

# Assessment and documentation among physical therapists in Egypt

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## Background

Standardized assessment is a legal and ethical professional requirement in clinical decision-making. Clinical guidelines emphasize the importance of clinical assessment and documentation to foster the implementation of evidence-based management and reduce unnecessary therapeutic costs. In developing countries like Egypt, healthcare may be suboptimal and is challenged by low budget and malpractices. Therefore, the purpose of this study was to investigate the association between assessment and documentation of physical therapy and Egyptian physical therapists' demographics. In addition, therapists' attitude toward the use of electronic medical record was also evaluated.

## Materials and methods

An online and a paper-based survey was developed and tested for linguistic clarity before it was administrated to physical therapists.

## Results

A total of 389 questionnaires were used for statistical analyses. The majority of the respondents (84.1%) always or often assessed their patients; however, almost half of them (44.7%) rarely or never used the assessment tools. Seventy-eight percent of the respondents always or often documented their examination findings. Electronic medical records were rarely or never used by 42.7% of the respondents, although almost all of them expressed their willingness to use them if they were available for free. More experienced male therapists with higher academic degrees were significantly but weakly associated with more frequent patient assessment ( $P < 0.05$ ). Furthermore, male junior therapists used assessment tools more frequently ( $P < 0.05$ ). None of the demographic variables was associated with documentation ( $P > 0.05$ ). For practice type, respondents worked at various clinical settings. No association between the type of practice and assessment or documentation was found ( $P > 0.05$ ).

## Conclusion

The majority of Egyptian physical therapists assess patients informally without the use of standard tools. Although patients' findings are documented, the use of electronic medical records is rare.

## Keywords:

assessment, documentation, musculoskeletal, physical therapy

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## Introduction

Standardized physical assessment is an integral part of patient's physical therapy management. It is an ethical and professional requirement in clinical decision-making. Furthermore, it facilitates prediction of patients' prognosis and response to treatment. Clinical practice guidelines often incorporate specific recommendations for the use of standardized measurements and assessment tools [1,2]. Using a standardized assessment approach has been recognized worldwide and is mandated by many policy statements such as the Core Standards of Physiotherapy Practice of the World Confederation for Physical Therapy [3]. Moreover, formal documentation of patient's initial condition and progression is a medicolegal standard practice required by regulatory authorities in developed countries. In Egypt, therapists' adherence to standard guidelines of

assessment and documentation has not been reported in the literature. Improving the quality of healthcare services requires rigorous assessment of the magnitude and potential contributing factors to malpractice, so that corrective strategies can be developed. Therefore, the purpose of this study was to investigate the association between physical assessment and documentation of physical therapy for musculoskeletal disorders and Egyptian physical therapists' demographics (sex, academic degree, and years of experience) as well as practice type. Furthermore, this study attempted to investigate Egyptian therapists' attitude toward the

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use of electronic medical records as a routine documentation method.

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## Materials and methods

This cross-sectional study was conducted using a structured, web-based, pilot-tested, and self-administered questionnaire. The study was conducted between September 2015 and January 2016 in accordance to the guidelines of the Local Ethics Committee of the Faculty of Physical Therapy, Cairo University, Egypt. An online survey program [4] and its identical paper-based questionnaire were used to collect the required data.

### Study population and sample

The target population was graduate physical therapists across Egypt. To achieve a 95% confidence interval, 5% margin of error, and 50% response distribution, the sample size was assumed to be 20 000 therapists, as the sample size does not change much for populations larger than 20 000. On the basis of this calculation, the current study required 377 therapists to represent the population [5]. We excluded non-Egyptian therapists, therapists not working in Egypt, and those who did not manage adult patients with musculoskeletal disorders.

### Questionnaire development

Researchers developed the questionnaires by conducting group discussions after an extensive literature review. Two physical therapists with more than 25 years of experience reviewed the questionnaire's first draft, and then it was tested on 10 graduated physical therapists in a pilot study. Detailed feedback about the format, language, clarity, and completion time was collected and used to make minor changes. Pilot responses were not included in the final statistical analysis.

