Original Article

Validity and reliability of General Evaluation Tool for Clinical Training in Rehabilitation disciplines

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Objectives: One of the problems in the process of assessment and evaluation, especially the evaluation of clinical training in rehabilitation disciplines, is the lack of an appropriate instrument for this purpose. Considering the effects of appropriate evaluation on quality assurance of clinical training, the aim of the present study was to design a valid and reliable tool for general evaluation of clinical training in rehabilitation disciplines.

Methods: This study was carried out initially by literature review and then by holding a focus group discussion with the trainers and mentors of rehabilitation clinics whom were recruited by convenient purposive sampling. The main indicators for evaluation of training in these fields were determined. After classification of the indicators, evaluation tool was developed. The face validity and content validity of the tool were determined with the Lawasche's method. The reliability was determined with the test- retest method and Cronbakh's alpha coefficient.

Results: Content analysis of the focus group discussion (FGD) resulted in determining 57 indices which were classified in 5 categories (including: the educator or trainer, the Trainees (students in these disciplines), administration of clinical training, fields of training and evaluation of clinical training). The final tool was adjusted in two separate questionnaires. The correlation coefficient for the questionnaire of the clinical trainers was 0.9, its Cronbakh's alpha coefficient was 0.88 and its content validity coefficient was 0.84. The correlation coefficient for the questionnaire of the students was 0.7, its Cronbakh's alpha was 0.92 and its content validity coefficient was 0.81.

Discussion: The designed tool for the evaluation of clinical training in rehabilitation disciplines indicated acceptable validity and reliability and is appropriate for the assessment of trainings.

Key words: evaluation, clinical training, validity and reliability, rehabilitation

Introduction

The main mission of each uuniversity is to educate and train students to promote and enhance their skills and profession. To achieve this goal, the educational system needs to plan and implement appropriate training programs, especially in medical and rehabilitation fields in which the clinical training is a necessity. In order to have maximum effectiveness, the educational curriculums and programs should be under continued evaluation (1) so that Students could get the best out of these trainings and facilitate their future career. Fields training empowers students to achieve professionalism and is highly essential. In order to facilitate learning activities, Internship or clinical training must take place in an environment in which the instructor and students participate together and based on the needs, measurable

changes in their professional practices could be applied. If the appropriate learning conditions are not provided in the fields of trainings, there would not be a significant development in gaining clinical skills (2). It seems that in most countries, clinical training is an important part of the foundations and principles of medical education. Clinical education has been used as core units in medical curriculums and could have an immense role in student's learning and professional training (3).

Although, most educational systems try to make the best opportunities for students in clinical trainings and facilitate the process of applying theoretical knowledge to practical skills in order to increase patients care, professionals and academic members in these fields believe these training programs are not properly evaluated and applied. One reason can be the knowledge deficit about the

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process of implementation and the means of evaluation. Thus, it is necessary to exchange clinical teaching tips and protocols between universities around the world. Noebel (quoting Fasihi) stated that such clinical education and training are the most neglected areas among other areas of education (4). In Iran, the assessment of clinical training needs more work on. Lack of clear educational goals and standards, lack of appropriate assessment tools and written learning objectives, leads to some difficulties in students learning such as not be achievable, measurable, timetable, and finally impacts the students' clinical knowledge and practice(5). Based on Patton's definition, evaluation is " gathering information about the program's activities, characteristics and outcomes in order to judge the program, improve it's effectiveness and notify the information to make decisions for future planning" (6). When the quality of assessment is proven, we can judge the reliability of results and accuracy of gathered information, and this can be done by using precise tools for evaluation (7). Appropriate assessment tool can lead to profile of the existing curriculum and decision-making for planning, training faculty and improving teaching quality (8). Due to the important role of rehabilitation in the health of population with special needs, addressing the education and training of specialists in different disciplines of rehabilitation is very important (9). Development in any field is not possible without acknowledgement of strengths and weaknesses of the present situation. The developers should try to overcome the weaknesses and maintain or improve the strengths. This is the main part of quality assessment. In order to achieve reliable results for any quality assessment, accuracy of tools (reliability and validity) are required. Considering the effects of appropriate evaluation on quality assurance of clinical education, the aim of the present study was to design a valid and reliable tool for general evaluation of clinical education in rehabilitation disciplines.

