

A Study on the Demand for Bachelor's Degree Acquisition of Medical Technicians

Yang-Keum Han[†] and Ji-Su Yu¹

Department of Dental Hygiene, Daejeon Health Sciences College, Daejeon 300-711, Korea

¹Department of Dental Hygiene, Shin-heung College, Uijeongbu-City, 480-701, Korea

의료기사의 학사학위 취득에 관한 요구도 조사

한양금[†] · 유지수¹

대전보건대학 치위생과, ¹신흥대학 치위생과

Abstract Lately, national hygiene & medical environment and its demand aspect have been rapidly changing, and market opening of hygiene and medical sector is accelerating. Due to the change in labor resulting from the wide range of change in industrial structure and the steady decrease in university applicants, most of colleges and universities have been strongly urged to establish hygiene medical manpower training courses or relative courses, which leaves the medical technician training courses in 4 year universities on the robust increase. Consequently, the medical technicians, graduating from 3 year colleges without bachelor's degree due to shortage of 20 credits for acquisition of degree, have had to compete with the graduates from 4 year universities and the bachelor's degree has been in continuous demand for the medical technicians of 3 year college. In the research for recognition of Credit Bank System prevalent across the colleges, enabling the systematic acquisition of bachelor's degree, 60.9% among the respondents are aware of Credit Bank System, and 46.9% are aware that Advanced Major Course is induced in the near future. Hence, there shall be active promotions of various programs allowing acquisition of bachelor's degree in the colleges. The social change in recognition of colleges by inducement of the two programs may authorize the college to have the scholastic attainments equivalent to the 4 year university, and the political initiative shall be deliberated across over the government and the academic world.

Key words Medical technicians, Bachelor's degree acquisition, Credit bank system, Advanced major course

Introduction

Medical technicians are consisted of Medical Technologist, Radiological Technologist, Physical Therapist, Occupation Therapist, Dental Technologist and Dental Hygienist, etc. They have graduated from universities, industrial university or college majoring in the health and medical related courses¹⁾, and worked in the major field of study after license acquisition. However, the recent health and medical environment and the demand aspect are rapidly changing, and market opening of health and medical sector is accelerating²⁾. The function of colleges is to raise the professionals in the certain fields where the governmental strategy is focused on, and the colleges,

with their function of raising the professionals rather than technicians³⁾, have kept their own distinction from the universities. Professional roles of college graduates are expanding to the technical fields and job specifications are getting more specialized⁴⁾.

Hence, the demand of the bachelor's degree for the medical technicians who graduated from 3 year health colleges has been continuously increased among 3 year college graduates with total 120 credits, which is short of 20 credits for obtaining the bachelor's degree. Advanced Major Course has been established and operated since March 2008 in order to provide reeducation of major field of study for college graduates, to satisfy manpower demand to flexibly cope with rapid technical changes in the highly developed industrial society and to enhance adaptability in the work place by improvement of job performance skill⁵⁾. Since 1999, the credit was approved through Credit Bank System, and continuing education of

[†]Corresponding author
Tel: +82-42-670-9195
Fax: +82-42-670-9190
E-mail: ykhan@hit.ac.kr

college graduates has began⁶). The college occupies 40% quota among the total higher education. However more and more colleges have faced the steadily increasing crisis of their existence due to the increasing courses for medical technicians in 4 year universities⁷, the decreasing school age population, the change in manpower resulting from change in industrial structure, and so on⁸). Medical technician courses in the 4 year universities are increasing, thus the demand of bachelor's degree for medical technicians graduating from the colleges is continuously increasing.

The purpose of this study is to provide basic data to set up the future direction where the colleges should put priority by serious recognition of demand for bachelor's degree from the medical technicians who graduated from 3 year college. This research was made on the limited area only, covering the medical technicians in the certain limited area. This study is not comprehensive enough to represent the whole medical technicians, however, can lead to a clue for set-up of college education system for hygiene and medical field.

Methods

The survey has been conducted on the medical technicians working for hospitals and clinics in D city and its suburb from August 1st to September 30th, 2006. Total 450 of questionnaire have been distributed, 64 copies among which were in congruent for data process and 386 copies have been used for the data analysis. SPSS WIN 13.0 program was used for data analysis and Chi-square test and fisher exact test used to analyze significance test, and the level of significance was 0.05.

