



# Strategies for the Development of Physiotherapy in Iran from the Point of View of Physiotherapy Graduates: A Qualitative Study of the Content Analysis Type

Shohre Noorizadeh Dehkordi<sup>1</sup>, Mohammad Akbari<sup>1\*</sup>, Parisa Naserian Khiabani<sup>1</sup>, Nooradine Nakhstin Ansari<sup>1,2</sup> and Mehdi Dadgoo<sup>1</sup>

1. Department of Physiotherapy, School of Rehabilitation, Iran University of Medical Sciences, Iranian Center of Excellence in Physiotherapy, Tehran, Iran

2. Research Center for War-affected People, Tehran University of Medical Sciences, Tehran, Iran

## \* Corresponding author

**Mohammad Akbari, PhD**

School of Rehabilitation Sciences, Iran University of Medical Sciences, Tehran, Iran

**Tel:** +98 21 2222 7124

**Fax:** +98 21 2222 0946

**Email:** akbari.mo@iums.ac.ir

**Received:** 16 Jul 2023

**Accepted:** 13 Nov 2023

## Citation to this article

Noorizadeh Dehkordi Sh, Akbari M, Naserian Khiabani P, Nakhstin Ansari N, Dadgoo M. Strategies for the Development of Physiotherapy in Iran from the Point of View of Physiotherapy Graduates: A Qualitative Study of the Content Analysis Type. *J Iran Med Counc.* 2024;7(3):494-503.

## Abstract

**Background:** Despite the direct access to clients in physiotherapy worldwide, Iran has yet to achieve significant improvements in the educational standards and professional responsibilities of physiotherapists. Currently, Iranian physiotherapists do not have direct access to patients. This study aims to present solutions for the professional development of physiotherapy, based on the perspectives of scholars in this field.

**Methods:** This qualitative content analysis study explored the experiences of 12 physiotherapy scholars from three levels of study (bachelor's, master's, and doctorate) through structured and semi-in-depth face-to-face interviews. Data analysis was conducted concurrently with data collection using Granheim and Ludman's content analysis method.

**Results:** The identified potential solutions include continuous review of the curriculum, strengthening clinical education, elevation of the basic level of physiotherapy education to a professional doctorate or master's degree, post-graduation competency assessment, revision of educational priorities, establishing a strong presence in hospital and community departments, preventing the influence and interference of other disciplines, raising public awareness of the capabilities and potential of the profession, and paying greater attention to professional ethics.

**Conclusion:** In the absence of entry-level general doctor of physiotherapy and direct access to patients, the quality of physiotherapy services will not improve, leading to suboptimal health outcomes for clients and consequent waste of time and financial resources for both patients and insurance providers.

**Keywords:** Curriculum, Insurance carriers, Iran, Physical therapists, Physical therapy modalities

## Introduction

Since the 1980s, with the increasing daily use of various tools and machines, the lifestyle has undergone a significant change in human societies. Along with this change and the spread of physical inactivity, posture and movement patterns have deviated from the normal state, and as a result, musculoskeletal and other organ injuries have become widespread. The end product of these injuries is the disruption of the body's natural movements (1).

The American Physical Therapy Association (APTA), as an advanced physical therapy association, has adopted the normal movement pattern as the criterion for diagnosing potential injuries and has declared any deviation from the normal movement as the basis of injury so that physical therapists can play a main role in the first line of treatment and prevention of these injuries. Therefore, in order to elevate the profession and provide high-quality services to the public, APTA initiated the change of the first level of education in the field of physical therapy from bachelors to doctor of physical therapy in 1990. From this time on, the role of prevention in physical therapy became more prominent, and to achieve the desired goals, APTA focused on developing the knowledge and skills of physical therapists in terms of diagnosis, prevention, and treatment. For this purpose, it was determined that at least 200 units of theoretical, practical, and clinical courses should be taken. Obviously, it is not possible to teach this level of knowledge and skills in a four-year bachelor's degree program. The United States gave the physical therapist education system 10 years to upgrade their educational level so that since 2016, only those with a minimum of a doctor of physical therapy degree are allowed to practice (2-5). Changes in the level of knowledge, skills, and direct access to patients have led to unprecedented improvements in the effectiveness of physical therapy methods in the United States. As a result, the reduction in the number of treatment sessions and the decrease in the need for expensive surgical procedures led insurance systems to remove the annual budget limit for the use of physical therapy services in 2017. Given the benefits of changing the educational level of physical therapists from a bachelor's degree to a Doctor of Physical Therapy (DPT), it is essential that this change be made in Iran as well. This would

