

## ORIGINAL ARTICLES

**Training Needs Assessment for Bachelor of Rehabilitation Techniques in Viet Nam**

Tran Thi My Hanh<sup>1\*</sup>, Ho Thi Hien<sup>1</sup>, Nguyen Thi Hien Luong<sup>1</sup>, Nguyen Mai Anh<sup>1</sup>, Do Chi Hung<sup>1,2</sup>, Nguyen Thi Thanh Nhiem<sup>1</sup>, Hoang Van Minh<sup>1</sup>, Bui Thi Thu Ha<sup>1</sup>

**ABSTRACT**

**Objectives:** This paper aims to describe the training needs for Bachelor of Rehabilitation Techniques in Viet Nam. The findings will serve as evidence for the Hanoi University of Public Health to decide on opening training courses for Bachelor degree of Rehabilitation Techniques in Viet Nam.

**Methods:** This study employed a cross-sectional design with quantitative, qualitative and secondary data. The quantitative sample included 116 people, in-depth interviews with 10 staff working in public and private establishments in Ha Noi, Ho Chi Minh City, and Hai Duong.

**Findings:** The training for Bachelor of Rehabilitation Techniques is in line with the needs and the policies of the Ministry of Health, which is reflected in the National Plan for Rehabilitation development in Viet Nam. 89.6% of participants in the Rehabilitation workforce agreed that there is a need to strengthen training this kind of Bachelor; and the rate of alumni having a stable job in the field is very high (97%). Physical therapy is the content that should be focused on the training program, training contents should also include occupational therapy and speech therapy, and the courses should be clinical practice-centered ones.

**Conclusion:** The study shows the need to have a training program for Bachelor in Rehabilitation techniques, focusing mainly on physical therapy, in combination with speech therapy and occupational therapy, with a majority of curriculum parts being clinical practice.

**Keywords:** *Training Needs Assessment, Bachelor of Rehabilitation techniques, Bachelor of Physiotherapy, Rehabilitation.*

**INTRODUCTION**

The rapid population aging and increasing chronic diseases lead to an increasing demand for Rehabilitation (1, 2). Some questions are posed as follows: Is additional training for Bachelor of Rehabilitation Techniques needed in Viet Nam? At present, what are the training needs of Bachelor of Rehabilitation

Techniques? What knowledge and skills on rehabilitation should be focused by training programs to meet the needs of professional practice?

A quick review done by some experts and managers in the field of Rehabilitation has shown that the current manpower in some facilities does not meet the practical



\*Correspondence: Tran Thi My Hanh  
Email: tmh@huph.edu.vn

<sup>1</sup>Hanoi University of Public Health

<sup>2</sup>E Hospital

Citation: Tran Thi My Hanh et al.  
Vol. 03, No. 02-2019, pp. 66-79

professional requirements. To obtain information about the status and training needs of Bachelor of Rehabilitation Techniques in Viet Nam and provide evidence for opening this education program at Hanoi University of Public Health in the coming period, the study entitled “Training needs assessment for Bachelor of Rehabilitation Techniques” was conducted to aim at describing the training of Bachelor degree in Rehabilitation Techniques and the gap compared to the demand for trained staff number as well as the necessary skills to help improve quality of new training courses to better meet actual needs of practice.

## METHODS

### Study design

The study applied a cross-sectional design, combining quantitative, qualitative and secondary data collection.

### Time and settings

From March to June 2019 in 3 sites, namely Ha Noi, Ho Chi Minh City, and Hai Duong Province.

### Study participants

#### *Quantitative component*

The sample included all 116 participants who were employees directly working in the Rehabilitation department at 8 public and private health facilities providing Rehabilitation services in Ha Noi, Ho Chi Minh City and Hai Duong Province. They are the main training sites for Rehabilitation in Viet Nam. Data was collected using self-administered questionnaires.

Exclusion criteria: staff in the departments/offices of Rehabilitation/physiotherapy who only did administrative work, accounting for drugs or medical supplies.