Results

1. General Facts

General facts of medical technicians working for hygiene and medical organization in D area are shown in Table 1. Analysis of respondents shows 44.3% male and 55.7% female by gender, 16.8% Medical Technologist, 16.6% Radiological Technologists, 20.2% Dental Technologist, 19.7% Dental Hygienist, 21.2% Physical Therapist and 5.4% Occupation Therapist occupation by type. By work place, 3.8% educational organization, 87.8% medical organization, and 3.9% social welfare organization. By career, 51.0% having 1 to 3 year experience, 16.6% 4 to 6, 13.7% 7 to 9 and 18.7% 10 years and more, respectively,

Table 1. General facts for the subjects

Unit: The Number of Frequency=386(%)

Classification	Division	Frequency	%
Gender	Male	171	44.3
	Female	215	55.7
Occupation	Medical Technologist	65	16.8
	Radiological Technologist	64	16.6
	Dental Technologist	78	20.2
	Dental Hygienist	76	19.7
	Physical Therapist	82	21.2
	Occupational Therapist	21	5.4
	Working place	Education Organization	32
Medical Organization		339	87.8
Social Welfare Organization		15	3.9
Working career	1-3years	197	51.0
	4-6years	64	16.6
	7-9years	53	13.7
	Over 10years	72	18.7
Education after Obtaining License	Attending 4 Year University	58	15.0
	Graduated 4 Year University	47	12.2
	Attending Master Course	13	3.4
	Obtained Master Degree	23	6.0
	Obtained and Attending Doctor's Degree	9	2.3
	None	236	61.1
	Channel of Degree Acquisition	University Transfer	49
National Open University Transfer		49	12.7
Self-Education Degree Course		1	0.3
Credit Bank System		51	13.2
Total		386	100.0

which implies that around half of the respondents have somewhat short career experience of 3 years or less. When it comes to the research of continuing education after obtaining the license, 35.8% respondents have continued education for bachelor's degree or higher.

2. Research for Recognition of Medical Technicians Training Manpower

1) Opinion of training manpower by major

Table 2 shows the result of research regarding medical technicians training manpower by major field of study. To the question on the total number of medical technicians of their major, 21.2% replied 'Very much', and 52.3% relied 'Relatively much' respectively, 73.5% in total, which is

Table 2. Opinion regarding training manpower by major field of study Unit: The Number of Frequency=386(%)

	Very much	Relatively much	Moderate	Relatively Little	Very Little	Total (%)
Total number of medical technicians of my major	82(21.2)	202(52.3)*	72(18.7)	26(6.7)	4(1.0)	386(100.0)
Entrance quota of colleges of my major	90(23.3)	185(47.9)*	86(22.3)	21(5.4)	4(1.0)	386(100.0)
Number of colleges where medical technicians are trained	90(23.3)	200(51.8)*	57(14.8)	33(8.5)	6(1.6)	386(100.0)

*p < 0.05

Table 3. Opinion regarding controlling demand and supply of manpower by major field of the study Unit: The Number of Frequency=386(%)

	Absolutely yes	Generally yes	So so	Generally no	Absolutely no	Total (%)
Whether training of medical technicians has to be properly controlled and managed as present	111(28.8)	166(43.0)*	69(17.9)	24(6.2)	16(4.1)	386(100.0)
Whether number of medical technicians has to be controlled in accordance with number of doctors	101(26.2)	195(50.5)*	32(8.3)	45(11.7)	13(3.4)	386(100.0)
Whether respondents agree or not to the government policy of liberalization of colleges and universities entrance quota of hygiene and medical courses	12(3.1)	39(10.1)	89(23.1)	126(32.6)*	120(31.1)*	386(100.0)

*p < 0.05

statistically of significance ($p < 0.05$). 6.7% and 1.0% replied each 'Relatively little' and 'Very little', only 7.7% replied insufficiency. According to the result of research regarding entrance quota for their major, 23.3% and 47.9% replied 'Very much' and 'Relatively much' 71.2% in total showing the statistical significance ($p < 0.05$). 5.4% and 1.0% replied each 'Relatively little' and 'Very little', 6.4% in total replied insufficiency.

In the research regarding the number of colleges with medical technicians training courses, 23.3% and 51.8% replied 'Very much' and 'Relatively much' respectively, 75.1% replied 'Plenty' which shows the statistical significance ($p < 0.05$). 8.5% and 1.6% replied 'Relatively Little' and 'Very Little' respectively, 1% in total replied insufficiency, showing the statistical significance. Many of the respondents replied 'Plenty' regarding current entrance quota, number of colleges and number of medical technician graduate in their major. The result implies that the liberalization of college entrance quota for medical technician courses may cause various problems due to excessive number of medical technicians.

