

## Competency Levels of Physical Therapists at the Health Institutions: A Cross Sectional Survey

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### ABSTRACT

**Background:** Competency level assessment is essential for physical therapists (PTs) to monitor the acquisition of competency and improve the standards of clinical practice.

**Objective:** To assess and compare competency levels among Egyptian PTs of the governmental health institutions in urban areas. **Subjects and Methods:** This survey included 574 PTs of Bachelor (BSc); Diploma; Doctor of physical therapy (DPT); Master (MSc); and Doctorate of Philosophy (PhD) holders of both genders. Self-assessment of competency levels was carried out by using Egyptian physical therapists' Competencies Questionnaire (EPTCQ), which consisted of 10 standards represented 51 indicators. The questionnaires were analyzed and computed based upon individual- and profession-related variables. **Results:** Comparison between different academic categories indicated highly significant differences ( $p \leq 0.0001$ ). The lowest percentage of competency level (57.91%) was demonstrated by BSc holders while the highest percentage (86.01%) was reported by PhD holders. There was an incremental increase in the percentage of Diploma (60.80%), DPT (69.65%) and MSc holders (76.95%).

**Conclusion:** Percentage of overall competency levels among Egyptian PTs was 70.27%. Increased mean values in proportion to the levels of academic qualifications were mainly attributed to the nature and depth of academic programs, their co-activities and cumulative experience. These findings are of importance to enhance self-assessment culture and procedures, and to provide a basis for academic programs reform and upgrade in order to improve practice standards and enhance competency of PTs.

**Keywords:** Competencies Questionnaire, Competency, Physical Therapists, Postgraduate Education, Self-assessment.

### INTRODUCTION

Physical therapy is an internationally recognized health profession and should only be practiced by qualified PTs. Determination and understanding the current levels of PTs' competency, not only provide a baseline information upon which to further develop using educational and professional development strategies, but also help to increase the competency levels and practice standards of the PTs<sup>(1)</sup>. Physical therapy education varies across the world<sup>(2)</sup>, but the demand for high-quality post-professional education remains the same<sup>(3)</sup>. The competency-based approach emphasizes outcomes relating to graduates' abilities, knowledge, and attitudes that will enable them to function as competent experts at the national or global level<sup>(4)</sup>. Competency necessitates members' participation in personalized, structured, and career learning to meet their stated development requirements, as well as an understanding of the constraints of personal and professional practice<sup>(5)</sup>.

Although the importance of self-assessment questionnaires strategies has been highlighted within recent years for their role in improving clinical outcomes, reports suggested that such questioning is under-utilized by most PTs<sup>(6)</sup>. EPTCQ is a novel and standardized self-assessment instrument, which can be used for assessment of levels of competencies of the Egyptian PTs<sup>(7)</sup>. Unlike western countries and many other countries<sup>(8)</sup>, no documented standardized level of practice competencies of Egyptian PTs have been

reported in the literature. So, the purpose of this study was to assess and compare the levels of competencies among the Egyptian PTs of different academic qualifications who are working at the governmental health institutions of urban areas.

### SUBJECTS AND METHODS

#### Study Design

This study was a qualitative multi-institutional cross-sectional survey that was conducted from May 2020 to July 2021. The study participants were chosen using a convenient and stratified selection technique that took into account the inclusion criteria.

#### Study Setting

An electronic version of EPTCQ was designed on Google form to enhance participation of the largest number of PTs in the governmental health institutions located at the urban areas of all Egyptian governorates. They represented 23 governorates in varying proportions.

#### Sample Size and Participants

Based on the data gathered from the General Physical Therapy Syndicate (GPTS) of Egypt, sample size estimation was made. The appropriate sample size for this study was 568 as a minimum. The survey was administered to 600 PTs, and 585 completed questionnaires were received with a response rate of 97.5%. After scrutiny, 574 eligible questionnaires were then analyzed and computed.