#### *Qualitative component*

The actual qualitative sample consisted of 10 officers participating in the in-depth interviews. They were purposively selected. Interviewees include:

- Manager in charge of Rehabilitation of the Medical Service Administration - Ministry of Health: 1 person.
- Chief of Human Resources Office of a National hospital and a provincial hospital with the Department of Rehabilitation: 2 people.
- Head of Department of Rehabilitation of a National Hospital and Head of Department of Rehabilitation of a Provincial Hospital: 2 people.
- Chief of Administration Department/Organization and Personnel Department of a provincial/municipal Rehabilitation hospital: 1 person.
- Chief of Department of Rehabilitation in a Institute/public and private Rehabilitation clinics in Ho Chi Minh City and Ha Noi: 2 people.
- Officers/staff directly worked on Rehabilitation at public and private hospitals in Ho Chi Minh City and Ha Noi: 1 person.
- Rehabilitation Specialist: 1 person.

#### *Secondary data*

The research sought for secondary documents on Internet with keywords including “bachelor of Rehabilitation techniques”, “bachelor

of physical therapy”, “circular” “job position”; “Alumni report”, the websites of Ministry of Home Affairs, Ministry of Health, Ministry of Labor, Invalids and Social Affairs, several training institutions with bachelor of Rehabilitation techniques program and bachelor of physical therapy program, “output standards”, “Rehabilitation techniques”, etc.

Moreover, the study collected information on training programs from training institutions by direct requests, or through exchanges among lecturers, etc.

#### *Requirements for the selected documents in the research*

- Policy/policy implementation documents related to the Rehabilitation workforce.
- Regulations and procedures of approving training branch/discipline codes related to Rehabilitation.
- Employment position schemes of hospitals and health facilities related to Rehabilitation workforce.
- Training curriculum, syllabuses of Rehabilitation.

#### **Groups of study variables**

-Group of variables of occupational Rehabilitation characteristics: Age, year of being recruited, department, qualification, etc.

- Training needs of Bachelor in Rehabilitation Techniques: if there is a need for training in each Rehabilitation specialization code, speech therapy, therapeutic activities; if there is a need of training in occupation-related skills (communication skills, foreign languages, informatics, etc.); selection of the type and training methods for Rehabilitation.

- Training needs for occupational skills in the specialty: the level of importance in assessment on a scale from 1 to 5 about the importance of each subject in the group of foundation subjects, each specialized subject, and subjects in the program being taught at domestic training institutions.

- Employment status within 6 months after graduation.

#### **Data collection**

Data were collected through semi-structured questionnaires and in-depth interviews.

#### **Data analysis**

Data obtained from the questionnaire were coded and entered using EpiData 3.0 and analyzed using SPSS 18.0 software for proportions and means to describe the staff characteristics of the surveyed facilities. The proportions and rates are to describe the needs of participants in the bachelor program in Rehabilitation, as well as their assessment in organizing such training programs at Hanoi University Public Health, and formats of the training. The average scores are to describe the necessity of each group of specialized skills in the training program.

Qualitative data were analyzed and cited by the topic.

#### **Ethics consideration**

The research has been approved by the Hanoi University of Public Health Ethics Committee in Decision No. 110/2019/YTCC-HD3.