2) Opinion regarding Controlling Demand and Supply of Manpower by Major Field of Study

In there search regarding the demand & supply and the necessity for regulation of manpower by major field of study Table 3, with the question that whether Ministry of Health and Welfare and Ministry of Education and Human Resource Development are required to properly regulate and manage as they do presently in terms of

medical technician training, 28.8% and 43.0% replied 'Absolutely yes' and 'Generally yes' respectively, 71.8% in total replied that regulation is required, which shows the statistical significance ($p < 0.05$). The respondents of 6.2% and 4.1% replied each 'Generally no' and 'Absolutely no', 10.3% in total. In the question whether the number of medical technicians have to be regulated in proportion to the number of doctors, 26.2% and 50.5% replied 'Absolutely yes' and 'Generally yes', 76.5% in total replied that regulation is required, which shows the statistical significance ($p < 0.05$). However, Only 3.4% replied 'Absolutely no'.

Regarding the government policy on liberalization of colleges and universities' entrance quota, in the question whether respondents agree or not to the policy, 32.6% replied 'Generally no' and 31.3% 'Absolutely no', 63.9% in total disagreed the policy, which shows the statistical significance ($p < 0.05$). The respondents of 3.1% and 10.1% replied 'Generally yes' and 'Absolutely yes', 13.2% in total.

3. Recognition for Bachelor's Degree Acquisition of Medical technicians

1) Level for Recognition of Bachelor's Degree Acquisition from College

Research regarding recognition of bachelor's degree acquisition from college is shown at Table 4. In the research of recognition whether respondents are aware that bachelor's degree can be obtained from college, 11.1%

Table 4. Level for recognition of bachelor's degree acquisition at college**Unit: The Number of Frequency=386(%)**

	Absolutely yes	Generally yes	So so	Generally no	Absolutely no	Total(%)
Whether respondents are aware that bachelor's degree can be obtained from college	43(11.1)	216(56.0)*	70(18.1)	40(10.4)	17(4.4)	386(100.0)
Whether respondents are aware that colleges run Credit Bank System to enable bachelor's degree acquisition	64(16.6)	171(44.3)*	91(23.6)	50(13.0)	10(2.6)	386(100.0)
Whether respondents are aware that colleges are plan to introduce Advanced Major Course to enable bachelor's degree acquisition	30(7.8)	151(39.1)*	72(18.7)	100(25.9)	33(8.5)	386(100.0)
Whether respondents will obtain bachelor's degree if it is available at college	81(21.0)	158(40.9)*	110(28.5)	29(7.5)	8(2.1)	386(100.0)

*p < 0.05

Table 5. Opinion regarding future study planning and curriculum of major field**Unit: The Number of Frequency=386(%)**

	Absolutely yes	Generally yes	So so	Generally no	Absolutely no	Total(%)
Study plan of higher degree	72(18.7)	138(35.8)*	105(27.2)	64(16.6)	7(1.8)	386(100.0)
Necessity of medical technician courses in 4 year universities at current point	83(21.5)	114(29.5)*	116(30.1)*	48(12.4)	21(5.4)	386(100.0)
Satisfaction measurement of contents and quality of medical technician courses education at current 3 year colleges	13(3.4)	121(31.3)	197(51.0)*	43(11.1)	9(2.3)	386(100.0)

*p < 0.05

and 56.0% replied each 'Absolutely yes' and 'Generally yes', 67.1% in total were aware of the fact, which shows similar the statistical significance ($p < 0.05$). The respondents of 10.4% and 4.4% replied each 'Generally no' and 'Absolutely no', 14.8% in total were not aware of the fact. In a research of recognition whether respondents are aware that colleges run Credit Bank System to allow bachelor's degree acquisition, 16.6% and 44.3% replied each 'Absolutely yes' and 'Generally yes', in total 60.9% were aware of the fact, which shows the statistical significance ($p < 0.05$). The respondents of 13.9% and 2.6% replied each 'Generally no' and 'Absolutely no', 15.6% in total were not aware of the fact. In there search of recognition whether respondents are aware of the fact that Advanced Major Courses will be introduced in the colleges which enables the students to obtain bachelor's degree, 7.8% and 39.1% replied each 'Absolutely yes' and 'Generally yes', 46.9% in total were aware of the fact, which shows the statistical significance ($p < 0.05$). The respondents of 25.8% and 8.5% replied each 'Generally no' and 'Absolutely no', 34.4% in total were not aware of the fact. In the research whether respondents will obtain bachelor's degree if the program is available at college, 21.0% and 40.9% replied each 'Absolutely yes' and 'Generally yes', 69.1% in total were positive, which shows the statistical significance ($p < 0.05$).

