Design an Instrument for the Educational Evaluation of Faculty Members of Dentistry Faculty

1. **Parisa Falsafi**, Department of Oral Medicine, Tabriz University of Medical Science, Tabriz, Iran.

2. **kazem khodadoust**, Ph.D History of Medicine, Department of History of Medical Sciences Philosophy and History of Medicine Research Center, Tabriz University of Medical Science, Tabriz, Iran.

3*.**Negin Ghasemi**, Department of Endodontics, Tabriz University of Medical Science, Tabriz, Iran.

4. **Mohammad Ali Ghavimi**, Department of Oral and maxillofacial surgery, Tabriz University of Medical Science, Tabriz, Iran.

5. **Arezoo Ghoreishizadeh**, Department of Paediatric Dentistry, Faculty of Dentistry, Tabriz University of Medical Sciences, Tabriz, Iran.

6. **Morteza Ghojazadeh**, Research Development & Coordination Center, Tabriz University of Medical Sciences, Tabriz, Iran

*Corresponding author: Negin Ghasemi

1. Abstract:

***Aim:** Evaluating the educational performance of faculty members in higher education is a basic element in planning to improve education. The aim of this study is to design an instrument for the educational evaluation of faculty members of dentistry faculty.*

***Materials and Methods**: Having reviewed the literature and held panel discussions, first a preliminary list of 33 important evaluation questions was prepared and the content and face validity were used to check the validity and Cronbach's alpha coefficients and Pearson correlation coefficient were used to assess the reliability of the test. The votes of members of the group that were assigned to essential options were quantified through the Content Validity Ratio (CVR). The acceptance or rejection of the questions was based on the CVR and that if the CVR is equal to or greater than 0.75, the question would be accepted unconditionally. Data analysis was done using the software 17 SPSS.*

***Results**: Eight questions were deleted or revised, finally the mean CVI of the present study obtained 74% and its CVR equivalent to 84%. It indicates the high validity of the questionnaire. Reliability of the designed instrument was confirmed by internal reliability and assessors' validity methods.*

***Conclusion:** To assess and evaluate the performance of faculty members a reliable instrument must be used. The questionnaire designed in this study is a useful instrument to achieve this goal.*

Keywords: Design and Evaluation, Validity and Reliability, Educational Performance, Dentistry

2. Introduction

Higher education system is as a dynamic, complex and targeted system which has two qualitative and quantitative dimensions. The growth of such system requires the parallel development of both dimensions and that the assessment of which needs detailed process of evaluation (1). Evaluation is the most essential part of any program and one of the most difficult and important aspects of human resource management, that some call it as a vulnerable spot of management. Because only through which we can find and remove the shortcomings of a program.Not only an effective evaluation plays an important role in screening students, but also it increases students' motivation and helps the teacher to assess his activities and there by the students' learning and ultimately achievement of educational goals can be measured (2-3).In addition to students' evaluation done by professors, the evaluation of teaching process should also be emphasized in educational institutions, because training competent and expert manpower depends on this process to a large degree (4-5).Customer satisfaction is a key to success and that in medical education, customers include students studying in there, therefore, their satisfaction with this system and their involve mentin various fields of evaluating the quality and quantity of education that faculty members are one of them, may improve the educational system.

Investigating the comments of people involved in education such as students, will raise the credit of educational performance of professors and will help authorities in achieving the evaluation objectives that are to improve education quality(6). Students as recipients of educational services are the best source to identify the clinical training problems, because they have an immediate and direct presence in this process (7-8).

Students can be consulted on the quality of clinical education and have their experiences used to identify and determine the gap between what is happening in the clinical setting and what is expected by the stakeholders (9). Since there is no right instrument with adequate reliability and validity to evaluate the performance of faculty members of the dentistry faculty in students' perspective, thus this study is designed with the aim of designing such instrument.

3. Materials and Methods

In this descriptive – analytical study, after designing the questionnaire, content and face validity were used to evaluate validity and Cronbach's alpha coefficient and Pearson correlation were used to evaluate reliability. Having reviewed the relevant literature a preliminary list of evaluation criteria of faculty members was prepared. Because of the long list of criteria and their large number it was necessary to shorten the list which was later determined in an appropriate level(atotalof33 items) by forming a panel of experts and Delphi methods. After doing the necessary reviews by a statistician, their content validity was evaluated by 12 experienced teachers and experts and was again referred to the related statistician to analyze the responses given. To determine content validity index and introducing the final questionnaire, the Content Validity Index which is shown briefly as CVI is the mean of CVR remaining items in the model, test, or validated instrument. CVI represents the comprehensiveness of the judgments related to the validity or applicability of the model, test or the ultimate instrument. The higher the ultimate content validity, the closer the CVI value towards 0.99. The reverse is also true. The proposed methods of Chadwick et al and Laws he were used in order to determine the content validity (10-11).The internal reliability assessment and reliability of assessors' method were used to evaluate the reliability of the instrument.