improve the skills of physical therapists in terms of examination, diagnosis, and identification of red flags, yellow flags, normal flags, manual interventions, and the determination of the use of therapeutic modalities. The ultimate outcome of this change would be timely, high-quality treatment, shorter and cheaper treatment courses for patients, and a reduction in insurance costs (1,2,4,6).

According to the last curriculum of physiotherapy, the professional duties and role of physiotherapists in Iran include: treating the patients following the establishment of a treatment plan and referral by a physician, obtaining a medical history through effective therapeutic communication, documenting and completing patient files, conducting examinations and assessments to identify patient problems, providing physiotherapy treatment for various physical and movement disabilities caused by neurological, muscular, skeletal, cardiovascular, and respiratory system disorders, identifying facilitators and barriers to achieving desired treatment outcomes, cooperating with other healthcare professionals and treatment staff, and utilizing up-to-date scientific resources to improve the quality of treatment (7).

Direct access of physiotherapists to clients is the most important step to the perfect physiotherapy treatment. It enables physiotherapists to fulfill their duty of prevention, thereby placing physiotherapy in the first line of treatment. In addition, it provides the opportunity to reduce the cost of treatment for clients and insurance companies. Direct access also helps to remove unnecessary traveling between the physician and the physiotherapist. Furthermore, it does not seem logical to have a physician determine the course of physical therapy treatment without being aware of the details of physical therapy methods (4).

However, in Iran, despite having a physiotherapy history that spans over 60 years, efforts to bring the field up to global standards have not been successful (8,9). It is essential to have a clear understanding of the strategies needed to develop the physiotherapy profession in Iran. Proposing suitable solutions may influence the decision-making of the Ministry of Health Treatment and Medical Education (MHTME) in a positive way and survey the solutions for enhancing the role and responsibilities of physiotherapists which could lead to the expansion of the role and

tasks of physiotherapists, as well as aligning their educational levels with global standards. Therefore, the purpose of this study is to explore the perspectives of physiotherapy graduates on the strategies needed to develop the physiotherapy profession in Iran.

## Materials and Methods

This qualitative content analysis study explored the experiences of 12 physiotherapy graduates from three levels of study (undergraduate, master's, and doctoral) through face-to-face, semi-structured interviews. The study was approved by the Strategic Research Center of the MHTME (code: 992103) and the National System of Code of Ethics in Biological Research (code: Ir.Nasrme.Rec.1400.093). All the interviews were conducted with the participants' prior consent and appointment in a location they chose, a calm and quiet environment. The four guiding questions in this study are listed in table 1.

This qualitative study used in-depth face-to-face interviews to collect data from a purposive sample of 12 physiotherapy graduates with at least five years of work experience. In order to increase the validity and generalizability of the study results, the participants were selected in a manner to maximize the diversity of the sample in terms of age, gender, education level, work experience, field of work, and university attended. Data collection was conducted using a semi-structured, face-to-face interview method, with open and predetermined questions designed to elicit participants' free expression of feelings, thoughts, and experiences regarding useful strategies for the development and expansion of physiotherapy. The interviewer created a friendly and relaxed atmosphere during the interviews, which lasted between 30 and 45 *min*. The order of interview questions varied among the participants, depending on the interview process and their responses. Guiding questions were used to ensure that the researcher obtained consistent information, which saved time and eliminated the irrelevant content (10). Ambiguity was resolved by asking follow-up questions, such as "Could you elaborate further?", "What do you mean by that?", "Can you clarify your statement?" or using "why?" and "how?" questions. During the transcription, the nonverbal cues like silence, laughter, posture, and gestures were noted, as they influence the

interpretation of the message (11). Lastly, the participants were informed that they could contact the researcher if they had any queries".

