International Journal of Yoga, Physiotherapy and Physical Education
www.sportsjournal.in
ISSN: 2456-5067
Received: 11-02-2023, Accepted: 28-02-2023, Published: 15-03-2023
Volume 8, Issue 1, 2023, Page No. 6-11

Effect of educational level on professionalism of Egyptian physical therapists: A cross sectional survey

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Abstract
Background: Professionalism In Physical Therapy- Core Values are critical for the development of professionalism, effective decision-making processes, and high-quality patient care.
Aim of Study: This study was conducted to determine the relationship between the educational level and professionalism of Egyptian physical therapists.
Material and Methods: A total of 364 Egyptian physical therapists and physical therapists' students participated in this study including students from (2nd, 3rd, 4th, 5th year and internship,) and Postgraduate physiotherapists (master's degree, doctoral 's degree, Doctor of Physical Therapy degree, and physiotherapists who did not obtain postgraduate studies after graduation) from both sexes. They recruited from 3 Universities (Cairo University, Kafr El-Sheikh University, Bani-Suif University). The cross-sectional survey was done using an online Google form - Professionalism In Physical Therapy- Core Values self-assessment questionnaire that included of seven core values with 68 indicators the overall score is 340.
Results: The percentage of the sum of the core values in all professional categories, showed ascending gradual level, with the least values indicated by the students at 2nd, 3rd, 4th year and the highest values indicated by the master and the doctoral degree, which reflect a distinguished degree of professionalism and The core values that had the highest percent were compassion/caring, social responsibility, excellence, and integrity.
Conclusion: Graduates have a higher level of professionalism than students because they have gained more knowledge, research ethics, inquisitiveness, and deep thought about how to provide higher-quality healthcare services.

Keywords: professionalism, self- assessment, core-values, physical therapist

Introduction

Professionalism in health care refers to the behaviours that physicians exhibit to show that they are deserving of the trust placed in them by their patients and the general public**.**This is due to the fact that they work for the benefit of the patients and the general public**.** Professionalism is the foundation of interactions between society and medical professionals on health issues. It is a skill that all medical practitioners must have [1]. The Hippocratic Oath was the first to address professionalism in medicine, and since then, It has developed through a series of turning points, beginning in 1847 with the founding of the American Medical Association's code of medical ethics and ending in 2002 with the creation of the physician's charter [2].

The concept of professionalism core values was developed in 2003 by the American Physical Therapy Association and is currently a requirement for entry-level PT programmes [3]. Professionalism was one of the key elements described in the APTA's Vision 2020 statement. Accountability, altruism, compassion/caring, excellence, integrity, professional duty, and social responsibility are the seven core values explained [4].

Professionalism involves values, behaviours, and practise standards within a profession. It is possible to use the term "profession" in normative and descriptive contexts [5]. As a descriptive term, it alludes to professions requiring a particular body of knowledge that is implemented in practice,The application of defined quality standards and ethical principles in practise is related to the normative component. Professionalism is built on both descriptive and normative components [6].

Schafer *et al*., 2007 investigated professionalism in clinical practise and professional education, concluding that " professionalism provides the contextual framework for all physical therapy practises., While management and administrative abilities give the content required for the best possible physical therapist practice, [7] "Physical therapists are expected to act professionally both in what they do and how they do it [8]. Humanistic characteristics, integrity, and a strong work ethic are all required to practise professionalism successfully [9].

In Egypt Upon our knowledge, there isn't an available study that describes the professionalism in Egyptian physical therapy and its relation with the level of education. Understanding present degrees of professionalism not only offers a foundation for future development through educational and professional development methods but also facilitates increased professionalisation by addressing individual and professional-related variables**.** This information can help stakeholders and policymakers in the health sector improve the quality and aims of the health system [10, 11]. Therefore, The objective of this study was to find the perceived relation between educational levels and the professionalism of Egyptian physical therapists.

Material And Methods

The present study is a cross-sectional study. The protocol was approved by the Faculty of Physical Therapy's Ethical Committee at Cairo University, with the code P.T.REC/012/003720.

Sample size estimation

The study anticipated that the level of professionalism among the participants would be in the 40%- 50% range on the questionnaire**.**

The required range of scores was 138-173 because the total score for the questionnaire was 345. In light of this, applying the formula for estimating sample size (alpha), we desired to involve a minimum of 360 participants with 90% power and 5% type-1 error

$N = Z2\ (1-\infty/2)\ P\ (1-P) / e2$

N = sample number
$Z^2 = (1.96)^2$ for 95% error margin
P = Best estimate of prevalence (for example, ± 0.40)
E= The prevalence estimate's maximum tolerable/acceptable error (for example,±.05 or 5%).