The questionnaire was administrated in the English language, which was the participants' formal language of education. The questionnaire included 19 questions arranged in two sections using a branching logic function (Appendix 1). The first section addressed study aims, consent, and participants' personal information. This section was followed up by questions asking about the therapists' professional demographics. Then the participants were directed to assessment and documentation questions section. In this section, for each question, the therapist was required to select an answer from a five-point scale (always, often, sometimes, rarely, never). If a participant was not working with adult patients with

musculoskeletal dysfunction, the questionnaire was terminated.

### Data collection

Selected participants were invited by E-mail and social media websites to participate in this survey; a unique code or link was used for each participant ( $n=561$ ). Initially, therapists were invited by e-mails; however, as many therapists did not check their e-mails regularly, data collection was switched to the use of Egyptian Facebook physiotherapy pages. An invitation to participate in the survey was announced on relevant Facebook pages, and respondents were sent a direct link to the online survey. Up to five reminder messages were sent to participants, prompting them to complete the survey. Furthermore, an identical paper-based version of the questionnaire was distributed during scientific meetings for immediate completion. Paper-based version data were manually entered into our online system by the authors ( $n=95$ ).

### Statistical analysis

The main outcome measure was the association between physical assessment and documentation in physical therapy musculoskeletal practice and therapists' demographics (sex, academic degree, and professional position that reflect years of experience) as well as physical therapy practice type. Results were presented as numbers and percentages. The  $\chi^2$ -test was used to investigate whether there was any association between qualitative variables (sex, experience, and academic degree) and the patient's physical assessment (conduction of routine assessment and the use of assessment tools) as well as assessment documentation (manual and electronic medical records).

The strength of the association was determined using Cramer's  $V$ -test. For analysis, the highest academic degree enrolled or completed was used as a dichotomous variable (bachelors degree vs. graduate studies). The five-point scale of assessment and documentation was reduced to three categories (always/often, sometimes, and rarely/never). All tests were set at a  $P$ -value of less than 0.05 to declare statistical significance. Statistical analyses were carried out using the IBM SPSS statistical software package (V.21; IBM Corporation, Chicago, Illinois, USA).

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## Results

### Respondents' demographics

A total of 656 physical therapists were contacted through 561 (85.5%) online invitations and 95

(14.5%) direct paper-based questionnaires. A total of 496 responses were received (response rate 75.6%), out of which 107 (21.5%) were excluded as the therapists were not Egyptians, not working in Egypt or with adult patients with musculoskeletal disorders, or the questionnaire responses were incomplete. Thus, 389 questionnaire responses were used for statistical analyses (Fig. 1). Participants' demographics are shown in Table 1.

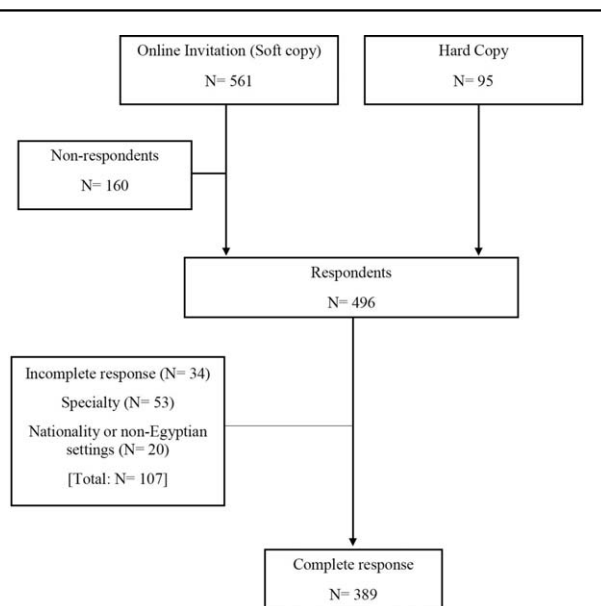
For routine assessment, 327 (84.1%) participants always or often assessed patients, whereas 55 (14.1%) sometimes and seven (1.8%) rarely or never assessed patients before treatment. Regarding the use of assessment tools, 174 (44.7%) participants rarely or never used assessment tools, whereas 103 (26.5%) respondents often or always did and 112 (28.8%) sometimes used standard tools (Fig. 2). For documenting patients' examination findings, 303 (77.9%) participants always or sometimes used manual documentation, whereas 86 (22.1%) participants rarely or never did. For electronic documentation, 166 (42.7%) participants rarely or never used electronic medical records, whereas 137 (35.2%) participants always or often did and 86 (22.1%) participants sometimes used them (Fig. 3). A total of 110 (28.3%) participants reported that they never used electronic documentation. However, 97.3% of them reported their willingness to use electronic documentation if they were available for free.

