years. Therefore, it is suggested that future studies be conducted on the occupational status of graduates of these field four to five years after their graduation. Moreover, it is recommended that the occupational status of graduates of government and non-government universities be compared in these fields.

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