## **RESULTS**

### **Demographic characteristics of study participants.**

**Table 1. Characteristics of the rehabilitation workforce (n=116)**

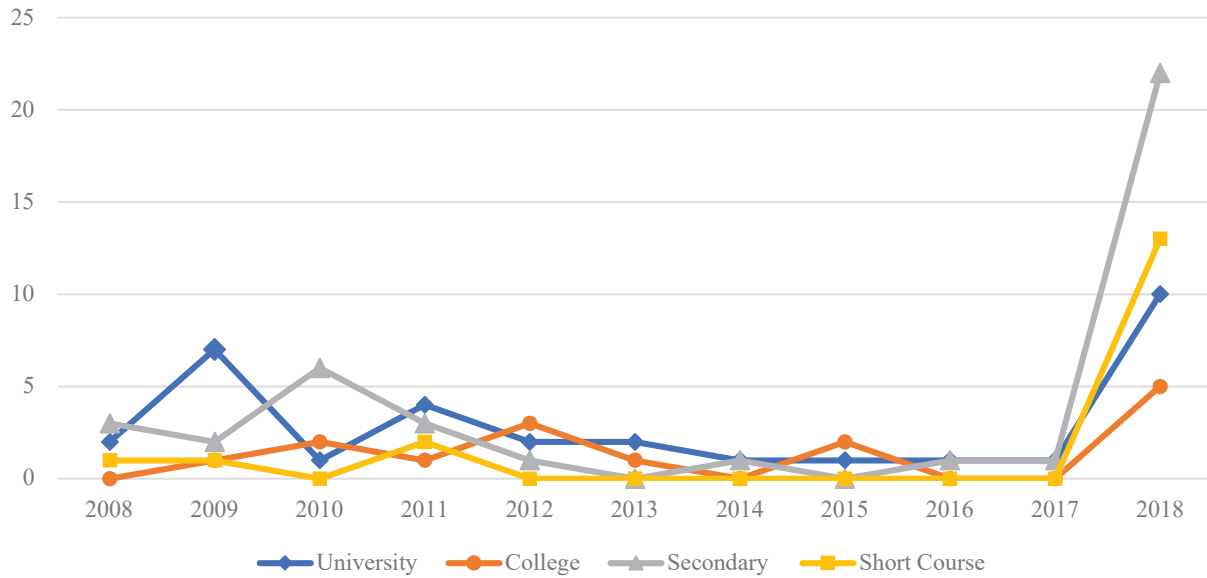
<b>Characteristics</b>	<b>n</b>	<b>%</b>	
<b>Age</b>	21-25	35	30.2%
	26-30	40	34.5%
	31-35	14	12.05%
	36-40	13	11.2%
	≥ 41	14	12.05%
<b>Qualifications</b>	General Doctor	3	2.6%
	Traditional Medicine Doctor	5	4.3%
	Nurse	14	12.1%
	Medical Technician	4	3.4%
	Uni-level Physiotherapist	28	24.1%
	College-level Physiotherapist	17	14.7%
	Secondary-level Physiotherapist	37	31.9%
	Other (assistant doctor, etc.)	8	6.9%
<b>Work experience</b>	Less than 1 year	52	44.8%
	1 - 5 years	15	12.9%
	6 – 10 years	46	39.7%
	More than 10 years	3	2.6%

Table 1 shows that staff in Rehabilitation specialty are young in general. About the staffing structure, the proportion of doctors accounted for 6.9%; Bachelor in Rehabilitation - Physiotherapy accounted for 24.1% and 14.7% for college diploma holders, while the number of physiotherapists having a secondary degree in this field accounted for 31.9%. The proportion of nurses and medical technicians, assistant

doctors, etc. who have received additional training for Rehabilitation work is 23.4%.

Up to 44.8% of new employees were recruited within 1 year. People with seniority in Rehabilitation for over 10 years only accounted for about 2.6%.

#### ***Recruitment of staff in rehabilitation over the last 10 years***



**Figure 1. Recruitment of staff in rehabilitation over the last 10-year period**

There was a very high increase in staff recruitment in 2018. Compared to the previous 5-year period, the number of employees participating in this work accounted for only 12.9% (equivalent to the average of yearly recruitment 3.2%), the recruitment rate in 2018 increased by 14 times. In comparison with the whole period from 2009 to 2017, it is 7.7 times higher (Figure 1). This should be considered in the actual recruitment needs assessment in the following years.

The quantitative results are consistent with the qualitative statements of experts and employers because they believe that it is necessary to train more skilled technicians with good practice. The interviewing results show that up to 99.1% of the respondents thought that training for Bachelor of Rehabilitation Techniques is needed. There were 79.3% of staff working in the field of Rehabilitation and participating in the research said that training institutions of Medicine and Pharmacy are able to offer training courses for Bachelor of

Rehabilitation Techniques, including the Hanoi University of Public Health.

About the employment status after graduation, the results show that approximately 97% of research participants said that they found a job after graduation within 6 months.