This study included 574 Egyptian PTs of both genders. According to the ***inclusion criteria*** they were members at the GPTS of Egypt and were on current jobs at the governmental health institutions that located only in the urban areas of the Egyptian governorates, which included General Hospitals, University Hospitals and Institutes, General Organization of Teaching Hospitals and Institutes, Health Insurance Organizations and Curative Care and Family Centers. They involved various job titles according to the classification of the Egyptian GPTS; practitioners (graduates who have BSc), specialists (graduates who have 5 years of experience or MSc in physical therapy) and consultants (graduates who have either 20 years of experience, or MSc and 15 years of experience or PhD in physical therapy).

Qualifications categories included holders of BSc, Diploma, DPT, MSc, and PhD. All of them were interested to participate in the study. Participants represented different specialties and various professional contexts. PTs, whose work was in police, or military hospitals, faculty staff members, and those who participated in international mobility or partnership program as well as those who had broken legal and/or professional laws were ***excluded*** from this study.

### **Outcomes Measurement**

Self-assessment of the levels of competencies among Egyptian PTs was done by using EPTCQ <sup>(7)</sup> as it can detect gaps between the current levels of PTs' competencies and the expected levels according to the approved standards. EPTCQ asked for participant's personal data comprising name, age, gender, job rank, academic qualification awarded, name of the university awarding the degree, major specialty, current post, name and address of the affiliated governmental health institution, as well as participation in the work of private physical therapy. Both e-mailing address and telephone number were provided by the participants. EPTCQ has 10 standards and 51 indicators: the 1<sup>st</sup> standard for delivering a safe and effective service (4 indicators), the 2<sup>nd</sup> standard for physical therapy management and treatment (5 indicators); the 3<sup>rd</sup> standard for evaluation of clinical care and services (3 indicators); the 4<sup>th</sup> standard for professionalism and professional values and behaviors (11 indicators); the 5<sup>th</sup> standard for achieve excellence (6 indicators); the 6<sup>th</sup> standard for leadership, administration, management (6 indicators); the 7<sup>th</sup> standard for autonomy and accountability (4 indicators); the 8<sup>th</sup> standard for consent and record-keeping and information governance (6 indicators); the 9<sup>th</sup> standard for working in partnership (3 indicators); the 10<sup>th</sup> standard for communication and cultural competency (3 indicators).

Likert scale using the 5-point scale <sup>(9)</sup> was used to measure indicators of each standard as the participants checked the box that best represents the frequency with which he/she demonstrated behavior where: 1=Never; 2=Rarely; 3=Occasionally;

4=Frequently; and 5=Always. EPTCQ total score was 255.

### **Assessment procedures**

Selection of governmental health institutions was based on the governorate population density, and priority of their importance. An email invitation included the purpose of the study was sent to both the managers and the heads of physical therapy departments to be disseminated to all PTs. Lists of PTs' names, job rank, email address and mobile number of those who were interested to participate in this study were approved by the managers and sent via email to the coordinator of the research team.

- Purpose of the study was explained for all participants via group-based online sessions to enhance their contribution to fill out the forms adequately.
- The following instructions were elucidated for all participants: 1. Purpose of EPTCQ is to self-assess the frequency with which the indicators of the standards were demonstrated, that describe what is done in daily practice. 2. Responses of the participant should be honest, realistic and represent the current status quo. 3. This is a self-assessment process with an opportunity for personal learning and insight, identification of areas of strength and growth, and assessment of participant's development in the competency maturation process. 4. Participants were informed that a response to EPTCQ must be completed within three weeks of receiving it. Researchers' contact numbers and email addresses were available for participants' inquiries and questions.
- The general steps that had been followed during the distribution of the survey instrument included contact with each participant at least four times. The first contact was an email letter of introduction had been sent including the information and announced that the survey will follow shortly; the second contact was the mailing of EPTCQ itself; the third contact was a reminder after two weeks; and the fourth contact was the final reminder three days before the deadline. Sometimes the frequency and timing of contacts were varied depending on the different attention and cooperation of the participants had been surveyed.
- Immediately upon completion of the participants' submission of EPTCQ, each one had been examined for completeness, and incomplete surveys were cancelled. The questionnaires were coded to ensure participant anonymity, privacy, and confidentiality.