This study employed a professional interviewer with six years of experience in qualitative research to ensure the confirmability. Additionally, thick descriptions of the participant selection (with maximum variation), data collection, and the analysis process were provided to enhance confirmability and transferability, while the researchers strived to remain unbiased throughout the study (12,13). Data analysis was conducted using the Granheim and Ludman content analysis method (14) concurrently with data collection. All the interviews were recorded on the researcher's cell phone recorder. Each interview was then transcribed word by word and read multiple times to gain a general understanding of the participants' statements. Finally, a copy of the interview transcript was provided to the participants for review and modification, if necessary. After the transcription, text analysis was performed through coding and categorization. To capture the main meaning and implications of the sentences, the interview transcripts were read repeatedly. The interviewees' sentences were then divided into semantic units, which were summarized, compressed, and coded according to the study's purpose and research questions. Next, different codes were extracted from the semantic units derived from the participants' descriptions and organized into subclasses and classes based on content consistency, ensuring that each code was placed in only one class (15). Finally, the main themes were extracted from the resulting codes.

## Results

12 physiotherapy graduates were interviewed in this study, including 8 specialized doctoral holders and university faculty members, 1 master's degree holder, and 3 bachelor's degree holders. The participants' ages ranged from 36 to 58 years, with an average age of 47.75 years. Sampling saturation was achieved with 12 participants, meaning that no new data or themes emerged from the interviews beyond this point, and the data became repetitive. Some of the participants' characteristics are listed in table 2.

During the data analysis, a total of 18 codes were obtained, which were divided into two categories:

**Table 1.** Main questions of the study

Research questions	
1	How do you see the current state of physiotherapy in Iran?
2	What are the strengths and weaknesses of physiotherapy today?
3	What solutions do you suggest to improve the current state of physiotherapy?
4	What are the present opportunities and threats for the field of physiotherapy?

“improving professional competence” and “changing procedures”. Table 2 shows the classes and sub-classes of the solutions to the progress of physiotherapy. Due to the limitations of space, a summary of the key findings is provided below.

**Solutions for physiotherapy development**

The number of 18 solutions were obtained from the interviews with physiotherapy graduates, which were placed in the two sub-themes of improving professional competence and changing procedures. Table 3 illustrates the classes and sub-classes of the

solutions.

**Solutions to improve professional competence**

In the subcategory of professional qualification promotion, six codes were obtained, which are: continuous revision of the curriculum, “strengthening clinical education”, “changing the entry level of physiotherapy” (from Bachelor’s degree to professional doctorate), “revision of educational priorities, and “participating in workshops and retraining course. The following are the participants’ comments on the above seven codes.

**Table 2.** Characteristics of the participants

Row	Age	Sex	Education	Work experiences	Especially
1	45	Male	Ph.D.	23	Faculty member, Neuromusculoskeletal physiotherapist
2	49	Male	Ph.D.	26	Faculty member, Sport Physiotherapist
3	36	Female	Ph.D.	14	Faculty member, Neuromusculoskeletal physiotherapist
4	54	Female	Ph.D.	29	Faculty member, Neuromusculoskeletal & Elder physiotherapist
5	55	Male	M.Sc.	32	General fields
6	52	Female	Ph.D.	15	Faculty member, Neurologic physiotherapist
7	58	Male	Ph.D.	36	Faculty member, Sport physiotherapist & EMG analyzer
8	54	Female	B.Sc.	43	Pediatric neurology & Pelvic floor physiotherapist
9	41	Female	B.Sc.	18	Neuromusculoskeletal & pain physiotherapist
10	51	Male	B.Sc.	31	Neuromusculoskeletal & pain physiotherapist
11	40	Female	Ph.D.	17	Faculty member, Neuromusculoskeletal physiotherapist
12	38	Male	Ph.D.	5	Faculty member, Neuromusculoskeletal & cardiopulmonary physiotherapist

