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Importance of anatomy education in physical therapy and rehabilitation in Turkey: A qualitative study

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Abstract

Aim of this study is to investigate how physiotherapists evaluate the anatomy education they receive on clinical courses and practices in their professional lives. The mean age of the 50 (27F, 23M) physiotherapists was 33, 78±8, 89 and they work in public (n=26) and private sectors (n=24). Face-to-face interviews with physiotherapists were questioned about the duration of the anatomy education and methods. Anatomy education's effect on vocational courses, assessment-treatment programs and different physiotherapy disciplines has been investigated. Anatomy education in theoretical courses overhead and PowerPoint were used more often and 44% of them reported that they never saw cadaver. Besides for their educational competence reports 30% were theoretically and 46% were practically inadequate. The effect of the anatomy education on the clinical course was largely considered to be very important. When the effect of anatomy on different physiotherapy disciplines was evaluated, the most important effect on orthopedic rehabilitation (92%) 94% of physiotherapists think anatomic education must continue after graduation. It is concluded that anatomy education is insufficient especially practically, therefore its quality must be increased at graduate level and continuity must be ensured throughout the whole career.

Keywords: Anatomy education, physiotherapy, vocational courses.

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1. Introduction

Anatomy is the oldest known medical science and has an important part in the foundation of health education. It is a known fact that healthcare professionals may require a good knowledge of anatomy to be better in their fields (Ocak & Topal, 2015). Therefore, anatomy is the main course in any Physical Therapy (PT) program's curriculum and there is a close relationship between vocational courses. It supports both understanding these courses and is essential for clinical practice (Reimer et al., 2013).

In anatomy education, curious approaches are valid and anatomy books, cadaver training, computer aided programs, overhead projectors and power point presentations are the widely used methods (Estai & Bunt, 2016). Production and use of knowledge in relation to the continuity of education is a process which is consistently developed and renewed (Khan et al., 2015). In addition, new technologies such as 3D are also used in anatomy education. Contemporary articles discuss new educational techniques and state that anatomy education should be adapted to technology as well (Cornwall & Pollard, 2012; Wilkinson & Barter, 2016). When practical education is in question, the importance of cadaver dissections are underlined (Strkalj, 2016; Leung et al., 2006). This education is extremely important in both medical applications performed on the healthy human body and pathological situations. However, the greatest handicap in both medical faculties and Physiotherapy and Rehabilitation schools is the low number or lack of cadavers. Many graduate students never see a cadaver and receive their practical training on models or only on visuals.

Health professionals need good anatomical knowledge on the functions and structures of the body to be able to perform high quality care and health services. What is more important than having theoretical knowledge is being able to use this knowledge in a suitable manner in numerous occupational practices such as palpation, examination and pathological tissue evaluation. Clinical knowledge of anatomy is learned in a better manner in environments which are related to students' academic and occupational targets (McLachlan et al., 2004).

Along with the developing medical and health education and services, the importance of the science of anatomy is becoming even more important. After graduation, knowledge of anatomy is needed in particular in different clinics. Lack of knowledge in anatomy causes certain problems (McCuskey et al., 2005; Mattingly & Barnes, 1994). Current studies advocate the continuity of anatomy education and emphasize that training after graduation and exams in certain intervals need to continue (Yamine, 2014).

In this study, the effect of anatomy on occupational education processes and occupational life from the point of view of physiotherapists is being dealt with. It is aimed at identifying the needs/deficiencies of physiotherapists who work in clinics about the quality of the current anatomy education and clinical cases and presenting suggestions of these people on the process of anatomy education.

2. Material and Methods

This study was carried out with the participation of 50 physiotherapists (27F, 23M) who work in the city of Hatay. 26 of the participants whose age average is 33, 78 ± 8 , 89 work in public institutions and 24 of them work in the private sector.