### **Ethical Considerations:**

**Approval of the Ethical Committee of the Faculty of Physical Therapy, Cairo University (P.T.REC/012/002396) and approval from the managers of governmental health institutions were obtained before preceding the survey procedures. Participants were assured of the confidentiality of their responses, and they were informed that their**

responses would be anonymous, and they provided an online written consent to participate. This work has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

#### **Statistical Methods and Data Analysis:**

The collected data were analyzed using Statistical Package for the Social Sciences (SPSS version 25). Qualitative descriptive statistics data including the number and percentage of all categorical variables and quantitative descriptive statistics data including the mean, standard deviation, and range for their age as well as Pearson's correlation to determine the strength and direction of a linear between both age and gender and overall EPTCQ scores. One-way analysis of variance (ANOVA) test was used to compare mean values of each standard and sum of total standards among the academic qualification categories. All statistical analyses were significant at the probability level of  $P \leq 0.05$ .

The total scores of the standards were categorized into six levels:  $< 15\%$  = very low,  $16-30\%$  = low,  $31-45\%$  = moderate,  $46-60\%$  = fair,  $61-75\%$  = high,  $>75\%$  = very high. The percentiles were obtained from calculating proportion of obtained scores with respect to total achievable scores<sup>(10)</sup>.

#### **RESULTS**

A total of 574 PTs participated in this study. The mean value of their age was  $33.46 \pm 6.95$  years with minimum and maximum values were 22 years and 59 years respectively. Individual results indicated that each academic qualification category showed a wide range of participants' age and that the mainstream of the holders of postgraduate qualifications were middle thirties. The total gender distribution was 304 males (53%) and 270 females (47%). According to the approved rules of GPTS of Egypt; number and percentage of the participants' job rank distribution revealed that 131 (23%) were practitioners, 330 (57%) were specialists, and 113 (20%) were consultants. The total EPTCQ scores of both males and females were  $181.76 \pm 33.75$  and  $178.84 \pm 40.15$  respectively. No correlation has been shown between the EPTCQ scores and neither age nor gender of the participants as the values were ( $r = -0.08$  and  $P=0.729$ ) and ( $r=0.16$  and  $P=0.472$ ) respectively.

The participants represented the governmental health institutions in only 23 (85.19%) governorates out of total 27 governorates located at seven regions, which included variable numbers of the governorates. The distribution of the governorates and the percentage of the participants within each region were as follows: Great Cairo: 3 (52.57%); Alexandria: 2 (8.3%); Delta: 5 (12.5%); Canal: 5 (8.2 %); North Upper Egypt: 3 (11.6%); Central Upper Egypt: 1 (1.23%); and Southern

Upper Egypt: 4 (5.6 %). Distribution of the participants among the various types of governmental health institutions revealed that 244 (42.5%) participants were in the General Hospitals, 88 (15.3%) participants were in the University Hospitals and Institutes, 103 (17.9%) participants were in the General Organization of Teaching Hospitals and Institutes, 73 (12.79 %) participants were in the Health Insurance Organizations while the least percentage of participants were in the Curative Care and Family Centers 66 (11.5%).

It was revealed that the greatest number of PTs 471 (82.1%) were graduated from the governmental universities, with the majority of them (80%) were graduated from Cairo University and the fewest number (0.1%) were graduated from Kafr El-Sheikh University, while 103 (17.9%) of the participants were graduated from private universities including Misr University for Science and Technology and October 6 University.

Number of participants in different physical therapy specialties included; 152 (26.48%) participants in orthopedics, 148 (25.78%) participants in pediatrics, 70 (12.2%) participants in neurology, 48 (8.36%) participants in surgery and burn, 61 (10.62%) participants in basic science, 40 (6.97%) participants in woman health, 35 (6.1%) participants in internal medicine, whereas 20 (3.49 %) participants had diploma in clinical nutrition and business administration from other academic institutions. Distribution of academic qualifications categories among the participants showed that 281 (49%) were BSc holders, 9 (1.6%) were Diploma holders, 72 (12.5%) were DPT holders, 154 (26.8%) were of MSc holders, and 58 (10.1%) were PhD holders.