**Table 3.** Categories and subcategories of solutions to the advancement of physiotherapy in Iran

The codes	Below the themes	Themes
Continuous revision of the curriculum	Improving professional competence	Solutions for physiotherapy development
Strengthening clinical education		
Changing the basic level of physiotherapy from bachelors to professional doctorate		
Post-graduation competency assessment		
Revision of educational priorities		
Establishing a strong presence in hospital and community departments	Revision of procedures	
Preventing the influence and interference of other disciplines		
Raising public awareness about the capabilities and abilities of the field		
Paying greater attention to professional ethics		
Empowerment of the board and the association		
Modeling the educational system of an advanced country		
Direct access to the patients		
Establishing a link between the university and the field		
Establishment of the field standards		
Adopting a holistic approach to physiotherapy treatment		
Increasing interdisciplinary collaborations		
Amendment of the insurance tariffs		
Changing the criteria for the promotion of professors		

### **A) Continuous revision of the curriculum**

According to the scholars, the curriculum of physiotherapy should be constantly revised. In this regard, a participant stated: “The curriculum should be constantly checked to see if they are working based on evidence or not (P7)”. Another expressed “the professors’ lesson plans should be changed every year and their topics should be updated year by year. There should be flexibility in the lesson syllabi to change based on evidence. Many times, the syllabi of some fields are outdated and do not get revised by experts (P4).

### **B) Strengthening the clinical education**

One way to develop the field of physiotherapy is to increase the quantity and quality of internships, which

will ultimately empower the graduates. In this regard, physiotherapists requested that clinical sections and internship hours be added to the training programs, and the scope and quality of clinical internships should be improved overall. Faculties should have up-to-date equipment, such as Tekkar, Shock wave, and High-power lasers, so that students can learn how to use them (P8).

Another scholar added: “It seems that in a number of internships, students do not have the necessary skills to evaluate the patients”. One scholar mentioned that we do not have any evaluations for our clinical rotations. When I was a student, I remember the professor would bring a radiology of a patient and tell us the treatment plan, and then we would just do it (P9). The interviewees stated that the addition

of disease recognition units, physiopathology, pathokinesiology, clinical decision making, clinical reasoning, internships, pediatrics, cardiology, rheumatism, burns and pelvic floor, therapeutic exercise, strengthening diagnostic skills, critical thinking, communication skills, and professional ethics, can help in the evaluation, diagnosis and treatment of the patients, and even prevention. “Students may know a little about musculoskeletal disorders, but they do not know much about the fields of cardiology, rheumatic diseases, burns, cerebral palsy, pediatrics. There are many fields in physiotherapy, and experts must be familiar with all of them. They learn something in the musculoskeletal field, but in the other fields, they have very little information” (P4).

### **C) Changing the basic degree from bachelors to general doctorate**

One of the physiotherapy graduates expressed, in healthcare that there is a clear distinction between clinical practice and research. Someone who gets a PhD in physiotherapy should not be expected to work in the clinic, as their work is focused on research and producing new knowledge. My job, on the other hand, is to implement the latest research findings in the clinic. It is all very confusing, and I think we need to establish a Doctor of Physiotherapy (DPT) degree so that students can learn the specific skills and knowledge they need to be successful clinicians (P9). Another participant added: It is impossible to teach an expert carpenter all the basics of carpentry in a short amount of time. That is why we need to establish a DPT degree. The length of the entry-level physiotherapy program should be increased so that we do not have to give this training to people later in postgraduate courses. In other words, we should elevate the basic level of physiotherapy to the professional doctorate level. This would create a more professional and competitive field (P5).

The other participant mentioned: “In my opinion, it would be much better because as physiotherapists, when we enter university and graduate after 4 years, we have a base of medicine. We learn, that our work becomes medical, that is, we learn how to deal with the patient, how to do the evaluation, and then learn the specialized course related to physiotherapy itself.

I think 4 years is really too short for this job. The least contribution to the field is to have DPT in our country, just like other countries, why not in Iran? Why should our students participate in virtual DPT courses at universities in other countries? It is necessary to implement entry-level DPT in Iran.” (P10).