Participants

This study included both sex of Egyptian physical therapy students from Cairo Governorate, Lower Egypt Governorates, and Upper Egypt Governorates, physiotherapists who did not obtain postgraduate studies after graduation with at least 5 years of experience and Egyptian physical therapists who work in Egypt. Physical therapists who refused to participate, did not complete the questionnaire, do not work in Egypt and Non-Egyptian physiotherapists were not eligible.

A total of 364 Egyptian physical therapists and physical therapists' students from both sexes participated in this study including 180 students, 36 students of the second year, 36students of the third year, 36 students of the fourth year and 36 students of the fifth year and 36 students of the internship year of the faculty of Physiotherapy from 3 Universities (Cairo University, Kafr El-Sheikh University, Bani-Suif University) and 180 Postgraduate physiotherapists, 45 physiotherapists who study for a master's degree, 45 physiotherapists who study for a doctoral 's degree, 45 physiotherapists who had Doctor of Physical Therapy degree, 45 physiotherapists who did not obtain postgraduate studies after graduation.

Procedures

A database was designed and programmed for the survey administration Google form, which was connected to an excel sheet for data collection**.** An online link and invitation to participate in the survey were shared on relevant physical therapy Facebook pages and WhatsApp groups. Prior to answering the survey, all participants signed online informed permission. Also, Participants were given the option to decline participation in the survey if they so desired. The data collection started on 7/2022 and ended on 10/2022.

Recruitment and administration

It was difficult to provide hard copies of the survey to all physiotherapists throughout Egypt. Meanwhile, accessing physiotherapists in Egypt is time consuming and doing a nationwide survey is not thought to be practical.

Moreover, recruitment techniques using the internet and social media are becoming more common in health and medical research and are rapidly becoming a powerful instrument for information exchange and research surveys [12]. Using social media and the internet facilitates a flexible and dynamic approach to recruiting, allowing for the constant monitoring, adjustment, and effectiveness evaluation of techniques [13]. Furthermore, they provide easy access, immediate distribution, and continuous data collection across a large geographical area while lowering costs [14]. As a result, in order to reach and attract a sizable and diverse pool of Egyptian physiotherapy students and physiotherapists to participate in this survey, a multi-modal recruiting strategy integrating internet and social media platforms was adopted [15].

Questionnaire Design

The questionnaire was administered in English, the participants' formal language of education**.**The questions in the questionnaire were divided into two sections. The first section covered study objectives, permission, and participants' personal information (gender, education level, university, years of experience), and the second participants were directed to the assessment questions section.

The form consisted of seven core values accountability, altruism, compassion/caring, excellence, integrity, professional duty, and social responsibility. For each core value established, a definition and sample indications are given to make it clear what the physical therapist would do in their practise, instruction, and/or research if these core values were present.

Each question was graded on a Likert scale of 1 to 5, with 1 being never, 2 being rarely, 3 being occasionally, 4 being frequently, and 5 being always.

Accountability (50 points for 10 questions.), altruism (35 points for 7 questions), compassion/caring (55 points for 11 questions), excellence (60 points for 12 questions), integrity (35 points for 7 questions), professional duty (35 points for 7 questions), and social responsibility (60 points for 12 questions) [16].

The overall scores and subscores were divided into 6 groups: very low (<15%), low (16-30%), moderate (31-45%), fair (46-60%), high (61-75%), and very high (>75%). The required percentiles are calculated by dividing the total achievable score by the proportion of achieved scores [11].

Statistical analysis

The demographics of the subjects were presented using descriptive statistics such as mean, standard deviation, frequencies, and percentages. The mean and standard deviation were used to summarise quantitative variables, while frequencies and percentages were used to summarise categorical variables. Multivariate Analysis of Variance (MANOVA) test was used to compare the PPTCV among professionals with different educational levels. For each statistical test, the level of significance was fixed at p 0.05**.**All statistical analyses were carried out using SPSS version 25 for Windows, the statistical tool for social studies.

Results

Subjects characteristics

364 subjects of Egyptian physical therapists and physical therapist students participated in this study. The mean ± SD age and years of experience of the study group were 25.84 ± 5.71 and 7.66 ± 3.69 years respectively. 247 (68%) of the subjects were females and 117 (32%) were males. Most of the participants obtained their highest educational level from Cairo university 235 (64%).

