

Development of a Clinical Evaluation Tool (CET) for Evaluating Practical skills of Baccalaureate Nursing students: A Methodological Study

Anu Bhagat¹, Prabhjot Saini², Monika Sharma³

Abstract

Clinical evaluation involves observing performance and judging student's competence in clinical settings. Clinical evaluation is the difficult task and a challenge for nursing professionals. Studies related to development of clinical evaluation tool are very limited. Therefore, to evaluate practicum skills of nursing students, the present study was undertaken to develop clinical evaluation tool (CET). It was a methodological study involving Delphi technique in 3 phases; 11 panellists were selected from the field of Nursing Administration. From the pool of items, a preliminary draft of CET was prepared. The draft was given to panellists to evaluate content and face validity in 3 Delphi rounds. The content validity ratio (CVR) of items in preliminary draft was calculated. The mean I-CVI score of CET after Delphi rounds were increased from 0.89 to 1, S-CVI/Avg increased from 0.9 to 1, and S-CVI /UA was improved from 0.77 to 1. Reliability was calculated by inter rater method ($r=0.82$) and by Cronbach's alpha ($r=0.93$). Usability of CET was checked by taking opinion of five observers on the basis an opinionnaire. The findings reveal that CET is very effective in evaluating the clinical skills of baccalaureate nursing students during their practicum.

Evaluation is a complex but integral component of a nursing education. Evaluation of students of any learning discipline during practical experiences is challenging. Clinical evaluation is one of the difficult challenges for nursing and other health professions. Clinical evaluation involves observing performance and judging student's competence in clinical settings. To evaluate nursing students no such tool has been designed which may assess all aspects of clinical skills. Studies related to development of clinical evaluation tool are very limited. Therefore, to evaluate practicum skills of nursing students, the present study was undertaken to develop CET for evaluating the practicum skills of baccalaureate nursing students.

Objectives

The objective of this study was to develop a valid, reliable and usable clinical evaluation tool (CET) for evaluating the practicum of baccalaureate nursing students.

Literature Review

As this was a methodological study, various studies were reviewed extensively but similar clinical

evaluation tool was not formulated in previous studies. Saied et al (2016) conducted a study on Clinical Evaluation of Baccalaureate Nursing Students Using SBAR Format. This study supports the use of SBAR tool and self-evaluation along with faculty evaluation to facilitate clinical learning of undergraduate nursing students. Patil et al (2015) conducted a study on objective structured practical examination (OSPE) - an assessment tool for the evaluation of teaching and learning. The study concluded that OSPE is effective tool for the assessment of deep learning i.e. understanding and interpretation. Kaushal et al (2015) conducted a study on developing a nursing checklist on receiving a patient in ICUs at PGI, Chandigarh. Using methodological study design, Delphi technique was carried out in 5 phases. Final draft of checklist contains 105 items. The study concluded that the checklist is valid and reliable tool for receiving patient in ICU bed.

Methodology

A multistage developmental study was conducted in 2018 involving Delphi technique. The study was conducted in 3 phases; 11 panellists were selected from field of Nursing Administration. From pool of items, a preliminary draft of CET was prepared including broad category items: Nursing Care Plan, Procedure, OSCE/OSPE, Viva-voce, and Personality & Behaviour. The draft was given to panellists

The authors are: 1. Nursing Tutor, 2. Professor & Head, Department of Medical Surgical Nursing, 3. Associate Professor in College of Nursing, Dayanand Medical College & Hospital, Ludhiana (Punjab).

Table 1: Comparison of content validity index of CET in Delphi Round 1, 2 & 3

Measures of CVI	Delphi round 1	Delphi round 2	Delphi round 3
Mean I-CVI	0.89	0.93	1
S-CVI/Avg	0.99	0.90	1
S-CVI/UA	0.77	0.73	1

to evaluate content and face validity of CET by conducting 3 Delphi rounds. In content validity, confidence was maintained in selecting the most important and correct items from the pool of items in preparation of preliminary draft, which was quantified by content validity ratio (CVR). Three-point scales was used to select essential items from pool of items which was quantified by CVR. The experts scored each item from 1 to 3 with a three-degree range of “essential, useful but not essential, not essential” respectively. Then the CVI was calculated of each item in the 3 Delphi rounds on the four-point relevance scale which was given to experts where they have chosen one response on relevance scale to assess the CVI for each item. A Lawshe’s criterion (Lawshe,1975) was used for items which were to be remained, modified and eliminated from the CET. Reliability was assessed using inter rater and internal consistency method of reliability. Usability of the CET was checked by taking opinion of 5 observers on the basis an opinionnaire of 7 evaluatory parameters.