**Training for Bachelor degree in Rehabilitation Techniques in recent years in Viet Nam and the gap in human resources.**

In the public system, the Bachelor degree in Rehabilitation techniques has been given the job codes. At the present, Bachelor in Rehabilitation Techniques and other bachelor degree programs such as Bachelor of Physiotherapy, of Speech Therapy, of Occupational Therapy or Medical Techniques are being additional training in order to be given the rank of of Medical Techniques – category III, coded - V 08.07.18 (college level and lower is equivalent to category IV).

In the professional activities, Bachelor holders in Rehabilitation Techniques have the role to

follow the medical prescription but have no right to give treatment indication. Therefore Bachelor in Rehabilitation Techniques is one form of medical techniques training at university level.

According to the assessment of the managers in rehabilitation and the Rehabilitation facilities, Viet Nam is currently in short of doctors specialised in rehabilitation and bachelors in rehabilitation techniques.

*In Viet Nam, there is still a shortage of Rehabilitation doctors and personnel at the university and postgraduate level specialized in rehabilitation* (IDI, Official in Rehabilitation of the Ministry of Health).

The secondary data and the results of in-depth interviews (IDI) reveal that the quota for Bachelor of Rehabilitation Techniques training in recent years was limited for several reasons. The overall number of graduates from nine training institutions across the country involved in Bachelor of Rehabilitation Techniques training each year was fewer than 300 bachelors. In 2018, there were 6 institutions across the country having the training program of Bachelor of Rehabilitation Techniques, including the Tokyo Medical University in Ha Noi which could enroll only 9 out of 40 as planned.

The reason is thought to be limited quota and capacity of the institutions for enrollment. Another reason found by the study is the limited knowledge of the public about this specialty.

*The training of bachelor of Physiotherapy – Rehabilitation Techniques in Viet Nam is quite novel and annual training quotas are very modest* (IDI 5, MD in Rehabilitation, Ha Noi).

*For many years, we did not recruit enough number of students as planned. Some years we could recruit only 9, some with 20 students, ... because this specialty is somehow still unknown for many people ...* (IDI, Head of Department of Rehabilitation, training institution, Ho Chi Minh City).

The prolonged lack of graduate and postgraduate manpower has been seen not only in the health facilities but also in the training institutions, leading to the shortage of teaching staff in the specialty and limited number of graduates in the past few years.

*Currently, the institutions are difficult to meet the standards of teaching staffs, as we have to wait for more than 1 year for the 2 lecturers to get doctoral degrees before opening The Speech and Language Therapy program* (IDI, Head of Department, training institution, Hai Duong Province).

### **The human source gap for Bachelor of Rehabilitation Techniques.**

Some policies indicate that the health sector needs a large supply of human resource to meet the Rehabilitation development orientation at present and the upcoming years. According to Circular No. 46/2013, Development Plan of Rehabilitation discipline 2014 - 2020, and Decision No. 2992/QĐ-BYT dated July 17, 2015: By 2020, all national Rehabilitation hospitals will develop in-depth Rehabilitation techniques and 100% of Rehabilitation departments must have inpatient beds. By 2020, the target that 85% of Rehabilitation hospitals will have enough staff appropriately trained for their professional positions should be achieved. Currently, only 35 provinces and cities nationwide have provincial Rehabilitation hospitals.

Therefore, in line with this orientation, the whole health sector needs many bachelors of Rehabilitation techniques to work in the newly established facilities and for inpatient treatment. Decision No. 2992/QĐ - BYT dated 17/07/2015 of the Ministry of Health approved a plan for human resource development in the health-care system from 2015 - to 2020 which also forecast staffing needs by type of staff by 2020, with the number of medical technicians need to be provided to the whole public and private system nationwide to be 65,261 technicians; equivalent to a ratio of 8/10,000 population. The number of Rehabilitation technician who is one of 3 important types of medical technicians will be increased.

The training program for Bachelor of Rehabilitation Techniques at university level is important because this is highly technical manpower regardless the fact that the program at college level has provided a large number of Rehabilitation technicians during the past years. The employers want to recruit skillful staff who are well technically trained and able to develop advanced techniques.