In-depth interviews were conducted with the physiotherapists through the evaluation survey prepared for the study. The durations of their anatomy education, their faculties and educational methods were recorded in these interviews. The participants were asked whether they find their anatomy education sufficient theoretically and practically and their reasons were questioned. They were asked to list the other PT classes which their anatomy lessons contributed on the most during their physiotherapy graduate education in order of importance. In addition, the needs and effects of anatomy education on evaluating patients in clinics, their analysis and follow-up after graduation were analyzed. The effect of anatomy education on different physiotherapy disciplines were analyzed as

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well. The survey consisted mostly of open-ended questions and only the effect level evaluations were graded between 1 and 5 using the Likert scale. In the grading, the following expressions were given place to: “1= No effect”, “2= Slight level”, “3= Medium level”, “4= Significant level”, “5= Crucial level”.

Within the scope of the survey, the participants were asked to state their suggestions on anatomy education in theoretical and practical terms. In addition, their views on whether the continuity of anatomy education is needed after graduation for clinical follow-up were recorded.

3. Findings

The duration of anatomy education of 70% of the participants are 3 semesters and it was determined that 88% receive this education from the academic members of the Faculty of Medicine. It was seen that, theoretical education is given through the old overhead projection method in 52% of the physiotherapists and through PowerPoint in 44%, whereas it is given only through the blackboard in the others (Figure 1).

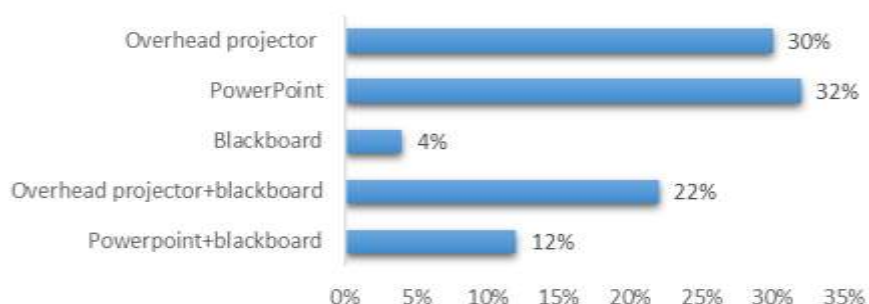


Figure 1. Methods used in Theoretical Anatomy Education

When the methods used in practical anatomy education were analyzed, it was seen that 44% of the participants had never seen a cadaver throughout their education life (Figure 2).

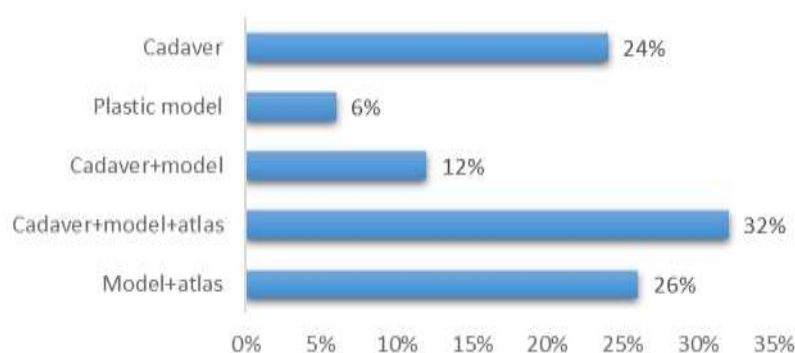


Figure 2. Methods used in Practical Anatomy Education

When the sufficiency of their education was questioned, it was seen that 30% of the participants thought that it was theoretically insufficient and 46% of the participants thought that it was practically insufficient (Figure 3).

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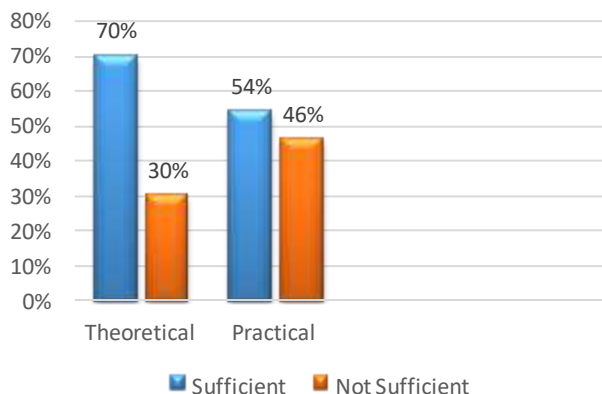


Figure 3. Evaluation of the sufficiency of anatomy education by the participants

The effect of anatomy education on clinical classes was found to be 36% significantly important and 44% important; on occupational life 50% important and 30% significantly important; on palpation 48% significantly important and 34% important; on exercise anatomy 34% significantly important and 36%; on musculoskeletal measurement and evaluation 54% significantly important and 38% important (Table 1).