Regarding the education level of the study group 46 (12.64%) subjects had a Doctoral degree, 63 (17.31%) had a master's degree, 49 (13.46%) had DPT, and 49 (13.46) had a bachelor's degree. 157 (43.13%) were students from the internship, 2nd, 3rd, 4th, and 5th year, (Table 1).

Core values (PPTCV) of the study group

The mean value ± SD of accountability, altruism, compassion/caring, excellence, integrity, professional duty, and social responsibility, and the total score was 27.29 ±13.01, 13.68 ± 6.31, 34.71 ± 16.28, 31.96 ± 14.41, 34.56 ± 15.98, 19.15 ± 9.43, 35.49 ± 16.44 and 196.89 ± 86.66 respectively. The core values that had the highest percent were compassion/caring, social responsibility, excellence, and integrity, (Table 2).

PPTCV of different educational level

Table (3) showed a summary of the scores of core values of PPTCV of subjects with different educational levels. Subjects with doctoral and master's degrees showed a very high level of professionalism. Subjects with a doctoral degree had a distinguished degree of professionalism (93.32%). Subjects with DPT and bachelor's degrees showed a high level of professionalism with the nearly equal total score. Students of internship and students of 5th year showed a moderate level of professionalism while a student of 2nd, 3rd, and 4th year showed a low level of professionalism. There was a significant difference in PPTCV between educational categories ($p < 0.001$).

There was a significant increase in the total score of physiotherapists with doctoral degree compared with that of master's degree, DPT, Bachelor's degree and students ($p < 0.001$). There was a significant increase in the total score of physiotherapists with master's degree compared with that of DPT, bachelor's degree and students ($p < 0.01$). There was a significant increase in the total score of physiotherapists with DPT compared with that of students ($p < 0.001$), while there was no significant difference with bachelor's degree ($p > 0.05$). There was a significant increase in the total score of physiotherapists with bachelor's degree compared with that of students ($p < 0.001$). (Table 3, figure 1).

Table 1: Participants' characteristics

	Mean ± SD	Minimum	Maximum
Age (years)	25.84 ± 5.71	18	43
Years of experience	7.66 ± 3.69	1	21
	N	%	
Sex distribution			
Females	247	68	
Males	117	32	
University			
Beni Suef	50	14	
Cairo	235	64	
Kafr El Sheikh	79	22	
Educational level			
Doctoral degree	46	12.64	
Master's degree	63	17.31	
DPT	49	13.46	
Bachelor's degree	49	13.46	
Students	157	43.13	
Internship year	41	11.26	
St 2 y	19	5.22	
St 3 y	18	4.95	
St 4 y	41	11.26	
St 5 y	38	10.44	
Work setting			
Ministry of Health and Population	198	54.4	
University/ Collage (Academic institution)	27	7.4	
Private health sector	23	6.32	

SD: Standard deviation

Table 2: Overall scores of PPTCV for each of subscales of the study group.

Core values	Number of indicators	Total score	Obtained score (overall)	Obtained (%) overall	Level
			Mean ± SD		
Accountability	10	50	27.29 ±13.01	54.60	Fair
Altruism	5	25	13.68 ± 6.31	54.76	Fair
Compassion/caring	11	55	34.71 ± 16.28	63.11	High
Excellence	11	55	31.96 ± 14.41	58.13	Fair
Integrity	12	60	34.56 ± 15.98	57.61	Fair
Professional duty	7	35	19.15 ± 9.43	54.73	Fair
Social responsibility	12	60	35.49 ± 16.44	59.16	Fair
Total score	68	340	196.89 ± 86.66	57.91	Fair

SD: Standard deviation

Table 3: Scores of core values with educational level.