*Nowadays, when hospitals have autonomy and enough number of staff, new staff recruitment can be made for replacement of retired technicians, which was difficult to do in the previous years... but for high-quality technicians, they are still in need to perform difficult techniques. At first such techniques may not be numerous, but they will gradually attract patients, thus those specialized techniques should be developed ...* (IDI, managers, Rehabilitation hospital).

*A student who graduated after 2 or 3 years of study but cannot perform specialized*

*techniques, would not be capable to treat the patients. University level training with difference in professional skills will be a competitive advantage* (IDI, Head of Department of Rehabilitation, National Hospital, Ha Noi).

The shortage of graduate and postgraduate human resources is shown in the current workforce structure at institutions involved in this study (both public and private), and qualitative data obtained from employers.

*Generally, there is perhaps no shortage in the number of technicians, but well-trained technicians are in short.* (IDI, Head of Department of Organization and Administration, Provincial Rehabilitation Hospital, Hai Duong Province).

*Higher education training is needed and the main difference is the professional skill, if you have 4 years of being trained then after graduation, your skills must be much better.* (IDI, Rehabilitation specialist).

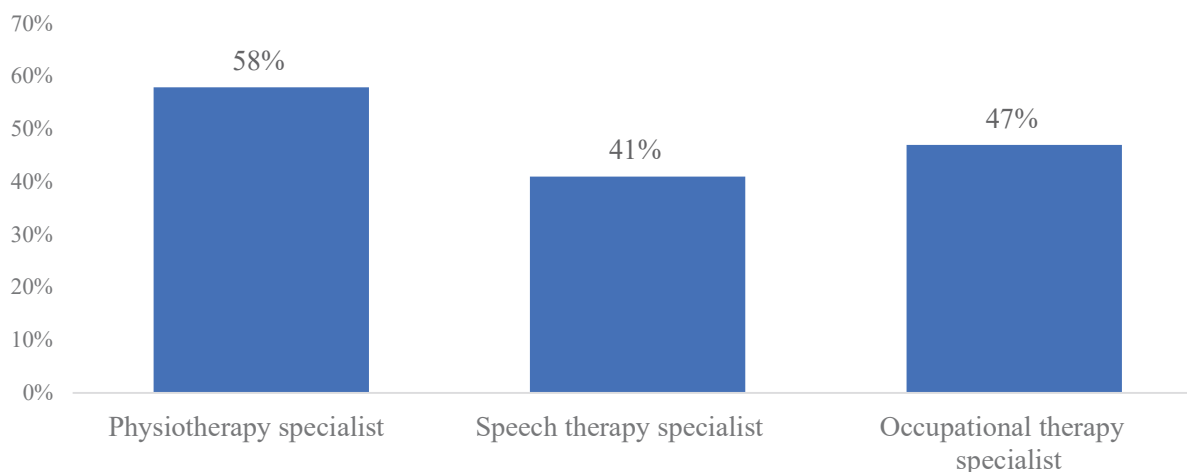
The results of the quantitative, qualitative and secondary data presented above all are supportive for the decision of opening a training program, which is also consistent with the development plan of Rehabilitation in Viet Nam for the period 2014 – 2020, in which the Ministry of Health puts forward two solutions for strengthening the training institutions affiliated to the Ministry of Health to participate in the training of human resource for Rehabilitation in Viet Nam.

**Training needs of professional knowledge and skills needed in the Bachelor of Rehabilitation Techniques program**

*Training needs for specialty codes*

Not only lacks in quantity, but the quantitative survey also pointed out the need for a network of training

bachelors with specialties like Speech therapy and Occupational Therapy, specifically:



**Figure 2. Training needs assessment of each specialty**

Over half of respondents said that training programs on Physiotherapy, Occupational Therapy, and Speech therapy should be organized at university, in which the proportion of respondents who are in favour of Physiotherapy course is 58% - slightly higher than that for Speech Therapy and Occupational Therapy. This is also reflected in in-depth interviews. A rehabilitation technician said:

*When performing professional techniques including speech therapy... there must be appropriate qualifications and certifications. Therefore, technicians*

*should be trained and given certifications of specialization (IDI, Rehabilitation Technician, Rehabilitation Hospital, Ho Chi Minh City).*