When its effect on General PT, Orthopedical Rehabilitation, Neurological Rehabilitation, Pediatric neurology and Cardiopulmonary Rehabilitation among the different physiotherapy disciplines was analyzed, it was seen that it is significantly important in all disciplines and when the percentages were analyzed, it was seen that it was the most effective on Orthopedical Rehabilitation (92%) and the least effective on Cardiopulmonary Rehabilitation (54%) (Table 1).

Table 1. Evaluation of the effect level of anatomy education on different physiotherapy applications

	No effect		Slight level		Medium level		Significant level		Crucial Level	
	n	%	n	%	n	%	n	%	n	%
Clinical classes	0	%0	1	%2	9	%18	22	%44	18	%36
Occupational Life	1	%2	1	%2	8	%16	25	%50	15	%30
Palpation	0	%0	1	%2	8	%16	17	%34	24	%48
Exercise anatomy	0	%0	1	%2	4	%8	28	%36	17	%34
Evaluation methods										
Musculoskeletal measurement and evaluation	0	%0	0	%0	4	%8	19	%38	27	%54
Physiotherapy disciplines										
General PT	0	%0	2	%4	15	%30	18	%36	15	%30
Pediatric neurology	1	%2	6	%12	15	%30	17	%34	11	%22
Orthopedical Rehabilitation.	0	%0	0	%0	4	%8	17	%34	29	%58
Cardiopulmonary rehabilitation	2	%4	8	%16	13	%26	16	%32	11	%22

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When the participants were asked the first 4 of the PT classes which anatomy education is considered to have an effect on in order of importance, they stated Kinesiology (28%) as the first one and Orthopedical Rehabilitation the most frequently (78%) (Table 2).

Table 2. The percentage distribution of classes for which anatomy education is stated to be important in order of importance

Classes	1st		2nd		3rd		4th		Total	
	n	%	n	%	n	%	n	%	n	%
Measurement and evaluation	10	20	6	12	6	12	4	8	26	52
Kinesiology	14	28	3	6	6	12	9	18	32	64
Manual Therapy	6	12	6	12	4	8	10	20	26	52
Treatment movements	7	14	5	10	7	14	6	12	25	50
Orthopedical rehabilitation	8	16	12	24	13	26	6	12	39	78
Electrotherapy	1	2	4	8	3	6	4	8	12	24
Neurological rehabilitation	1	2	9	18	8	16	3	6	21	42
Pediatric rehabilitation	0	0	0	0	0	0	5	10	5	10
Cardiopulmonary rehabilitation	0	0	0	0	1	2	2	4	3	6
Clinical application	2	4	2	4	1	2	1	2	6	12
PNF	1	2	2	4	0	0	0	0	3	6
Exercise physiology	0	0	1	2	1	2	0	0	2	4
Total	50	100	50	100	50	100	50	100	50	100

While only 24% of the participants defined the quality of their anatomy education as very good, 6% defines it as bad (Graphic 2). In addition, 94% of the physiotherapists think that anatomy education needs to continue after graduation for clinical follow-up.