7.5% and 2.1% replied each 'Generally no' and 'Absolutely no', 9.6% in total were negative.

2) Opinion Regarding Future Study Planning and Curriculum of Major Field.

The result of opinion research regarding future study planning and curriculum of major field is shown in Table 5. In the question that 'Do you plan to study for higher degree?', 18.7% and 35.8% replied each 'Absolutely yes' and 'Generally yes', which shows the statistical significance ($p < 0.05$). The respondents of 16.6% and 1.8% replied 'Generally no' and 'Absolutely no'.

In the research regarding the necessity of medical technician courses in 4 year universities at this current moment, the respondents of 21.5% and 29.5% replied each 'Absolutely yes' and 'Generally yes', which shows the statistical significance ($p < 0.05$). The respondents of 12.4% and 5.4% replied each 'Generally no' and 'Absolutely no'. In there search regarding satisfaction measurement of contents and quality of medical technician courses in the current 3 year colleges, 3.4% replied 'Absolutely yes', 31.3% 'Generally yes', 51.0% 'So so', 11.1% 'Generally no' and 2.3% 'Absolutely no'.

Consideration

The colleges has faced the crisis due to decrease in

school age population, change in manpower resulting from change in industrial structure, competition with 4 year universities, and so on. In addition, there exist the decrease in college applicants, the phenomenon of concentration into Metropolitan area, the preference of 4 year university, the dual application for 3 year college and 4 year university, the change in occupation preference and the others, which place colleges in the tougher situation. Some colleges and universities have strongly and competitively requested establishment of hygiene and medical manpower training courses or relative courses which have relatively enjoyed fair applications without much trouble. As the results, medical technician training courses in 4 year universities are steadily increasing. Thus, the 3 year college graduates have to compete with the graduates from the 4 year universities, which has increased the demand for obtaining bachelor's degree. Much effort was exerted by the 3 year college graduates to obtain bachelor's degree in the various methods. In colleges, Credit Bank System and Advanced Major Course has been induced and operated to enable bachelor's degree acquisition. Therefore, this study is to research the recognition of bachelor's degree acquisition by medical technicians.

In general feature, in a research of educational level after obtaining license upon graduation from college, 15.0% replied 'Attending University', 12.2% 'Graduated University', 3.4% 'Attending Master Course', 6.0% 'Obtained Master's Degree' and 2.3% 'Obtained and attending doctor's degree', 38.9% in total have obtained academic degree or attending academic courses. In a research regarding channel of degree acquisition, 12.7% replied 'University Transfer', 12.7% 'National Open University Transfer', 0.3% 'Self-Education Degree' and 13.2% 'Credit Bank System'. In a research regarding training manpower of medical technician, 73.5% replied 'Plenty' and 6.8% 'Insufficient' in a research regarding the total number of medical technicians of their major. In a research regarding number of universities and colleges with medical technicians training courses, 75.1% replied 'Plenty' and 9.1% 'Insufficient', which means most of medical technicians recognize that current number of medical technician graduates is 'Plenty'. This can be thought as a phenomenon resulting from the newly established hygiene field medical technician & relative courses and the increase of student in the recent years.

Upon opinion regarding regulation of demand and supply for manpower by major field of study, 71.8%

replied 'Necessary' and 9.5% 'Unnecessary' in a research whether proper regulation and management are required at present in terms of medical technicians training. In a research whether the number of medical technicians has to be regulated in proportion to the number of doctors, 76.5% replied 'True' and 3.4% 'Untrue'.

Regarding the government policy of liberalization of colleges and universities' entrance quota, in a question whether respondents agree or not of the policy, 32.6% replied 'Agree' and 63.9% 'Disagree'. Medical technicians highly recognizes that there shall be governmental regulation and management in terms of demand and supply of manpower, and number of medical technicians shall be controlled in commensurate with the number of doctors.

In a research regarding recognition of bachelor's degree acquisition of medical technicians, 67.1% replied 'Aware' and 14.8% 'Not Aware' in a research whether respondents are aware of the bachelor's degree acquisition from college.