Educational level	Professionalism in physical therapy- core values (PPT-CV) Sub scores									
	Accountability	Altruism	Compassion /caring	Excellence	Integrity	Professional duty	Social responsibility	Total score	(%) overall	Level
Doctoral degree	47.86 ± 1.27	24.26 ± 0.91	50.93 ± 1.32	52.91 ± 1.65	54.73 ± 3.63	31.86 ± 0.77	54.72 ± 2.54	317.3 ± 6.89	93.32	Very high
Master's degree	36.88 ± 4.75	18.84 ± 2.73	42.66 ± 7.79	42.88 ± 6.35	49.34 ± 9.8	30.57 ± 4.85	43.31 ± 5.93	264.52 ± 31.68	77.8	Very high
DPT	35.85 ± 2.5	13.83 ± 2.12	51.12 ± 2.88	33.31 ± 4.92	35.16 ± 4.97	19.22 ± 3.1	55.28 ± 4.94	243.79 ± 14.57	71.70	High
Bachelor's degree	26.04 ± 5.32	15.18 ± 2.52	47.36 ± 5.65	41.65 ± 5.11	45.24 ± 3.87	18.71 ± 3.95	41.55 ± 5.51	235.75 ± 21.38	69.34	High
Internship year	19.21 ± 7.13	10.02 ± 2.97	22.26 ± 8.91	22.29 ± 7.74	23.68 ± 9.89	14.41 ± 5.36	21.31 ± 3.86	133.21± 44.01	39.18	Moderate
Student 2 year	10.79 ± 0.85	5.57 ± 0.96	14.78 ± 3.53	15.31 ± 3.18	16.31 ± 3.18	7.47 ± 1.02	15.78 ± 2.97	86.05 ± 12.65	25.31	Low
Student 3 year	13.44 ± 1.75	7.11 ± 1.18	14.88 ± 1.99	14.66 ± 2.02	16.11 ± 2.34	9.55 ± 1.54	16.22 ± 2.31	92 ± 12.07	27.06	Low
Student 4 year	14.43 ± 7.86	7.43 ± 2.36	15.39 ± .04	15.43 ± 7.34	16.68 ± 8.62	10.21 ± 5.22	17.02 ± 9.69	96.63 ± 48.85	28.42	Low
Student 5 year	14.5 ± 3.83	8.11 ± 3.7	18.02 ± 3.49	19.11 ± 5.75	20.02 ± 4	10.44 ± 2.916	20.15 ± 6.02	110.36 ± 22.29	32.46	Moderate
F value	498.03	438.01	542.223	452.317	381.760	385.119	656.680	629.371		
P value	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		