#### ***Knowledge and skills needed in the training program***

Survey on the important levels of the knowledge and skills required for a training program to meet their professional needs shows that the needs of training in foundation subjects, specialized techniques in physiotherapy, speech therapy and occupational therapy are very high:

**Table 2. The necessity of foundation subjects**

<b>Subject</b>	<b>Score/5</b>
Functional Anatomy	4.80
Functional Evaluation	4.81
Neuroscience	4.54
Kinesiology and biomechanics	4.63
Physical Therapy Methods	4.60
Occupational Therapy	4.78
Diagnostic Imaging	4.48

Among fundamental subjects, functional anatomy, functional evaluation, and occupational therapy are considered to be the most necessary. Also, the subjects of kinesiology and biomechanics, neuroscience, diagnostic imaging... also play important roles.

**Table 3. The necessity of specialized subjects in physical therapy, speech therapy and movement therapy.**

<b>Subject</b>	<b>Score/5</b>
<b>Subjects for Physical Therapy major</b>	
Physical therapy and pathology of musculoskeletal system	4.72
Physical therapy and pathology of the cardiovascular and pulmonary systems	4.47
Physical therapy and pathology of the dermatology, reproductive and endocrine systems	4.19
Physical therapy and pathology of the neuro-muscular system	4.74
Physical therapy and pathology of in pediatrics	4.54
Community-based rehabilitation	4.43
<b>Subjects for Speech therapy major</b>	
Anatomy of the voice mechanism	4.72
Language development	4.47
Language rehabilitation for hearing impaired children	4.42
Language rehabilitation for cerebral palsy children	4.56
Language rehabilitation for autistic children	4.46
Language rehabilitation for patients with neuropathy	4.74

Subject	Score/5
<b>Subjects for Occupational Therapy major</b>	
Occupational Therapy related to personal activities	4.69
Occupational Therapy related to playing in children	4.53
Occupational Therapy related to studying in children	4.47
Occupational Therapy related to vocational guidance	4.43
Occupational Therapy related to community integration	4.56

Among physiotherapy subjects, musculoskeletal pathology, neuropathology were considered indispensable in the curriculum, while subjects in speech therapy were also considered as necessary. In the occupational therapy there are some new subjects but essential like occupational therapy related to individual activities, occupational therapy with community integration and entertainments for children needs to be added to the program.

Besides adding new and specialized modules, allocating enough time for practice and performance assessment criteria are considered mandatory in designing and organizing the program:

*...right now there is a shortage of people with professional skills. It would be great if we can provide education on these specialties as they are of great demands at the moment and also, in the future, all hospitals will open the departments of Rehabilitation... (IDI, manager, Provincial Rehabilitation hospital).*

*I think the importance is in the actual ability that would raise credibility with the patient. The more hardworking you are, and the more trust that the patient will give you and*

*the better development you will get... (IDI, manager, private Rehabilitation facility).*

In the organization of training, it is necessary to give priority to the program for practice. Some experts expect that the program should be allocated with about 2/3 of the time for practice. There is a need to have the guidelines for practice to achieve the expected professional skill outcomes:

*...If there is no actual practice after training, it would not be enough. Additional training is certainly needed if students have only theoretical knowledge. Students after completion of a 4-year program could only perform physical massage with the patients for 5 minutes, so they could not meet the need of the clients (IDI, Rehabilitation specialist).*

*Even when teaching the pathology module, students must be carefully trained and given time for practice in hospitals because if technicians do not understand the pathology, it would be just purely manipulating, while being unable to adjust and develop effective techniques ... (IDI, Rehabilitation specialist).*

Regarding the form of training, the surveyed participants proposed 3 forms: long term and overtime full-time training (68.1%) and online training (25%).

## DISCUSSION

### **Some characteristics of Rehabilitation technicians and policies**

Among health care specialties, Rehabilitation has the function to ameliorate defects, deformities or dysfunctions caused by diseases, as the final stage after the treatment of acute attacks. Furthermore, Rehabilitation is responsible for patients with limited function due to congenital diseases. In many general hospitals, the Rehabilitation department is less chosen by doctors to study and does not attract as many human resources as other clinical departments.