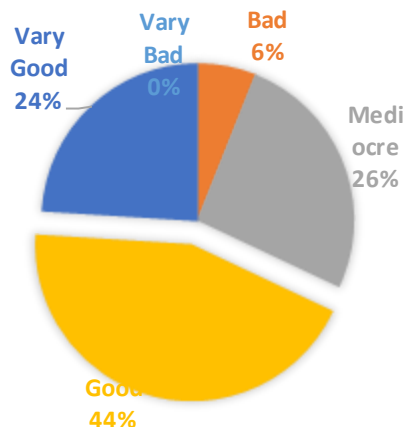


Figure 4. Evaluation of the quality of anatomy education

4. Discussion

Today, the searches on anatomy education continue with the influence of the dynamism education embodies. It is still being discussed how education should be given and which educational models can be more effective in reaching our goals (Ari & Sendemir, 2003). The theoretical and practical educational methods of the physiotherapists who participated in our study were questioned in this scope. The participants underlined in particular that they have theoretical classes carried out with lesson tools which are suitable for the electronic environment. It was seen that the blackboard method which is one of the classic tools is valid for a minor participant group whose Professional competency period is long. In addition, overhead projector which is one of the classic tools and overhead projector+blackboard tools were determined to be used by a substantial number of participants in the theoretical classes. When the sufficiency of the theoretical education was questioned, it was seen that 30% of the participants found it insufficient. One of the most important aspects in relation to anatomy education is the dimension with which the education in question is given. When the answers the participants gave to the questions on education based on practice, it was seen that 44% of the participants have never seen a cadaver during their education, when they graduated and even started working. When the percentage which reflects the ideal situation for the participants was analyzed, it was seen that the expected and desired percentage remains around 30%.

It is seen that especially new graduates graduate without seeing a cadaver or even a model. One of the participants stated the following: "When I met with patients in work life, I felt the lack of having never worked on a cadaver before." Another participant who graduated three years ago and started working at a private hospital expressed similar feelings saying "Since we have never seen a cadaver and made a comparison with a real person, I feel this lack in the clinical environment." On the other hand, it was seen that participants who have more occupational experience have had a good quality anatomy education and that they find the level of this anatomy education sufficient. However, almost half of the participants stated that they experience difficulties in real patient examinations treatments due to anatomy practical education lacking cadavers and models. What they suggested in terms of practical education was mostly to increase the use of cadavers. Many studies in literature similarly underline the importance of cadavers and it is emphasized that students learn anatomy the best through cadavers (Prakash et al., 2007; McLachlan & Patten, 2006; Older, 2004; Aggarwal et al., 2006).

Another physiotherapist with a different point of view stated "When the small number of practical class hours is added to the crowded number of students in classes, our insufficiencies about anatomy education emerge." In addition, anatomy education being given for only a year, speedy increase of PT departments, lack of anatomists and cadavers and numerous departments which are 'indifferent to anatomy education' being opened, cause people who graduate from these departments to begin their work lives without receiving a good anatomy education.

4.1. Breaking point in anatomy education: Reflections of the needs in different health areas

Anatomy education being wide-spread in many areas of graduate education such as medicine, dentistry, nursing care, PT, physical education and fine arts requires a new understanding to be adopted in Turkey. The anatomy standardization activities of Clinical Anatomy Foundation in medical education are noteworthy. The core education program is updated by the members of the foundation in accordance with the needs. In addition, a solution to lack of cadavers is being sought for and good studies are being conducted (Yilmaz, 2015). However, the exclusion of subjects related to anatomy education which the other areas need from the process emerges as a problem.

The standard curriculum of anatomy education and the needs each area has separately should be determined in detail and "special anatomy headings" should be identified. In order to be able to learn and understand this subject, it seems quite important that basic knowledge and clinical knowledge is integrated (Ari & Sendemir, 2003; Eseonu, 2012). These two approaches will find meaning through the "associated structural education process." Almost all of our participants have underlined the necessity of anatomy education after graduation.

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5. Conclusion and Recommendations

It is considered that “clinical and functional anatomy” integrated with clinical physiotherapy is a requirement for PT. The trainings to be given after graduation might be the solution for the difficulties physiotherapists experience in the clinical environment. Through exams to be given at certain intervals, we believe that students’ competency in anatomy can be evaluated and their weak points can be developed in their own work areas.

The lack of cadavers which has been frequently emphasized in our study seems to be a great problem before us. Although Technologies such as 3D and holograms cannot take the place of cadavers, we believe that these should be included and developed in the educational process. Additionally, to integrate physiotherapy and anatomy better we suggest opening departments of basic sciences in physiotherapy.

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