It was indicated that 399 (69.51%) participants were assigned in management positions at their governmental health institutions, which included deputy directors 32 (5.58%), clinical directors 140 (24.39%), heads of physical therapy departments 98 (17.07%) and heads of physical therapy units 129 (22.47%), while 175 (30.49 %) participants were not assigned to any administrative position. The results showed that only 490 (85.4%) of the participants of all academic qualifications categories included practitioners, specialists and consultants had their own private work in addition to their main work in the governmental sector. The distribution percentage of participants among the private sector was as follows: private clinics (48.1%), outpatient clinic of private hospitals (23.3%), private rehabilitation centers (13.4%), and inpatient clinic private hospitals (0.5 %) respectively.

Table (1) indicated comparison between mean values of each EPTCQ standard among the academic qualification categories. The differences were highly significant among all the standards except for the first and eighth standards as the differences were non-significant.

**Table (1): Comparison of responses of academic qualification categories for EPTCQ standards**

EPTCQ Standards	Academic qualification categories					F-value	P-value
	B.Sc.	Diploma	DPT	M.Sc.	Ph.D.		
First	13.81 ±3.24	14.00 ±3.00	14.15 ±3.59	14.30 ±2.89	16.29 ±5.58	1.423	0.232
Second	12.54 ±3.07	13.00 ±2.07	17.71 ±4.15	18.09 ±4.17	19.26 ±5.25	12.78	0.0001*
Third	10.09 ±2.97	10.32 ±2.77	10.83 ±2.77	12 ±2.86	13.91 ±3.60	5.442	0.0001*
Fourth	31.34 ±7.31	33.00 ±8.43	39.91 ±7.38	40.63 ±9.31	45.94 ±13.84	7.81	0.0001*
Fifth	16.91 ±3.94	17.62 ±5.76	21.05 ±4.77	24.61 ±5.73	28.28 ±8.61	12.86	0.0001*
Sixth	15.66 ±4.24	16.75 ±4.71	18.49 ±5.00	25.63 ±6.08	29.31 ±7.81	21.95	0.0001*
Seventh	11.00 ±4.16	11.66 ±3.81	14.61 ±3.58	15.66 ±3.98	19.43 ±4.57	14.126	0.0001*
Eighth	14.76 ±4.81	15.87 ±5.57	17.16±6.65	19.10 ±6.43	19.45 ±7.14	2.146	0.081
Ninth	10.66 ±3.39	11.25 ±3.10	11.49 ±3.54	13.69 ±3.19	13.85 ±4.63	14.185	0.0001*
Tenth	10.90 ±3.54	11.56 ±1.92	12.22±3.52	12.50 ±6.26	13.61 ±4.71	11.448	0.0001*

Data are expressed as mean ±standard deviation, \*: Significant

Table (2) showed that BSc. and diploma categories had the lowest mean values, which indicated fair levels of competencies. DPT category showed high level of competency; however the highest mean values were shown by both MSc and PhD categories, which revealed very high levels of competencies. Comparison of mean values between the academic qualifications categories revealed highly significant differences.

**Table (2): Comparison of EPTCQ total responses of the academic qualifications categories**

Total EPTCQ Responses	Academic qualification categories				
	B.Sc.	Diploma	DPT	M.Sc.	Ph.D.
Mean ± SD	147.67 ±31.85	155.03 ±49.64	177.62 ±35.15	196.21 ±53.88	219.33 ±46.24
Percentage	57.91 % a	60.80 % a	69.65 % b	76.95 % c	86.01 % c
F- value	5.011				
P-value	0.0001*				

a: Fair level of competency b: High level of competency c: Very high level of competency  
\* Significant

Table (3) indicated the obtained scores and percentages (overall) of all participants at each EPTCQ standard. The lowest value was indicated by the eighth standard while the highest values were shown by the ninth and tenth standards respectively. High level of competency was shown by remainder of the standards.