#### Association of sex with assessment and documentation trends

A total of 230 (59.1%) male and 159 (40.9%) female therapists were included in this study. Sex showed a significant weak association with patients' routine assessment ( $P=0.001$ ; Cramer's  $V=0.19$ ) and the use of assessment tools ( $P=0.041$ ; Cramer's  $V=0.13$ ). Although the majority of male and female therapists assessed patients routinely, a higher percentage of males always, often, or sometimes routinely examined patients compared with female therapists (100 and 95%, respectively). Furthermore, 138 (60%) male therapists reported the use of assessment instruments compared with 77 (48.4%) female (Fig. 2).

Regarding documentation, sex had a non significant weak association with either manual ( $P=0.115$ ; Cramer's  $V=0.11$ ) or electronic ( $P=0.781$ ; Cramer's  $V=0.04$ ) documentations. Fifty-three (23.0%) male and 33 (20.8%) female therapists reported that they rarely or never used paper-based documentation. This percentage was doubled for electronic documentation

Figure 1



Flowchart showing the number of included and excluded respondents.

Table 1 Participants demographics

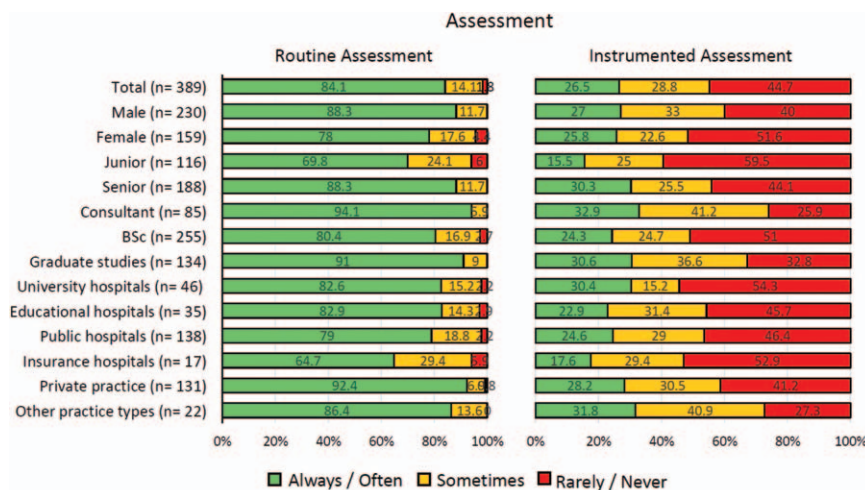
Demographics	Total (N=389) [n (%)]
Sex	
Male	230 (59.1)
Female	159 (40.9)
Experience (years)	
Junior (1–3)	116 (29.8)
Senior (4–10)	188 (48.3)
Consultant (more than 10)	85 (21.9)
Academic degree	
BSc	255 (65.6)
MSc	60 (15.4)
PhD and DPT	74 (19.0)
Practice type	
University hospital	46 (12.0)
Education hospital	35 (9.0)
Public hospital	138 (35.5)
Insurance hospital	17 (4.5)
Private practice	131 (33.5)
Other practice types	22 (5.5)

(43.9 and 40.9% for males and females, respectively) (Fig. 3).