Data analysis was done using software 17 SPSS. The votes of members of the group that were assigned to essential options were quantified through the Content Validity Ratio (CVR). The acceptance or rejection of the questions was based on the CVR and that if the CVR is equal to or greater than 0.75, the question would be accepted unconditionally. In this study P value was less than 0.5 which is considered statistically significant.

4. Results

After collecting the questionnaires of the assigned group member and inserting the data into the Excel software, the mean CVI of the present study obtained 74% and its CVR equivalent to 84%, 8 questions out of 33 ones in the questionnaire were deleted and/or revised in terms of writing method. If these parameters are modified, then CVI and CVR will certainly increase dramatically.

5. Discussion

One of the most important factors on conduction of an appropriate evaluation is an efficient instrument that can measure the desired targets. Among issues related to clinical training, both theoretical content and clinical principles should be taught efficiently (12-13). In this process (clinical training) students gradually gain experiences with the presence of the patient and prepare their mind using logical thinking and experiences to solve the problems of the patients. At this stage of education, lessons learned are put into practice, the skills are taught (14-15).

Clinical discussion at Medical Education Center accounts for the largest share or the most important part, and the real meaning of clinical teaching i.e. laying the groundwork to close and align the basic scientific information of the student, doing skills, along with the diagnosis, treatment of the patients and gaining a variety of professional skills (16).

Clinical environments have variable and unpredictable features which have inevitably affected the education of students and highlight the important role of the clinical teacher, so that some commentators consider clinical education as more important than theory teaching (17-18). And since the goal of clinical education is to create necessary opportunities so that students be able to close theoretical information to scientific fact(19), thus improving the quality of such issue can educate competent and qualified students in the clinical field. Clinical environment is an ideal environment for teaching and learning (20-21) and the complex process of learning in clinical environments depends largely on the learner's experience in clinic(22). On the one hand, if the educational objectives are proportionate to students' needs and according to the views of instructors and adaptation of qualitative strategies along with educational evaluation with an emphasis on the understanding of student self-efficacy, then it can lead to qualitative improvement of the educational process and in accordance with the evaluation requirements in educational planning, where Bazargan refers to in a study. Educators can by identifying an effective learning environment consider the viewpoints of clinical student and teacher and there by enrich clinical experience (23). In fact, in the process of education, teaching and learning are interdependent. Although the teaching is teacher's activity, the result is the learning that focuses on learner. Therefore, the efficacy must be investigated in both views i.e. student and teacher, so that a better education is achieved by bringing ideas together(24). Although there are many educational materials regarding efficient teaching in the classroom, it seems there is a limited number of these studies focus on the efficiency of clinical teaching. In evaluating teacher performance different aspects should be considered including teacher's behavior with students and colleagues, mastery on theoretical teaching, practical teaching ability and methods of student assessment. In this study, by employing the past studies and expert opinions, we have tried to identify various aspects of performance evaluation of faculty members of dentistry faculty, based on which the questionnaire items as evaluation instruments are designed. In designing a validated questionnaire, it is very important to investigate validity and reliability.

Various methods are used to determine the validity of the instrument, these methods include face validity, content validity, concurrent validity, predictive validity and construct validity. These methods, each are used with specific objectives. Face validity is used to assess physical appearance of the instrument, content validity to content correspondence of the instrument, concurrent validity when a standard questionnaire is available, predictive validity to predict a future phenomenon, and construct validity for structural adjustment of the instrument with the previous theories (24).

Usually in developing a questionnaire, initially for surface correspondence and determining the content scope of the questionnaires the content and face validity are used. Since the purpose of this study, is designing a specific questionnaire for professors' evaluation in viewpoint of the students, thus content and face validity were used.

Chadwick et al. suggest that the content validity method is used when a means of exchanging information which contains relatively clear and inferential messages is introduced and explained in an applied way. Laws

he also believes that judgment requires a high insight and level of abstraction and when inference scope of a message is extensive, researchers should quantitatively use face validity. Laws he developed a model to determine validity, so that questionnaires become available to panel group which helps panel members so that accurate judgment of the panel members based on necessary instrument components (model or questionnaire) is provided and they were asked to comment on each option in the judgment scale that was set. The responses of members were codified in different aspects of simple, necessity, being clear and relevant and importance. Lin believes that the number of experts needed to judge the content is completely optional instrument but at least 5 people and at most 10 people must comment in this regard.

Given that the mean CVI of the present study is 74% and its equivalent CVRis84%and due to the removal or revision, some questions indicated the acceptability of the obtained indicators from the instrument validity and all were a prove of usability of the question nairetoassess and evaluate the Faculty members of Dentistry faculty. Another measure that was used in study to increase the validity we can name employment of instrumentation experts in medicine and dentistry. In this study one of the most reliable methods of content validity namely calculating the CVR and CVI was used. In a recent study in order to determine the reliability of the designed instrument, the internal reliability and repeatability of the instrument was done in campus and by students. A second measurement of reliability and removing any possible limitations would be useful in further   studies.