Results

Development of Preliminary draft of CET

The findings reveal that content validity ratio (CVR) of items in preliminary draft was calculated. Critical value of CVR according to 11 panellists

was 0.59. Only one item was having CVR value < 0.59 so the item was eliminated and rest of the items were having CVR value > 0.59 so the items remained.

The Likert scale used for content validity ratio (CVR) of clinical evaluation tool had 46 items: (1) Assessment of the patient (2) History taking (3) Physical examination (4) Investigations (5) Medications (6) Enlisting significant findings (7) Nursing diagnosis (8) Development of short-term & Long term goals (9) Prioritization & Planning (10) Implementation (11) Evaluation of the care plan & re-planning (12) Health education (13) Assessment of patient needs (14) Preparation of patient (15) Preparation of articles (16) Preparation of environment (17) Communication with patient (18) Steps and accurate technique of procedure (19) Practice standard precautions as per procedure (20) Termination & after care (21) Documentation (22) Health education (23) Bedside viva (24) Spot examination (25) Instrument identification (26) Indications or uses (27) Its setting or handling (28) Drugs & fluids and their action (29) Indication & contraindications (30) Dosage & rate calculations (31) Major nursing considerations (32) Critical thinking in case scenario (33) Analysis & interpretations of diagnostic tests or lab values (34) Skill assessment at skill station (35) Knowledge regarding subject assessment: Health education (36) Pharmacology/Drugs (37) Pathophysiology (38) Case scenario (39) Need-based management (40) Personality/appearance (41) Confidence (42) Uniform (43) Punctuality (44) Verbal presentation (45) IPR (46) Log file / Criteria file

Content Validity Index

The content validity of CET was required to undergo 3 rounds of Delphi technique. The content

validity index was calculated on basis of I-CVI (content validity of each item) and S-CVI (content validity of scale). The mean I-CVI score of clinical evaluation tool after Delphi rounds were increased from 0.89 to 1, S-CVI/Avg increased from 0.9 to 1, and S-CVI/UA was improved from 0.77 to 1, as shown in Table 1.

Reliability and Usability of Clinical Evaluation Tool

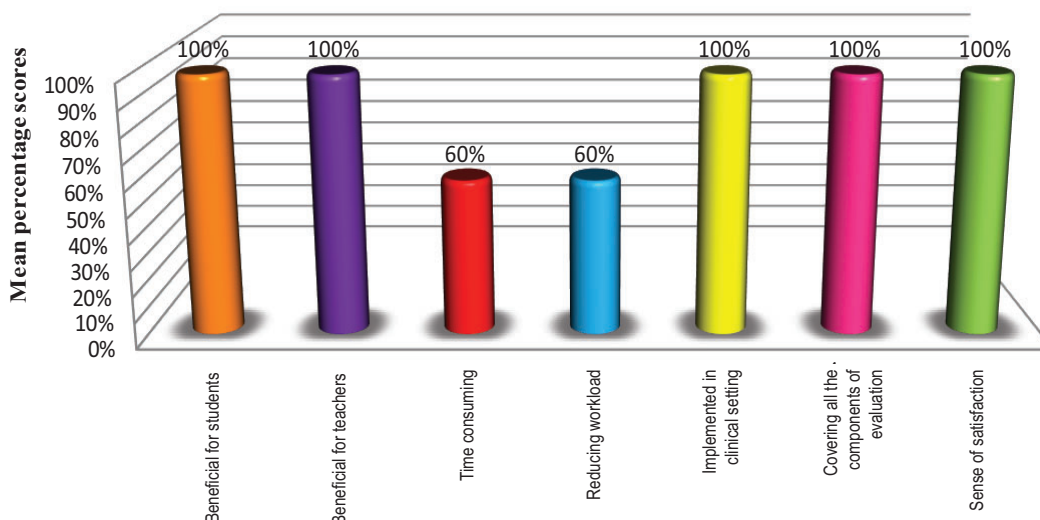


Figure 1: Percentage distribution regarding usability of clinical evaluation tool.