#### The association between years of experience and assessment and documentation trends

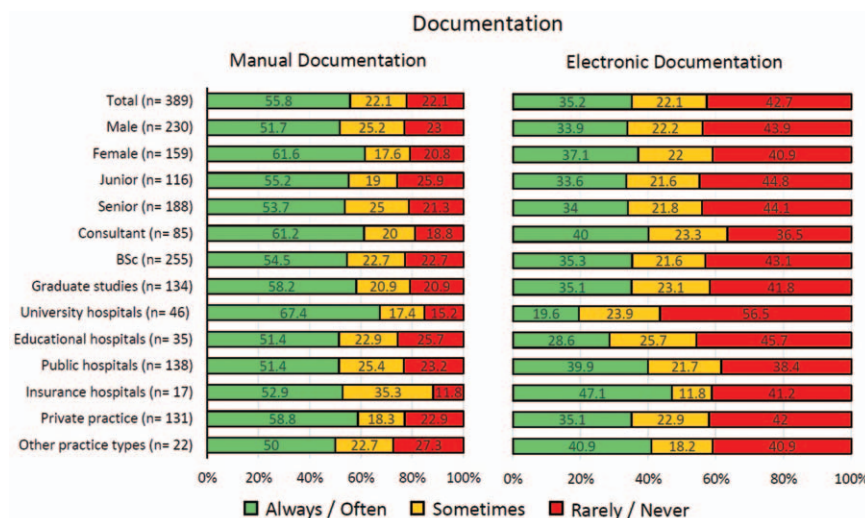
Participants of this study included 116 (29.8%) junior, 188 (48.3%) senior, and 85 (21.9%) consultant therapists. Experience level was weak but significantly associated with routine assessment ( $P<$

Figure 2



Assessment percentage bar chart for different respondents' categories.

Figure 3



Documentation percentage bar chart for different respondents' categories.

0.001; Cramer’s  $V=0.21$ ) and the use of assessment tools ( $P<0.001$ ; Cramer’s  $V=0.19$ ). The percentage of participants who always or often assessed their patients was greater among consultant and senior therapists (94.1 and 88.3%, respectively) compared with junior therapists (69.8%). This was also true regarding the instrumented assessment; as the years of experience increased, the proportion of the therapists using standard assessment tools increased. Sixty-three (74.1%) consultants sometimes or always used instrumented assessment, whereas 105 (55.8%) among seniors and 47 (40.5%) among juniors used the assessment tools sometimes or always (Fig. 2).

The experience level was weak and non-significantly associated with manual documentation ( $P=0.524$ ;

Cramer’s  $V=0.09$ ). This was also true for electronic documentation ( $P=0.773$ ; Cramer’s  $V=0.05$ ). Thirty (25.9%) junior therapists rarely or never documented their patients’ progression using manual methods, whereas 40 (21.3%) senior and 16 (18.8%) consultant therapists did not as well. For electronic documentation, 52 (44.8%) junior, 83 (44.1%) senior, and 31 (36.5%) consultant therapists rarely or never used such methods of documentation (Fig. 3).

**Association between academic degree and assessment and documentation trends**

In this study, 255 (65.6%) participants completed the BSc degree and 134 (34.4%) completed or were enrolled in graduate courses. There was a significant weak association between the academic degree level

and the performance of routine assessment ( $P=0.013$ ; Cramer's  $V=0.15$ ) as well as the use of assessment tools ( $P=0.002$ ; Cramer's  $V=0.18$ ). Ninety-one percent of the therapists at graduate level always or often did routine patients' assessment compared with 80.4% of therapists who completed only the BSc degree. One hundred and thirty (51%) participants with BSc reported that they rarely or never used assessment tools, whereas only 44 (32.8%) participants reported so in the graduate level category (Fig. 2).

For assessment documentation, there was a non-significant, weak association between the academic degree and documentation ( $P=0.784$ , Cramer's  $V=0.04$  for manual documentation;  $P=0.934$ , Cramer's  $V=0.02$  for electronic documentation). Participants who rarely or never used manual documentation to report patients' physical status included 58 (22.7%) therapists with BSc and 28 (20.9%) at graduate level category. For electronic documentation, that was true in 110 (43.1%) therapists with BSc and 56 (41.8%) therapists at the graduate level (Fig. 3).