### **D) Post-graduation competency assessment**

In many countries, physiotherapists cannot start working immediately after completing their studies, but must take a post-graduation qualification test to obtain a work permit. In this regard, a graduate stated: “It would be helpful if the education system here would not require too many extra courses. We can use the International Board books to prepare for our work permit exam. The International Board exam is not just for the US; it is also held in Dubai. If you are planning to take the exam, you should study the same book, which is 80-90% the same as the US board exam book (P7).

### **E) Revision of the procedures**

In the procedure change category, 14 codes were obtained, which are: “establishing a strong presence in hospital and community departments”, “preventing the influence and interference of other fields”, “raising public awareness about the capabilities and of the field”, “paying greater attention to professional ethics”, “taking a model from the educational system of an advanced country”, “direct access to the patient”, “establishing a link between the university and the profession”, “establishing field standards”, “having a holistic approach to physiotherapy treatment”, “continuous follow-up of treatment results”, “increasing interdisciplinary cooperation”, “increasing the paying power of insurances”, and “changing criteria for professors’ promotion”.

### **F) Establishing a strong presence in hospital and community departments**

One of the solutions that help the progress and growth of the field is a strong presence in the departments and medical centers. A scholar added: “We need to make physiotherapy visible and accessible to more people. One way to do this is to work more closely with medical doctors and hospitals. This would mean seeing fewer outpatients and focusing more on

inpatients. Knowledge is created in hospitals, not in outpatient clinics, since hospitals have all the different specialties. For example, if a doctor gets neck pain in the hospital, they will go to physiotherapy, and if they get a simple treatment, they may not see the full benefits of physiotherapy (P6). Physiotherapists need to be more involved in clinical care. This means working closely with doctors in hospitals to provide care to patients. If we only stay in our clinics and treat a few outpatients, we will not be able to make a big impact (P7).

### **G) Preventing the influence and interference of other disciplines in the field of physiotherapy**

Another solution for the development of physiotherapy is to prevent the interference of other disciplines in the provision of physiotherapists. A graduate explained in this regard: “I see the flood of physical therapists’ immigration. In a sense, we are happy that they are going to study abroad, but it is sad when it does not benefit our own country. In the absence of these physiotherapists, many experts from other fields are trying to fill the gap. The remaining physiotherapists just have to work hard to keep them away and meet the needs of the population. Another interviewee added: “Who else would be more qualified to treat musculoskeletal conditions in children than a physiotherapist” (P6)?

### **H) Using the development models of other countries**

One way to promote the growth of physiotherapy is to emulate the models of countries where physiotherapy has achieved its full potential. In this regard, a graduate added: we should look at other countries like Australia, America, and England as examples for the kind of physiotherapy we want to talk about. These countries have a long history of physiotherapy practice and research, and they have developed evidence-based guidelines and standards of care. We can learn from their experiences and adapt their models to fit our own needs (P9). Another person also admitted, we need to improve our education system. My suggestion is to take a good look at other countries that we admire and replicate their system, and then make it our own by adding Iranian elements. The first step is to revise the curriculum, which should be

based on the curricula of developed countries (P7).

### **I) Direct access to clients**

In many countries, physiotherapists are in the first line of treatment. Patients may access physiotherapy services directly, without a referral from a physician, or they may be referred to a physiotherapist by another healthcare professional. One of the physiotherapists mentioned: One of the problems with our current system is that medical doctors often recommend specific physiotherapy treatment plans, instead of just referring the patient to a physiotherapist. We want direct access to the patient, but unfortunately, direct access is not recognized for physiotherapists in Iran (P5).

### **J) Amendment of the insurance payments**

To develop the field, insurance payments should be modified. A physiotherapy graduate stated: If the payment is fair, people will figure out how to improve their work. In the past, many physiotherapists did not use taping because they were not getting paid for it. But now that insurance companies are paying for taping, more physiotherapists are using it. They attend workshops and learn the basics because they know they will get paid for it. This is also true for other treatments, such as dry needling and therapeutic exercises. When insurance companies pay for these treatments, physiotherapists are more likely to learn how to do them and offer them to their patients (P3).