Methods
This study was designed to development an instrument. The study was carried out at the University of Social Welfare and Rehabilitation Sciences, in Iran. Different search engine such as: Google scholar database, Elsevier, Irandoc, PubMed, Magiran, SID, were used to collect available articles and other resources for clinical training in different disciplines of rehabilitation in

order to determine the main indicators. During several meetings with 3 faculty members in rehabilitation disciplines, the important and related indicators were determined and the primary list of indicators for assessment of clinical training was provided. FGD was formed to utilize the viewpoint of 17 professors and experienced experts in the fields of physiotherapy, occupational therapy, speech therapy and technical orthopedics from the University of Welfare and Rehabilitation Sciences, and the Rehabilitation School of Tehran University. All of members had at least two years of experiences in their fields. At the meeting, explanation about the purpose and significance of the research and the initial list was presented to them. During the meeting, facilitator arranged the time such a way that all members could participate in the discussion and give their view points. The research partners took notes and the discussions were recorded too. The content of recording was transcribed and analyzed using content analysis. The most important terms were extracted and were written in infinitive form, and then particular code was given to any phrase. Terms of similar and related to content were classified in to special categories and codes were assigned to them. These codes were the indicators of instrument design. To ensure the accuracy of the data, the researcher and three professors attended several sessions and the extracted indicators were examined and modified where necessary. The next phase was sending the edited version back to the participants in the FGD and the accuracy of their comments were confirmed. Each of the indicators was placed in a question and individual who should of answer those questions were determined. Finally, based on who answered the questions, two kinds of questionnaire were designed: A) the assessment of clinical training in rehabilitation disciplines from the trainers or instructor's perspectives. B) the assessment of clinical training in rehabilitation disciplines from the student's perspectives. To determine the face and content validity of the questionnaire, Lawasche's method was used. Also, 14 faculty members who were present in the focus group discussions, helped to determine the validity. Table (1) shows the minimum acceptable content validity of questions based on the number of experts presented. To determine the reliability of the questionnaires, the test - retest with interval of two weeks, and Cronbakh's alpha coefficient were used.

The population of the study for determining the reliability of the questionnaires from the students and mentors viewpoints, included of: 1) Students in semester 6 and higher of orthopedics, occupational therapy, physiotherapy and speech therapy majors, 2) Clinical training instructors from University of Welfare and Rehabilitation Sciences teaching centers and the Faculty of Rehabilitation school of Tehran University of Medical Sciences. To determine the reliability of the questionnaires, 40 students and 16 mentors in clinical centers were participated. The data were analyzed by using statistical software SPSS version19.

Table 1. The least of acceptance CVR based Lawasche's method

The least of acceptance CVR	Number of expert for determination content validity
0.99	5
0.99	6
0.99	7
0.78	8
0.75	9
0.62	10
0.59	11
0.56	12
0.54	13
0.51	14
0.49	15
0.42	20
0.37	25
0.33	30
0.31	35
0.29	40

Results

The findings for the design of assessment tools provided in two parts: part one is related to clinical education assessment indicators based on viewpoints and experiences of experts in process of clinical training, which 57 indicators and 5 categories were determined and are presented in table (2).

Table 2. General assessment of clinical skills in the fields of rehabilitation, the extracted categories based on content analysis of focus group discussion

Category	Indicator
Trainees	compliance with Codes of ethics in clinical training environment
	motivation and interest in learning clinical skills
	Awareness of the importance of clinical training in order to learn the clinical skills
	Applicability of their theoretical knowledge
	Maintenance of facilities in clinical training centers
	discipline in clinical training
	Tribute and appreciate the mentor
	Tribute and appreciate the clients
	Participation in planning and implementation processes of clinical training
	Student preparation of theoretical content and clinical training before entering the field
	Communication skills for clients treatment
	Utilization of existing facilities and equipments in clinical training centers
Educators	Compliance with Codes of ethics clinical training environment
	Attention to the presence and absents of Students
	Scientific mastery or authority of clinical training
	Proportionality in Professionals Skills with Clinical Training
	Applicability of students' theoretical training
	To help students for improve clinical skills
	Notification of Students assignments before the beginning of the period
	Use of students Suggestions to improve the quality of clinical training
	Understanding various ways of treatments in clinical training
	interest and motivation in order to teach clinical skills
	Observing discipline of clinical training
	Provide clinical guidance to students in order to provide specialized services to clients