#### **Association between physical therapy practice type and assessment and documentation trends**

In this study, 138 (35.5%) participants worked in public hospitals, 131 (33.5%) in private clinics, 46 (12%) in university hospitals, 35 (9%) in educational hospitals, 17 (4.5%) in insurance hospitals, and 22 (5.5%) in other practice types. There were non-significant weak associations between the practice type and the performance of routine assessment ( $P=0.12$ ; Cramer's  $V=0.14$ ) as well as the use of assessment tools ( $P=0.53$ ; Cramer's  $V=0.11$ ). This was also true for documentation, whether manual ( $P=0.65$ ; Cramer's  $V=0.10$ ) or electronic ( $P=0.49$ ; Cramer's  $V=0.11$ ) (Figs. 2 and 3).

## **Discussion**

The primary outcome measure in this study was the association between assessment and documentation in physical therapy practice for musculoskeletal disorders and Egyptian physical therapists' demographics (sex, academic degree, and years of experience) as well as practice type. The majority of the respondents always or often assessed their patients and documented the findings manually, although almost half of them rarely or never used assessment tools or electronic medical records. Interestingly, almost all respondents expressed their willingness to use it if it was available for free.

Examining the patient and keeping medical records are important to significantly reduce malpractice and

litigation risks [6,7]. Furthermore, moving toward evidence-based practice requires overcoming malpractice and ensuring the delivery of high-quality health services. This is specially beneficial to ensure cost-effective management in countries challenged with poverty and a staggering health infrastructure [8]. Fifty-five percent of the therapists who completed this survey used assessment tools. Over the past two decades, western countries were challenged with heterogenic use of standard assessment tools and measures with patients suffering from various musculoskeletal dysfunctions and impairments [9]. For example, the reported use of standard outcome measures in Scotland was 37% [10]. Although many clinicians, mainly therapists, made effort to collect standard data in clinical practice, only 55% actually managed to do it [11]. However, in the current decade, this percentage greatly improved – for example, Swinkels *et al.* [12] reported that more than 70% of their sample used measurement instruments. However, authors were skeptical about this finding and believed that it was an overestimation of the percentage that occurs in real practice. Restricted use of instruments was attributed to the unavailability of tools and selection difficulty [12].

In this study, consultant and senior therapists assessed their patients routinely and used instruments more frequently than did junior therapists. Furthermore, the higher the academic degree the more frequently therapists assessed patients and used standard tools. A therapist's competency is a known barrier for adherence to standard guidelines; thus, it is expected that a therapist's increased knowledge and skill through education or experience would improve their adherence to standard guidelines [12–15].

In this study, the male sex, increased experience level, and higher academic degrees were associated with routine assessment of patients. However, the degree of association was weak. Male therapists were believed to have higher career expectations [16], which may explain their greater adherence to standard guidelines compared with females to achieve better success and satisfaction with their patients. Surprisingly, practice type had no influence on assessment, which emphasizes the effect of therapists' demographics rather than the practice type on the service quality.

Furthermore, the majority of the respondents reported documenting their assessment findings using manual approaches. Almost half of the respondents never used electronic medical records, although they showed

positive attitude regarding their use in the future if they were available for free. No association was found between documentation and participants' demographics and practice type. This could be attributed to the fact that documentation is usually required by regulatory authorities and the management of clinical settings rather than because of personal choices. Effective documentation is the formal communication method of clinicians. It gives formal information regarding the number of sessions received, intervention administered, and patient progression over time. It should be adhered to evaluation and management guidelines [17]. Failure to formally monitor patients was one of the reported causes of malpractice in the developed countries [18,19].