The manpower table and recruitment chart show that the recruitment of staff in both public and private establishments has only increased in the last 5 years, and being a discipline with young, low-skilled labor, it is a new discipline that has been given attention of training for a few recent years.

Besides, the proportion of university-qualified technicians accounting for only 24.1% in more than 70% of Rehabilitation technicians or in other words those with university training constitute only 1/3 of the current Rehabilitation technician number. On the other hand, the evaluation of employers and experts on the field of Rehabilitation is that currently, the human resource, in general, neither meet the skill requirements, due to the short-term training program, nor have enough practice competence to meet the patient's needs, especially in the circumstance of increasing people's demand of Rehabilitation, of such specialties as speech therapy for children with autism, for patients after a stroke, etc. The demand for occupational therapy is also

increasing while this is a brand new specialty and rarely included in training programs that have been implemented in Viet Nam.

Job position for holders of Bachelor in Rehabilitation Techniques has been made available in the list of job codes for various types of workers in the health sector. Bachelor of Rehabilitation Techniques is in a position equivalent to medical technicians category III, and the basic salary coefficient is about 1 - 2 times higher than that of college and secondary-level technicians. Also, the Ministry of Health approved the National Plan on Rehabilitation in which the medical facilities affiliated to the Ministry and the provincial Rehabilitation Hospitals must have a designated job position for Rehabilitation technicians. The goal is that by 2020, 85% of these establishments must have enough Rehabilitation technicians, but so far, in reality, the lack of personnel trained at the university level has been seen in many places, showing that this is a training product being awaited by the labor market in the public system (2,3).

Policies and practice condition requirements are quite loose, so in the public establishments, medical staff with training for such disciplines as nursing, medical techniques, traditional medicine, and being given certificates in short-term training of Rehabilitation, can be permitted to practice Rehabilitation. The Rehabilitation manpower in these facilities, especially in provincial Rehabilitation hospitals, gained their skills from in-service short-term vocational training and met criteria for practice required by the Ministry of Health, but they have only short practice time, with a focus on only a few specialized techniques, and as a result, they could not have required capacity for practice, especially advanced

techniques in treating patients. This is shown in the study results when employers of these facilities said that they have sufficient in personnel quantity by calculating staff number per patient bed, but insufficient personnel in good quality and highly-skilled. In particular, the proportion of those working directly in the field also suggested that the training program for Bachelor of Rehabilitation with such disciplines as physiotherapy, speech therapy, and occupational therapy is needed (3-5).

### **Gaps in human resources and training needs for Bachelor of Rehabilitation Techniques training**

With orientation and development plans on Rehabilitation of the Ministry of Health, and given the situation that the number of bachelors in medical techniques is in short, including the shortage of Rehabilitation doctors and technicians, the Ministry of Health has provided the solution on enhancing rehabilitation training at training institutions of medicine and pharmacy across the country, thus participating in Bachelor of Rehabilitation techniques training is suitable to the above orientation (1,3,6).

The survey also found that a very high percentage of employed people within 6 months after graduation. This shows that this is a job with a high demand. However, this survey was conducted among participants who graduated for years so there could be some recall bias. This rate is higher than some employment rates after graduating from medical techniques courses in a training institution in the North from 2015 to 2019 (7, 8).

The survey in the Rehabilitation facilities at central level and provincial Rehabilitation facilities shows that there is no high shortage

in quantity but policies on conditional practice in the past have resulted in the low proportion (30%) of Bachelor of physiotherapy and Bachelor of Rehabilitation techniques at these facilities while the current human resources are considered to be incapable of performing specialized techniques, communication and foreign language skills. Private facilities also have similar demands in recruiting highly skilled and highly trained technicians to meet their patients' needs.

Corresponding to these qualitative statements, specialized training courses on physiotherapy, speech therapy and occupational therapy have been mentioned by 58%, 41% and 47% of people, respectively, that those courses need to be provided.