In a research of recognition whether respondents are aware that colleges run Credit Bank System to enable bachelor's degree acquisition, 60.9% replied 'Aware' and 15.6% 'Not Aware', which corresponds with report of Jang⁴⁾ et al.

In a research of recognition whether respondents are aware that the college plans to run Advanced Major Courses, 46.9% replied 'Aware' and 9.6% 'Not Aware', which is higher than the report of Jang⁴⁾ et al. According to the research, medical technicians are highly interested in and recognize academic degree acquisition. It is thought that the reason Advanced Major Course has attracted lower recognition compared with the Credit Bank System is that Credit Bank System has been under operation and has enabled bachelor's degree acquisition while Advanced Major Course is to be established in 2008. It is well recognized by medical technicians that bachelor's degree can be obtained at the college as well. In a research of 'Do you plan to study higher degree?', 54.5% replied 'True' and 18.4% 'Untrue'. In a research regarding necessity of medical technician courses in 4 year universities at present, 51.0% replied 'Necessary' and 17.8% 'Unnecessary', which implies high recognition of medical technician training in 4 year universities. In a question regarding satisfaction of contents and quality of medical technician courses education at the current 3 year college, 34.7% replied 'Satisfied' and 13.4% 'Unsatisfied'.

Based upon the above, medical technicians highly

recognize the bachelor's degree acquisition through Credit Bank System and Advanced Major Course. Thus, the Credit Bank System, which is presently run according to the type of medical technician, shall undergo steady improvements through evaluation of Credit Bank System. By way of continuous investigation of Advanced Major Course induced from 2008, it has to be actively promoted that bachelor's degree can be obtained from the college as well. In addition, the social change in recognition of colleges by inducement of the above programs has set up the reasonable ground for authorization of the college with scholastic attainments equivalent to the 4 year university, in this respect, the political initiative shall be deliberated across over the government and the academic world.

Summary

To research the recognition regarding bachelor's degree acquisition of medical technicians, a survey has carried out from August 1st to September 30th, 2006 in D area and suburb upon 386 medical technicians who work for hospitals and clinics in the area. Below is the result of the survey using SPSS WIN 13.0 program.

1. In a research regarding the recognition if bachelor's degree can be obtained at the college, 67.1% replied 'Aware' and 14.8% 'Not Aware', and regarding the plan to obtain the bachelor's degree if respondents may obtain it from college, 61.9% replied 'True' and 9.6% replied 'Untrue'.
2. In a research regarding recognition of Credit Bank System operation at the colleges to enable bachelor's degree acquisition, 60.9% replied 'Aware' and 15.6% replied 'Not Aware', and regarding recognition of establishment planning of Advanced Major Course, 46.9% replied 'Aware' and 34.4% 'Not Aware'.
3. In a research regarding study plan of bachelor's degree or higher, 54.5% replied 'True' and 18.4% replied 'Untrue', and regarding necessity of medical technicians courses in 4 year universities, 51.0% replied 'Necessary' and 17.8% 'Unnecessary'.
4. In a research regarding satisfaction of contents and quality of education of medical technician courses, 34.7% replied 'Satisfied' and 13.4% 'Unsatisfied'.

요 약

최근 국민 보건의료 환경과 수요양상이 급변하고 있으며, 보건 의료부분의 시장 개방도 가속화되고 있다. 산업 구조의 전환에 따른 인력 수요의 변화와 대학 입학자원의 감소는 지금까지 비교적 신입생 모집의 어려움이 적었던 보건의료인력 양성학과나 관련학과의 개설을 강력하게 요구하게 되어 4년제 대학의 의료기사 양성학과들은 지속적으로 증가되고 있다.

이에 따라 3년제 대학 졸업자 의료기사들은 4년제 대학 졸업자와의 경쟁 상황에 놓이면서 학위취득에 대한 요구가 증대되면서 다양한 방법으로 학위취득을 위한 노력이 이루어지고 있다. 현재 전문대학에서 학사학위 취득을 위한 학점은행제 운영에 관한 조사에서 60.9%가 인지하고 있었으며, 전공심화 과정의 개설예정에 관한 조사에서도 46.9%가 인지하고 있어, 전문대학에서의 다양한 학위 취득에 관한 적극적인 홍보와 사회적 인식의 변화로 4년제 대학과 동등한 학력으로의 인정을 위한 정책적인 방안이 마련되어야 할 것으로 사료된다.

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