#### Implications for the physiotherapy profession

Improvement of the quality healthcare service delivery requires serious corrective actions to control malpractices that hinder the implementation of evidence-based guidelines. This includes adherence to evidence-based clinical guidelines and the development of patient's databases. Previous studies have reported a few barriers for the use of standardized outcome, which include inadequate time, inconvenience, lack of financial compensation, inadequate familiarity with them, lack of training in various measures, lack of agreement on which measures to use, and lack of access to measures [1,11,13]. Thus, organizing training and interactive educational meetings should be enforced by the commitment of the management and regulating authorities [20]. This could be helped along by offering continuous professional education at a reasonable cost [21–23]. Furthermore, facilitating the use and accessibility to feasible, valid, and reliable outcome measures such as standardized questionnaires should be encouraged [24,25]. An initiative to validate the translation and cross-culture adaptation of popular questionnaires is recommended. Moreover, encouraging the use of cost-effective smartphone assessment tool applications may overcome the barriers associated with using tools for evaluation in clinical practice.

#### Limitations

Although, to authors' knowledge, this was the first study that systematically evaluated clinical practice in Egyptian physical therapy settings, a few limitations exist. First, the questionnaire was administered in the English language, which was the formal language of education and documentation in Egypt. Although linguistic validity was piloted, misunderstanding could have aroused due to poor English of some respondents. Second, the word 'assessment and

documentation' used in this survey could have been understood differently, as it ranges from basic information to complete assessment and documentation. Third, only few demographic characteristics were studied. Other potential factors such as workload and type should be investigated in future research. Finally, therapists in various demographic categories were not stratified equally and may have not represented the normal distribution in the community. Future studies are recommended to address these limitations.

#### Conclusion

The majority of Egyptian physical therapists assess patients informally without using standard tools. Although patients' findings are documented, the use of electronic medical records is rare. Therapists' demographics seem to influence assessment but not documentation, whereas practice type does not have influence on both assessment and documentation. Supporting the accessibility to free medical records may enhance standardized patient's documentation in Egyptian physical therapy settings.

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Nil.

#### Conflicts of interest

There are no conflicts of interest.

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## Appendix

### Appendix I

#### Physical therapy assessment of adult patients with musculoskeletal dysfunction in Egyptian health care organizations

The aim of this survey is to assesses assessment in physical therapy for musculoskeletal dysfunction in Egypt. The gathered information will help us to develop new educational and management approaches to improve the heath care delivery in physical therapy sector. It is expected to take five minutes to complete this survey.

You are not required to identify yourself, however, a few basic demographic information are required for analysis purpose. All information collected by this survey will be kept confidential.

By completing this survey, you acknowledge and accept that your answers may be a part of the data collected, analyzed and used for publication purposes.

We appreciate the time and effort you take to complete this survey!!

\* Age:

\* Sex

\* Nationality

\* Position

- Junior physical therapist (1-3 years)
- Senior physical therapist (4-10 years)
- Consultant (more than 10 years)

\* Do you mainly treat patients with orthopedic dysfunctions?

- Yes
- No

\* Country



\* Governorate or province

\* Graduation year

\* Last academic degree acquired

- BSc
- MSc
- PhD
- DPT entry level
- DPT transitory
- DSc

Other (please specify)

\* year

\* What is the type of your full time main practice?

- University hospital
- Education hospital
- Public hospital
- Insurance
- Private practice
- Other (please specify)

\* What is the average daily number of patients seen at your clinical setting?

- 0-5
- 6-15
- 16-30
- 31-45
- More than 45

\* How long have you been treating adult patients with musculoskeletal disorders?

- 1-5 years
- 5-10 years
- 10-15 years
- More than 15 years

What are the most common clinical cases seen at your clinical setting? (choose all that apply)

- Cervical dysfunction
- Back dysfunction
- Osteoarthritis
- Entrapment neuropathy
- Traumatic fractures or injury
- Overuse syndromes of muscles, ligaments or tendons
- Postoperative cases
- Other (please explain)

\* Do you routinely assess patients prior to treatment?

- Always  Often  Sometimes  Rarely  Never

\* Do you use available assessment tools such as goniometer or measuring tape?

- Always  Often  Sometimes  Rarely  Never

\* Do you use paper-based documentation of patient's assessment?

- Always  Often  Sometimes  Rarely  Never

\* Do you use soft-documentation (Hospital Information System or HIS) for patient's assessment?

- Always  Often  Sometimes  Rarely  Never

\* Would you use soft documentations in future, if available for free?

- Always  Often  Sometimes  Rarely  Never