Reliability was calculated by inter rater which was calculated ($r=0.82$) and also by internal consistency, using Cronbach's alpha ($r=0.93$), which indicated that the items were having relatively high consistency. Usability of CET revealed that it is beneficial for students, beneficial for teachers, easily implemented in clinical settings and covers all the components of evaluation giving sense of satisfaction to the teachers as it involves all the components Nursing Care Plan, Procedure, OSCE/OSPE, Viva-voce, and Personality & Behaviour (Fig 1).

Discussion

Findings of this study were supported by the study "Relationships between student peer and faculty evaluations of clinical performance" by Han et al (2013). A peer evaluation tool was developed with a 5-point Likert scale consisting of 21 items that comprised five domains of clinical performance. The findings related to content validity ratio were supported by Zamanzadeh et al (2015), in which a preliminary instrument was made by 188 items. This preliminary instrument was given to 15 experts for judgement. After the first round of judgement, 108 items out of 188 instrument items were eliminated. Eliminated items had content validity ratio lower than 0.49. Carlos & Soriano (2011) supported these results and showed that CVI total for wound healing index of chronic wound was 0.98, and S-CVI/Avg was 0.86. Modified Delphi technique was used for validation procedure. Another study by Kaur et al (2012) documented the inter-rater reliability by computing Cohen's Kappa coefficient ($k=0.94$) for checklist on nursing management of patients undergoing electroconvulsive therapy. The tool developed was found reliable.

Implications

The findings of this study can be utilized in all the domains of nursing i.e. nursing research, nursing education and nursing administration. The final version of clinical evaluation tool can be used for evaluating the practicum of baccalaureate nursing students in the clinical settings. It helps to train the nursing students on the basis of components of the CET and also on the basis of three domains i.e. Cognitive, Psychomotor and Affective.

Recommendations

- The developed Clinical Evaluation Tool is beneficial to students as well as teachers, as it covers all the components of clinical evaluation. As such it can be used for evaluating the practicum skills of baccalaureate nursing students in all speciality areas.

- Administrators should make sure that clinical evaluation tool is to be used during the practical to evaluate the practical skills of baccalaureate nursing students.
- An experimental study can be conducted to assess the effectiveness of developed clinical evaluation tool.
- The study can be replicated on large sample to test the utility, so to generalise its findings.

Conclusion

Clinical evaluation tool has an appropriate level of validity and is highly reliable to use. It is very effective in evaluating the clinical skills of baccalaureate nursing students during their practicum.

References

1. Kavya R. The concept of clinical evaluation. [Accessed on 4th April 2017]. Available from: http://www.scribd.com/Kavya_Raju/document/96305396/OSPE
2. Saied H, James J, Singh EJ, Humaid L Al. A study on clinical evaluation of baccalaureate nursing students using SBAR format: Faculty versus self evaluation. *Journal of Education and Practice* 2016; 7(11): 9-13
3. Patil NJ, Saini N. Objective structured practical examination - An assessment tool for the evaluation of teaching and learning. *International Journal of Recent Scientific Research* 2015; 6 (3); 2944-46
4. Kaushal RK, Kapoor S, Kaur S. Developing a nursing checklist for receiving patients in ICUs. *Nursing & Midwifery Res Journal* 2015; 11: 1-11
5. Lawshe CH. Quantitative approach to content validity. *Personal Psychology*. 1975; 28: 568. Available from: <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1744-6570.1975.tb01393.x>
6. Han Y, James DH, McLain RM. A study on relationships between student peer and faculty evaluations of clinical performance. *Journal of Nursing Education and Practice* 2013; 3(8): 170-78
7. Zamanzadeh V, Ghahramanian A, Rassouli M, Abbaszadeh A, Akui-Majd H, Nikanjar AR, et al. A study to examine the content validity of the patient centered communication instrument. *J Caring Sci* 2015; 4(2): 165-78
8. Carlos J, Soriano JV. Development of wound healing index for chronic wounds. *EWMA Journal* 2012; 12: 1-2
9. Kaur J, Sharma S, Avasthi. Development of checklist on nursing management of patients undergoing electroconvulsive therapy. *Nursing & Midwifery Research Journal* 2012; 8(4): 235-46