**Table (3): Overall scores of responses for all EPTCQ standards**

EPTCQ	Number of indicators	Total Scores	Obtained Scores (Overall)	Obtained Percentages (Overall)
Standard 1	4	20	14.51± 5.33	72.55 % b
Standard 2	5	25	16.12± 4.88	64.48 % b
Standard 3	3	15	11.43±3.03	76.2 % c
Standard 4	11	55	38.16± 6.32	69.34 % b
Standard 5	6	30	21.70±4.15	72.31 % b
Standard 6	6	30	21.17± 5.05	70.56 % b
Standard 7	4	20	14.47± 4.21	72.36 % b
Standard 8	6	30	17.27± 8.85	57.56 % a
Standard 9	3	15	12.19±3.10	81.25 % c
Standard 10	3	15	12.16±3.09	81.05 % c
Total scores	51	255	179.18± 45.76	70.27% b

a: Fair level of competency b: High level of competency c: Very high level of competency

## DISCUSSION

Assessment of competency is essential to the successful achievement of both PTs and health institutional goals. The use of EPTCQ in the current study is consistent with the studies of **Davis** <sup>(11)</sup>, **Hodges et al.** <sup>(12)</sup> and **Nguyen et al.** <sup>(13)</sup> who stated that assessment must be self-directed, formative, frequent, rigorous and must include one or more of the following options: physiotherapist survey/self-evaluation and statistical analysis of professional profiles and should support the development of cognition, emotion, and performance. Responses of the practitioners, specialists and consultants to EPTCQ standards in all categories were variable among its different standards, which were attributed mainly to the individual level of academic qualification and clinical experience. Ratio of both males and females participants was 53% and 47% respectively, which comes in line with the Egyptian GPTS database as it mentioned that there is an increased ratio of males over females in all governmental health institutions, which ranged from 6 to 12%. The study findings indicated that neither age of the participants nor gender has been reported to have an effect on the levels of competency. These results agreed partly with **Kumar et al.** <sup>(10)</sup> findings who stated that a relatively higher level of professionalism was observed with increase in age of the PTs, while gender didn't show the same effect.

The highest percentage of the participants was from Great Cairo region as it reflected the highest population density and consequently the largest number of governmental health institutions as compared with the other governorates. Number of the participants among various types of the governmental health institutions was uneven and proportional to the population in each governorate. The highest percentage of participants represented the General hospitals which provided varieties of health services as compared to other hospitals. Data collected showed that the majority of the participants were graduated from the governmental universities, as compared with the number of graduates from the private universities. These results can be attributed to the early establishment of governmental physical therapy faculties about six decades ago, compared with private sector of the physical therapy which was established since about three decades only as well as the relatively small number of their graduates as compared with the number of graduates from the governmental universities.

The highest percentage of the participants' specialty was in orthopedic physical therapy, followed by pediatrics physical therapy and neurology physical therapy, which revealed the Egyptian labor market orientation towards these specialties. It was indicated that 51% of the participants were holders of postgraduate certificates in various proportion included Diploma degree, DPT, MSc and PhD which showed the

eagerness of the PTs for continuous education and life-long learning. Difference in ratios of the academic qualifications can be attributed to the individual desire, interest, and the requirements of the local labor market-orientation. These findings come in line with **Helmer et al.** <sup>(14)</sup> who stated that postgraduate health professional education encompasses both formal and informal efforts to provide information and experience and develop new skills and competencies among practicing health professionals.

Most of the participants held managerial positions in addition to their clinical work at their governmental health institutions. The main criteria for assignment a physical therapist at a managerial position was the number of experience years except for, only the General Organization of Teaching Hospitals and Institutes, which consider MSc and PhD as an appointment criteria for a managerial post based upon their legal regulations. Recently on 2021, Ministry of Health developed a structured and standardized competency-based training system for the PTs to fulfill it as a condition of qualification for work permit renewal. These findings are supported by **Skinner et al.** <sup>(15)</sup> who stated that training should be evaluated against clinical competency and practice standards, and such studies should record clinical experience and concurrent professional development. Although the majority of the participants had their own private work as part-time to increase clinical experience and monthly financial income, all of them had their principle job at the governmental health institutions, which indicated their commitment and satisfaction of their governmental current jobs.

The findings of this study indicated that internal and external factors influenced the actual levels of competency. The internal factors (PTs-related) are knowledge, attitudes, beliefs and behaviors, and the external factors (organization-related) are professional work environment, legal legislation of the Ministry of Health hospitals, and professional leadership which inevitably exert a considerable influence on the assessed levels of competencies.