## **Discussion**

In this research, after identifying the barriers to professional growth, solutions were presented by the graduates. The participants acknowledged that by improving the professional qualification of physiotherapists, it is possible to provide opportunities for the growth and development of the profession. Additionally, changing existing procedures and policies could improve the current state of physiotherapy. One solution to increase the competencies of physiotherapists, according to the participants, is to change the educational priorities. It appears that technical skills are prioritized over general and cognitive skills in physiotherapy education in Iran. Professional ethics is one of the most important public skills which rarely addressed. Teaching professional

ethics requires careful planning from the first year of student education. Furthermore, professors serve as role models for students, who emulate their behavior and performance. Burack *et al* in their study looked at how to respond to unprofessional behaviors. They found that neither do professors pay attention to unprofessional behaviors but also justify them (16). Therefore, by introducing more professors to professionalism, paying attention to the role of hidden curriculum, and encouraging role models, professional behaviors can be spread (17). Another way to increase the competence of physiotherapists is to strengthen clinical training, which is the heart of the profession. This can be done by training cognitive skills (*e.g.*, therapeutic communication, clinical reasoning, and critical thinking), as well as technical skills (*e.g.*, physical examination skills to diagnose the cause of patients' problems). Additionally, providing specialized medical services for vulnerable sections of society (*e.g.*, physiotherapy for women and pelvic floor, elderly, and children) in the form of theoretical units and internships is a good way to increase the competence of physiotherapists. Finally, teaching physiotherapists how to communicate and cooperate with the medical team, nursing, and other treatment staff, as well as how to demonstrate the effectiveness of physiotherapy treatments, is essential for the growth and development of the field. In addition, providing effective and timely feedback from the supervisor of clinical training, as well as reflection during, before and after performance, plays a significant role in empowering physiotherapy students. Burgess *et al*, in 2020, and Johnson *et al*, in 2019 emphasized the impact of feedback on students' learning experiences in their studies and that feedback reduces the gap between the desired performance and the current performance of the student and increases the internal motivation to achieve success (18,19). The implementation of extensive changes in order to qualify as many physiotherapy students as possible requires a continuous revision of the curriculum in accordance with the rapid growth of the field in the world, following the example of leading countries and international standards. Elevating the entry-level degree for physiotherapists from a bachelor's to a general doctorate, combined with direct patient access to physiotherapy, could improve the quality

of physiotherapy services, reduce disability severity, patient costs, and improve patient quality of life (20). Additionally, by acquiring lifelong learning skills, participating in workshops and retraining courses, and taking business skills courses, physiotherapists can contribute to the advancement and development of the field after graduation.

Coherence, coordination, and unity of organizations within the field, such as the specialized board of the field and the Iranian Physiotherapy Association, and university faculty members, are the foundation for interdisciplinary cooperation. This collaboration can help to raise awareness of the field, its tasks, and scope of practice among healthcare professionals and the public. Additionally, supervision and inspection of the specialized boundaries of each discipline can help to reduce the influence and interference of other disciplines in physiotherapy.

### **Suggestions**

Considering that 17 faculties are active in the country for the training of those admitted to the field of physiotherapy in Iran, it seems that the best way to promote the field of physiotherapy in Iran is to accept general doctorate students through the national entrance exam with the support of the MHTME to upgrade the degrees. It takes 5 to 8 years to upgrade the bachelor and master to general doctorate. This process started in leading countries in the field of physiotherapy about 30 years ago, so that in these countries' physiotherapists have direct access to the patient and their minimum education is a general doctorate (4). With this approach, in 2031, the field of physiotherapy in Iran will have two educational levels: general doctorate (professional) and specialized doctorate.

### **Conclusion**

It seems that "continuous revision of the curriculum", "strengthening the clinical education", "changing the basic level of physiotherapy from bachelor to professional doctorate", "qualification test after graduation" (post-graduation competency assessment), "changing the educational priorities", and changing the procedures, "establishing a strong presence in hospital and community departments", "preventing the influence and interference of other



disciplines”, “raising public awareness about the capabilities and potentials of the field”, and “paying greater attention to professional ethics”, could be among useful solutions for the promotion of professional qualification, health system and help reduce people’s expenses and insurance. It is clear that not taking action to solve the problems related to physiotherapy will cause the greatest loss to the people of Iran, since it will deprive them of more effective treatment services.