However, nearly 40% of respondents assumed that it is unnecessary to split orientations in training programs at university level in order to facilitate in job finding, and this opinion was also agreed upon by a Vice Rector of a training institution, because the specialization-oriented option in training only satisfies a small number of students who have expected jobs. This is also the point to consider for the proportion of training codes in the expected training plans as well as solutions to help learners still meet the requirement of highly technical skills and also get the certificates and university degree to meet the requirements of the health insurance agencies.

Regarding the training curriculum and implementation activities, the research results emphasize improvement by increasing to about 70% of the training duration for practice. This is also a reasonable percentage for the training of medical techniques in general in order to ensure the proficiency criteria (9).

Besides, the quantitative and qualitative results have the consensus view that it is essential to supplement contents and time for groups of specialized subjects of speech therapy and occupational therapy in order to meet the requirements of work practice and employers as well as the regulations of the health insurance agencies, including proposals for the additional issuance of a certificate of specialization together with the 4-year training course and early exploration of the way for further training of specialty codes (with more 40% of respondents need training specialty codes for speech therapy and occupational therapy. This is the content volume being considered not quite sufficient in the current training programs in Viet Nam. Compared to the training programs which are being run by in-country facilities, including self-developed programs and the so called “imported” programs from Tokyo Medical University, the course subject groups are quite similar (9).

About the training format of Bachelor of Rehabilitation Techniques, the proposed formats are vivid and worth being taken into consideration by the training facilities when conducting such training courses because there is a large number of Rehabilitation technicians with low training level and current employment but wishing to learn for improving their competence and qualifications, especially when the regulations on the recruitment of technicians with qualification at secondary level will be more strictly followed. This is also the basis to develop appropriate training formats to bridge the gap in the number of skilled university-level rehabilitation workforce from high school students as well as supplementary training to improve the knowledge and enhance the capacity for work

practices of those personnel who have been trained in Rehabilitation at the college level or secondary level, and account for a high proportion of Rehabilitation technicians in both public and private facilities.

## **CONCLUSION**

Human resources in the field of Rehabilitation have younger age than in other majors, but the proportion of university level technicians accounts for only 24.1% of the total of more than 70% of Rehabilitation technicians.

The recruitment rate has increased greatly over the last 5 years, especially in 2018.

The quantitative results are in line with qualitative results reporting that the training situation of Bachelor of Rehabilitation Techniques in recent years have low quotas while the needs of employers and Orientation of Rehabilitation discipline development might not be met due to the big forecasted shortage of medical technicians in general, including Rehabilitation technicians, and highly skilled employees.

Human resource gap in terms of quantity and proficiency skills, as well as research results unanimously support the organization of training for bachelor’s degree in Rehabilitation in Viet Nam, with a focus on practicum part. It is necessary to increase the duration of training for technical skills in the groups of physiotherapy, speech therapy, occupational therapy.

Also, 57% of the respondents involved in the study suggested the need to train a bachelor’s degree in physiotherapy, 47% think that it is necessary to provide training for a bachelor’s degree in speech therapy and 41% think that

bachelor program is needed in occupational therapy.

Hanoi University of Public Health is a suitable institution to offer training courses in Bachelor of Rehabilitation Techniques, with the pool of full-time lecturers who meet the standards of the Ministry of Education and Training and rich experience in international cooperation activities, along with the modern equipment and an increasing number of available patients.

The research results also suggest the application of training formats for students as well as improving communication skills, foreign languages and informatics to meet the needs of highly qualified bachelors.

## RECOMMENDATIONS

There is a need for training of Bachelor degree in Rehabilitation Techniques. In particular, it is necessary to increase the duration of clinical practice, and focus on physiotherapy training combined with speech therapy and occupational therapy training to better meet the rehabilitation professional practice requirements in future.

Also, there is still a need for training of doctors, degrees of master and PhD in Rehabilitation in Viet Nam to supplement the teaching staff number in this specialty.

**Acknowledgments:** Sincerely thanks are given to Leaders of Hanoi University of Public Health, Leaders of Universities, National General Hospitals and Provincial Hospitals as well as Rehabilitation Hospitals of Ho Chi Minh City, Ha Noi and Hai Duong Province for their supports and provision of

related information to the research team; and to chief of the private clinics, technicians at the surveyed hospitals for their supports and enthusiastic participation in this study.

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