Comparison of the mean values of all academic qualifications categories at each standard was highly significant, which was directly proportional to the level of academic qualifications, except for the first and eighth standards that revealed non-significant differences due to external and internal factors, such as inadequate approaches to support periodic maintenance of the medical devices (standard 1) due to insufficient annual financial income of the governmental hospitals, as well as inefficient data capture systems to provide effective and secure transfer of patient identifiable information, and irregular audits of the patients' records were evident (standard 8), which was attributed to insufficient information systems, lack of training and poor policy for records' auditing system in the majority of governmental health institutions. The findings of this

study are in line with **Poirier and Gupchup** <sup>(16)</sup> who reported that an increase in the scores of professionalism, accountability, and professional duty provided evidence that the curricular and co-curricular activities helped develop professionalism. **Timmerberg et al.** <sup>(17)</sup> reported that standardized clinical practicing contributed to enhancement of responsibility, self-awareness, and timeliness, which are essential for development of professionalism. Assessment of PTs competency by using standards of EPTCQ is supported by **Schleiff et al.** <sup>(18)</sup> who emphasized the importance of credibility and accountability of the profession by providing professionals, students, educators and assessors with defined standards of practice and underpin professional occupation descriptions, specific work tasks, and performance criteria.

Comparison of the percentage between academic qualifications categories revealed highly significant differences. The lowest competency level was indicated by the participants who were only holders of BSc (a) and diploma degree (a), while the highest competency level (c) was indicated by those who were PhD holders. There was incremental increase in the percentage of DPT holders and MSc holders, which was concomitant with high competency levels (b). Increased mean values of the total EPTCQ responses was in proportion to the level of academic qualifications, which were attributed to the nature and depth of the academic programs and their co-activities as well as the acquired professional attitudes, behaviors and the individual's cumulative experience. Providing each academic qualification category with defined standards of practice and specific work tasks is contributing to the least variation of their outcomes. **Skinner et al.** <sup>(15)</sup> reported that improved consistency of practice is a key goal of governance, particularly in context of evidence-based practice and minimum standards. **Kraemer** <sup>(19)</sup> stated that knowledge, not only about theoretical construct related to education, practice and research, but also related to profession and professionalism, would exert a huge impact on the reported levels of competency.

In their study **Black et al.** <sup>(20)</sup>, reported that as beginner PTs grew, they shared common experiences and motifs. They emphasized the emergence of the following themes: (1) the novice PTs' performance was influenced by the clinical environment, (2) participants learned through experience and social interaction, and learning was primarily directed toward self, (3) growing confidence was directly related to developing communication skills, and (4) therapists were engaged in professional identity formation and role transitions. So, empowerment and innovation should be supported through encouraging PTs to take initiatives and pursuing new creative ideas respectively.

**Mason et al.** <sup>(21)</sup> reported that learning of professional behavior should be seen as a process rather

than a fixed structure and should be taught and evaluated in multiple ways. The results of the current study could emphasize that mentoring is crucial to the PTs; further research in the effectiveness of various mentoring strategies including electronic and distance mentoring would be beneficial for PTs for enhancing of competency and meeting professional goals. **Sullivan and Thiessen** <sup>(22)</sup> reported that the curriculum reform can address specific areas of professional behavior by creating field seminars, and self-assessment through development plan professionals to continuously review each physiotherapist's professional behavior. **Wise et al.** <sup>(23)</sup> stated that physical therapist education should be designed to prepare a collaborative practice-ready workforce in response to ongoing changes in practice such as patient- and family-centered team-based care. On the other hand **Mapukata-Sondzaba et al.** <sup>(24)</sup> pointed out that the following characteristics can interfere with the successful performance of fieldwork: rigid thinking, lack of perception, externalization of responsibilities, and an ambiguity that accompanies clinical reasoning.

Post-professional education can improve patient outcomes across the healthcare scope <sup>(25)</sup>. In the field of physical therapy, post-professional education can provide the skills necessary to extend the scope of practice beyond general services, which can improve the patient's prognosis and reduce the use of medical resources <sup>(26)</sup>. According to the findings of this study we agree with **Lewis** <sup>(27)</sup>, who stated that considerations for physical therapy curricular reform, stressing interdisciplinary care, problem-based learning, increased critical appraisal of research evidence, and community-based training are required, as part of the response to health care reform with the ultimate goal of improving health outcomes for patients.