SD: Standard deviation

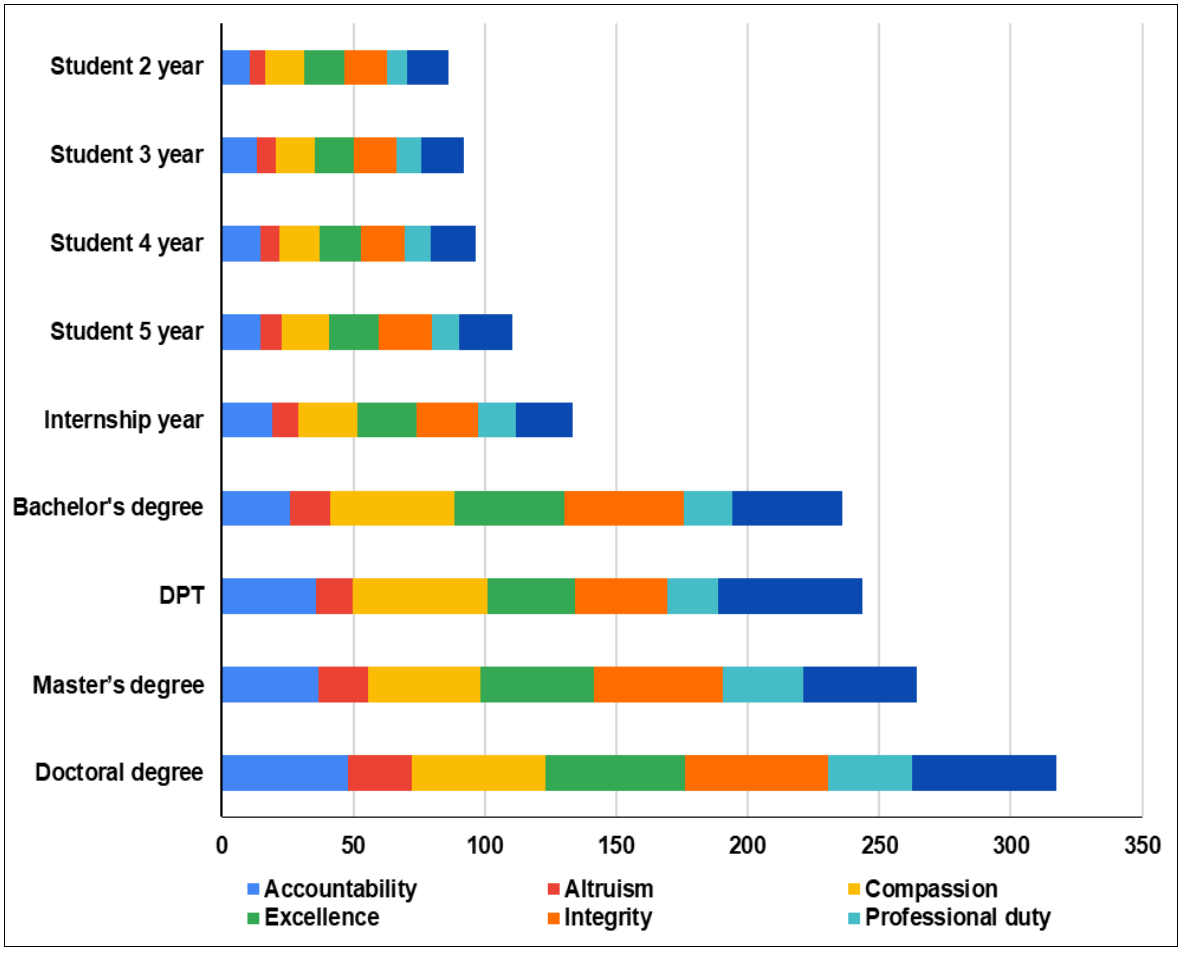

Fig 1: Scores for seven core values across the educational categories.

Discussion

It has been acknowledged that a crucial component of education in the health professions is the creation of professional identity, which includes the development of professional values, activities, and goals [17, 18]. Therefore, The objective of this study was to find the perceived relation between educational levels and the professionalism of Egyptian physical therapists.

In our study, the majority of physical therapists showed a positive attitude towards professionalism whereas physical therapists' students showed a negative and poor attitude toward professionalism, as reported notable differences

between several professional categories. Students of internship and students of 5th year showed a moderate level of professionalism while students of 2nd, 3rd, and 4th year showed a low level of professionalism, Subjects with DPT and bachelor's degree showed a high level of professionalism with nearly equal total scores and subjects with doctoral and master's degree showed a very high level of professionalism. Subjects with a doctoral degree had a distinguished degree of professionalism (93.32%).

The percentage of The sum of the core values across all professional categories demonstrated an ascending gradual level, with the lowest values indicated by the students at 2nd, 3rd, 4th year and the highest values indicated by the master and the doctoral degree, which demonstrate a high level of professionalism, Graduates have a higher level of professionalism than students because they have gained more knowledge, research ethics, inquisitiveness, and deep thought about how to provide higher-quality healthcare services.

The percentage of the sum of mean values of different core values in all professional categories represents the fair level of professionalism of the study group, the highest percent were compassion/caring, social responsibility, excellence, and integrity.

Kumar *et al*., (2013) who assessed Professionalism In Physical Therapy Core Values in students, educators, researchers and practitioners, and administrators, found that.The professionalism levels of Indian physical therapists were average, and they exhibited little level of compassion and altruism, While the distribution of other markers among students and therapists was quite similar.

The study by Kumar *et al*., (2013) and our investigation had different final outcomes as a result of a number of factors: (internal/clinician-related factors) such as knowledge, attitudes, beliefs, and behaviors, (external / organization-related factors) as well as public opinion-related, and professional leadership - local and national affect the reported levels of professionalism. It's possible that individual attributions don't match up with real behaviours [11, 19, 20]. The difference in data collection methods - the paper form that used by kumar sp and Online google form that used in our study- had an impact on the results, As an Online admission method offers a more relaxing and time-efficient approach of completing the survey [13].

Therefore, a programme of continuous professional development (CPD) must be implemented to promote PTs' professionalism and the independence of the physical therapy profession. The systematic, continuing, and controlled learning process that serves as the foundation for professional practise is referred to as CPD.

Physical therapists can maintain, develop, and improve their knowledge, continuous practise competency, and professional and societal behaviours through CPD**.**This enhances practise service delivery, which ultimately improves patient/client results. All physical therapists should take part in educational programmes that will keep them updated and advance their professional skills [21].

Relevance of the Study

According to this study's findings, professional development courses should be added to the physiotherapy curriculum and taught to students in lower classes as lectures; efforts should be made to incorporate additional techniques for teaching and learning professionalism into the curriculum to further improve students' understanding of professionalism, Lecturers and Clinical instructors should work to provide better examples of professional behaviour.

Study limitations

This study was limited to: the professionalism core values, which are consistent with various measures of professionalism and are based on a clinician's capacity for self-evaluation [22]. Different cultures, political systems, religious convictions, and levels of graduation influence how physical therapy students and physical therapists from the same health system report and assess identical experiences.

As a result, undergraduate students report low response rates related to Limited practical training and a focus on the theoretical approach.

Conclusion

According to the findings of this study, all professional categories demonstrated an ascending gradual level of professionalism, Graduates have a higher level of professionalism than students because they have gained more knowledge, research ethics, inquisitiveness, and deep thought about how to provide higher-quality healthcare services.

Conflict of interest

None.

Funding

No funding sources

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