6. Conclusion

To measure and evaluate the performance of faculty members we must use a reliable instrument that accurately and reliably reflects the knowledge of performance of faculty members and that according to the results of this study, the obtained questionnaire is an effective instrument to achieve this goal.

7. References:

1. Gerzina TM, McLean T, Fairley J. (2005). Dental clinical teaching: perceptions of students and teachers. *J Dent Ed*, 69, 1377–84.
2. Boyer EL.(1900). The carnegie foundation for the advancement of teaching In: scholarship reconsidered: priorities of the professoriate. First edition , 124-5.
3. Mohammadi A, Vakili M.(2010). Measuring students' satisfaction of educational services quality and relationship with services quality in Zanjan University of medical sciences. *EDCJ*, 2 (3) ,48-59.
4. Irby DM. (1995). Teaching and learning in ambulatory care settings: a thematic review of the literature. *Acad Med*, 70, 898–931.
5. Finn K, Chiappa V, Puig A, Hunt DP. (2011) How to become a better clinical teacher: a collaborative peer observation process. *Med Teach*, 33, 151–5.
6. Wartman S. (2001). Curricular change: recommendations from a national prespective, 254-7.
7. Zaykhami -Zadeh M, Jahan-MerySh, Ghods Bin F.(2003). Problems of clinical education from the viewpoints of nursing students. J GhazwinUni Med Sci, 8(30), 51-5.

8. Hughes O, Wade B,Peters M. (1991). The effects of a synthesis of nursing practice course on senior nursing students' self-concept and role perception. *J Nurs Educ*, 30(2), 69-72.

9. Valizadeh S, Abedi H, Zamanzadeh V, Fathiazar E. (2008). Challenges of Nursing Students during their Study: A Qualitative Study. *Iranian J of Med Edu* , 7(2), 397-406.

10. Arghami Sh, et al. Examining the reliability and validity of safety culture questionnaire. Iran Occupational Health 1389. [Persian].

11. Lawshe CH. A quantitative approach to content validity. Personnel Psychology, 1975, 28, 563-575.Irby DM, Papadakis M. (2001). Does good clinical teaching really make a difference? *Am J Med*, 110,231-2.Dr.qo

12. Beitz JM, Wieland D. (2005). Analyzing the teaching effectiveness of clinical nursing faculty of full- and part-time generic BSN, LPN-BSN, and RN-BSN nursing students. *J Prof Nurs*, 21, 32–45.

13. Ahmadinejad Z, Ziaei V, Moravveji A. (2002). Study satisfaction interns of Tehran University of Medical Sciences of quality clinical education using standard forms of measurement of job satisfaction. *J Med Educ*, 4(8), 5-8.

14. Dunn SV,Burnett P. (1995). The development of a clinical learning environment scale. *J Adv Nurs*, 22(6), 1166-73.

15. Cox KR, Ewan CE. (1988). The medical teacher. 1st ed, London: Churchhill Livingstone, 110-4.

16. Atack L, Comacu M, Kenny R, Labella N, Miller D.(2000). Student and staff relationships in a clinical practicemodel: Impact on learning. *J NursEduc*, 39(9), 387-92.

17. Lucas J, Wilson- Witherspoon P, Baxley EG. (2002). Walking the balance BEAM: the art and science of becoming a successful clinical teacher. *Fam Med*, 34(7),498-9.

18. Lowenstein AJ, Bradshaw MJ. (2001). Fuszard's Innovative Teaching Strategies in Nursing. 3rd ed, Maryland: An aspen Publication, 168-73.

19. Viverais-Dresler G,Kutschke M. (2001). RN students' ratings and opinions related to the importance of certain clinical teacher behaviors. *J Contin Educ Nurs*, 32(6), 274-82.

20. Conley V. (1973). Curriculum and Instruction in Nursing. 1st ed, Boston: Litlle Brown and Company, 23-31

21. Khorsandi M, Khosravey Sh. (2001). Clinical education from the viewpoints of nursing and midwifery students of Arak University. *J RahawardDanesh*, 5 (1), 29-32.

22. Midgley K. (2006). Pre-registration student nurses perception of the hospital-learning environment during clinical placements. *Nurse Educ Today*, 26(4), 338-45.

23. Schonwetter DJ, Lavigne S, Mazurat R, Nazarko O. (2006). Students'perceptions of effective classroom and clinical teaching in dental and dental hygiene education. *J Dent Ed*, 70, 624–35.

24. Holsti OR. Content analysis for the social sciences and humanities. Reading, MA: Addison Wesley Publishing Company, 1969.