Category	Indicator
Educators	Strengthen students' autonomy in decision making in providing specialized services to clients Strengthen students' communication skills Observe and control number of sessions for Clinical training Create creativity in clinical training Create Students' interest and motivation in relation to career future Instruction of record documentation for clients Training Clinical trials Proportion to the discipline pass of courses of clinical raining Honor students Tribute mentors
Field of clinical training	Proportion the number of students with treatment facilities of Clinical training Center Proportion the number of students with educational facilities and assistance of Clinical training Center Proportion the number of students with space of clinical training center Proportion the number of clients with a number of student in clinical training centers Variety of clients in Clinical training centers Cooperation of Managers in implementation process of clinical training Proportion the space of clinic with the needs of discipline
Administration of clinical training	Specific program for sessions of clinical training Coordination between University and educational groups for implementation of clinical training Coordination between departments and centers in order to implementation processes of clinical training Specify the duties of mentors in field of clinical training Proportion of course duration of clinical training with goals Proportion of number of students with mentors in clinical training centers Tests to determine the clinical competence of mentors Educational Courses for mentors Proportion of training units with time and clinical training activities Students participation in development of planning and implementation processes by University Students participation in development of planning processes by mentor
Evaluation of clinical training	Monitoring system of clinical teaching Provide feedback for evaluation results to the students after passing the course Diagnostic evaluation of students in clinical centers Formative evaluation of students in clinical centers Summative evaluation of students in clinical centers

Part two, the data from the statistical analysis determined the face and content validity and reliability of the questionnaires which are presented in table (3).

Table 3. Validity and Reliability of the questionnaires

Questionnaires	validity CVR of the questionnaire	Pearson's coefficient	Reliability Cronbakh's alpha coefficient	p-value
Assessment of clinical education situation in rehabilitation disciplines from mentors viewpoint	0.84	0.90	0.88	0.000
Assessment of clinical education situation in rehabilitation disciplines from students viewpoint	0.81	0.70	0.92	0.000

Discussion

As the studies and researches have been mentioned, in the field of evaluation the most important factors to conduct an appropriate assessment is an effective instrument that can precisely measure the desired goals.This study was conducted to improve the quality of clinical training by design an assessment tool for rehabilitation disciplines. Experts in the rehabilitation areas pointed out important domains as Trainees, ffield of clinical training, administration of clinical training, evaluation of clinical training. Results of other studies have added scopes such as mentor, goals and educational planning, environment, student, monitoring and evaluation in the design of the questionnaire in order to assess clinical training (10,11). In this study the objectives and educational planning as a more comprehensive part were integrated in to administration of clinical training domain. One of the most important steps in developing a tool is achieving its validity and reliability. In this study, the face validity and content validity was conducted by the Lawasche's

method (12-14), and the professors of rehabilitation disciplines. Thus for the calculating validity of each of the questions, the questions that did not acquired the minimum acceptable validity coefficient based on Table 1 were deleted and other questions were stayed in the questionnaires. Another important step in the process of tool development was to obtain reliability. Burns explains, reliability coefficient of one shows perfect reliability and zero shows unreliability. He stated that the coefficient 0.70 is used to indicate the reliability of an instrument (15). According to the correlation coefficients of designed questionnaires which were higher than 0.70, the tools acquired the appropriate reliability. The main aim of the study was designing and evaluating a tool based on the recognition of clinical training in rehabilitation disciplines and consequently provides feedback and modifying programs, the purpose that had not been considered so far in rehabilitation disciplines.

Instrument designed for this study was based on literature review, the perspectives and experiences of the mentors, experts of clinical training and students which the outcome were two questionnaires (perspectives of students and mentors) that could evaluate clinical training in rehabilitation disciplines. Students and mentors are the major customers in clinical training process, and the first step in improving the quality of these kinds of courses is to understand the views of customers. In fact, in the process of education, teaching and learning are interdependent. Although the teaching is based on teacher activities, but the results are learner-directed (16). Therefore, good assessment needs the students and instructors perspectives.

Conclusion
Due to the design of a tools, the indicators have obtained based on the perspectives of experts of clinical training, the criteria is behavioral. The findings also are confirmed the validity and reliability of the instrument that all indicates its suitability for applied in the evaluation of clinical training in rehabilitation disciplines. Further researches of these kinds of assessments are recommended in order to be more applicable in different clinical environments and occupations. Also reassessment of validity and reliability would be useful using other psychometric methods in future studies.

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