### Acknowledgement

The authors would like to thank the Iranian

Physiotherapy Association. This project was funded by the National Center for Strategic Research of Medical Sciences Education with code of ethics: Ir.Nasrme.Rec. 1400.093 for project number 992103, (Dr. Mohammad Akbari) Tehran, Iran.

### Conflict of Interest

All the authors confirm that there is no conflict of interest in relation to the present research.

---

### References

1. Sahrman S, Azevedo DC, Van Dillen L. Diagnosis and treatment of movement system impairment syndromes. *Braz J Phys Ther* 2017 Nov 1;21(6):391-9.
2. Sullivan KJ, Wallace Jr JG, O’Neil ME, Musolino GM, Mandich M, Studer MT, et al. A vision for society: physical therapy as partners in the national health agenda. *Phys Ther* 2011 Nov;91(11):1664-72.
3. Jette AM. A bold vision for physical therapy. *Phys Ther* 2017 Oct;97(10):946-7.
4. File:///D:/Anjoman/100%20Milestones%20of%20Physical%20Therapy %20-%20APTA%20Centennial%20,
5. Mathur S. Doctorate in physical therapy: is it time for a conversation? *Physiother Can* 2011 Spring;63(2):140-5.
6. Warren SC, Pierson FM. Comparison of characteristics and attitudes of entry-level Bachelor’s and Master’s degree students in physical therapy. *Phys Ther* 1994;73:333-48.
7. Barskar E, Noroozinezhad F, Shirali M. Development of physiotherapy in Iran; a theoretical framework, Tehran, Pegah, 2021.
8. Taylor DCM, Hamdy H. Adult learning theories; implications for learning and teaching in medical education: AMEE, Guide No. 83. *Med Teach* 2013 Nov;35(11): e1561-72.
9. Brown G, & Manogue M. AMEE medical education guide No. 22: refreshing lecturing: a guide for lecturers. *Med Teach* 2001 May;23(3):231-44.
10. Kvale S, Brinkmann S. *Interviews: learning the craft of qualitative interviewing*. London: Sage; 2009. 376 p.
11. Adib-H M. The public health nurse in the Iran’s health system: an ignored discipline. *Int J Commun Based Nurs Midwifer* 2013;1(1):43-51.
12. Polit D, Beck C. *Trustworthiness and integrity in qualitative research. Nursing research Generating and assessing evidence for nursing practice*. Philadelphia: Wolters Kluwer Health 2012. P. 582-601.
13. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today* 2004;24(2):105-12.
14. Adib-H M. The public health nurse in the Iran’s health system: an ignored discipline. *Int J Commun Based Nurs Midwifer* 2013;1(1):43-51.

15. Chris R, Craig M. Feedback in the clinical setting. *BMC Med Educ* 2020 Dec 3;20(Suppl 2):460.
16. Burack JH, Irby DM, Carline JD, Root RK, Larson EB. Teaching compassion and respect. Attending physicians' responses to problematic behaviors. *J Gen Intern Med* 1999 Jan;14(1):49-55.
17. Johnson CE, Keating JL, Farlie MK, Kent F, Leech M, Molloy EK. *BMC Med Educ* 2019 May 2;19(1):129.
18. Burgess A, Christie van D, Chris R, Craig M. Feedback in the clinical setting *BMC Medical Education* 2020; 20(Suppl 2):460.
19. Johnson Christina E, Keating Jennifer L, Farlie Melanie K, Kent F, Leech M & Molloy Elizabeth K. *BMC Medical Education* (2019) 19:129.
20. Hayhurst C. A vision to transform society, PT in motion. 2014;6(2):20-5.
21. Rise E. Direct access state (s) of physiotherapy in promotion. 2016 October 8;32-40.
22. Demont A, Bourmaud A, Kechichian A, Desmeules F. The impact of direct access physiotherapy compared to primary care physician led usual care for patients with musculoskeletal disorders: a systematic review of the literature. *Disabil Rehabil* 2021 Jun;43(12):1637-48.