Evaluation of the clinical competency takes into account the professional performance during interaction with the patient, involving clinical reasoning applied to decision-making, and conceptual commands necessary to provide health services, teamwork, communication, and professionalism. **Konopasky et al.** <sup>(28)</sup> stated that the ability to communicate clinical reasoning is a key aspect of demonstrating accountability in clinical practice, they added that in the face of complex, ambiguous, and changing contexts, new graduates need to develop tolerance of ambiguity and a reflexive understanding of practice professional work.

The obtained scores and percentages (overall) of all participants at each EPTCQ standard showed that third, ninth and tenth standards revealed very high levels of competency. **Downey and Olds** <sup>(29)</sup> highlighted the importance of communication as a major theme throughout the competency list. Fair level of competency was indicated by the eighth standard as a considerable number of the individual results of all categories revealed low responses to the majority of its

indicators, which were dependent upon external factors at the majority of the governmental health institutions. High level of competency was shown by remainder of the standards. **Anderson and Hall** <sup>(30)</sup> reported that professionalism attitudes, values, and behaviors gained popularity and interest in the health care community over test two decades for satisfying stakeholders including the patients. Thus, EPTCQ outcomes of the current study provided a common language for competency evaluation and a shared understanding of outcomes for professional practice standards.

The results of the present study could be coupled with the findings of **Alanazi and Alrwaily** <sup>(31)</sup> who reported that new physical therapy graduates in Saudi Arabia performed poorly in the competence examination, demonstrating weak domain knowledge and skills. They emphasized the importance of high quality, standardized physical therapy education, clinically-oriented and research-based courses to enhance their competencies.

The findings of the current survey are supported by the findings of **Hayward and Blackmer** <sup>(32)</sup> study who reported significant changes in professional physical therapy core values scores following doctor of physical therapy program in their institute, which was concomitant with higher work-related self-efficacy and confidence. **Skjølsvik et al.** <sup>(33)</sup> mentioned that in most developed countries, the health care system is facing major changes due to political and economic forces and a general focus on consistent and qualified quality care is crucial. The response to these forces must include system for measuring PTs' competency on regular basis, adoption of mandatory training programs and enhancing physiotherapists' training throughout the continuum of physical therapy education. In this context, many jurisdictions have enacted legislation to require continued education for permits or registration renewal, and are supported by physical therapy professionals including the World Confederation for Physical Therapy <sup>(34)</sup>.

The outcomes of this research come in line with the needs of the Egyptian labor market as the measured set of competencies can provide a common language for physical therapy training, and for faculty to have a shared understanding of outcomes for professional practice standards, to pursue competency-based curricula design, and develop relevant student and professional performance assessment measures <sup>(35)</sup>. They are of importance to enhance the structure and practice of self-directed learning and self-assessment in graduate and continuing education, and to provide a basis for reform and upgrade of the academic programs to improve and practice standards and enhance competency of Egyptian PTs. Further study is required to investigate the competency levels of the PTs at the governmental health institutions that located at the rural areas considering both external and internal factors. Although the novelty of this study is a key strength,

most of the participants agreed that the number of EPTCQ indicators needed a relatively long time to be answered with credibility, so a future study is required to provide a revised and standardized form of EPTCQ. The outcomes of this study indicated the need for further studies to provide evidence on the effect of age and gender on skillful practicing and achievement of EPTCQ standards in respect of each academic qualification category. Evaluation of competencies at the group levels of practitioners, specialists and consultants of different academic qualifications also is recommended in future studies.

## CONCLUSION

Overall levels of competency among Egyptian PTs were high. The levels of PTs' competency were proportional to the corresponding academic qualifications categories. Assessing and acquisition of positive attitudes towards competency should be highlighted with emphasis on reform of the academic programs of both BSc and Diploma. Importance of postgraduate studies for enhancement of clinical workforce and improvement of competency was evident.

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