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Adaptation and validation of the clinical supervision self-assessment tool among registered nurses

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Abstract

Background: Clinical supervision of pre-registration nursing students has become an integral role of the registered nurse. The Clinical Supervision Self-assessment Tool relating to knowledge (CSAT-Knowledge) and the individual's skills (CSAT-Skills) of clinical supervision and comprising of 30 items each originally is widely used for nurses in Australia. However, the psychometric properties of this tool have not been previously reported.

Objective: To adapt the Clinical Supervision Self-Assessment Tool for nurses and to investigate the psychometric properties of the modified tool to measure registered nurses' knowledge and skills regarding supervising pre-registration nursing students.

Design: Instrument adaptation and psychometric testing.

*Participants/Setting*s: A convenience sample of 229 registered nurses in a tertiary teaching hospital in Australia.

Method: A two-phase prospective study was conducted. Phase 1 involved the modification of the Clinical supervision Self-Assessment Tool, content validity and pilot testing of the modified version. Phase 2 included the psychometric testing of the modified Clinical Supervision Self-Assessment Tool (mCSAT-Knowledge; mCSAT-Skills).

Results: The mCSAT-Knowledge and mCSAT-Skills comprised of 30 items each. The content validity of the mCSAT was considered satisfactory based on the feedback from the expert panel. Results of the exploratory factor analysis supported a three-factor structure identified as: evaluating clinical learning; facilitating clinical learning and problem solving. The internal consistency was high with a Cronbach's alpha values >0.90. The construct validity was supported as nurses who had undertaken clinical supervision training demonstrated significantly higher clinical supervision knowledge and skills scores than those had no training.

Conclusions: The findings provide empirical support for the modified Clinical Supervision Self-Assessment Tool as a valid measure of registered nurses' knowledge and skills regarding the clinical supervision of pre-registration nursing students. The tool requires further psychometric testing in different samples of nurses to enable validation in other settings.

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ADAPTATION AND VALIDATION OF THE CLINICAL SUPERVISION SELF-ASSESSMENT TOOL AMONG REGISTERED NURSES

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ABSTRACT

Background: Clinical supervision of pre-registration nursing students has become an integral role of the registered nurse. The Clinical Supervision Self-assessment Tool relating to knowledge (CSAT – Knowledge) and the individual's skills (CSAT-Skills) of clinical supervision and comprising of 30 items each originally is widely used for nurses in Australia. However, the psychometric properties of this tool has not been previously reported.
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The construct validity was supported as nurses who had undertaken clinical supervision training demonstrated significantly higher clinical supervision knowledge and skills scores than those had no training.
Conclusions: The findings provide empirical support for the modified Clinical Supervision Self-Assessment Tool as a valid measure of registered nurses' knowledge and skills regarding the clinical supervision of pre-registration nursing students. The tool requires further psychometric testing in different samples of nurses to enable validation in other settings.

Keywords: Instrument adaptation, Factor analysis, Clinical supervision, Knowledge, Skills, Nursing students

INTRODUCTION

Clinical placement also termed as workplace experience is an essential component for pre-registration nursing students in their programme of study (Birks et al., 2017; Brynildsen et al., 2014; Levett-Jones et al., 2015). These clinical placements generally occur within the acute hospital setting (Taylor et al., 2017) although other new clinical placement opportunities for nursing students in non-acute settings have been explored (Patterson et al., 2016). Effective supervision during clinical placements is essential to ensure that pre-registration nursing students can provide safe and competent care when they enter the workforce.

Clinical supervisors take a leading role in supervising and assessing students during the clinical placement, however a significant part of the role of teaching and supporting nursing students falls on the nurses who works with them at the bedside (Omansky, 2010). It is widely assumed that nurses working at the bedside have the requisite knowledge and skills for effective clinical supervision (Chuan and Barnett, 2012). Nonetheless, several challenges and barriers to effective clinical supervision by these nurses have been reported in the literature. These include role ambiguity due to a lack of understanding of the requirements for supervising nursing students in practice (Croxon and Maginnis, 2009); managing competing demands in busy clinical settings (O'Brien et al., 2014) and inadequate preparation for clinical supervision (Mather et al., 2015).

Internationally, pre-registration nursing are required to complete a stipulated number of hours of clinical placements under appropriate supervision. However the number of hours varies between countries. For European countries, a direction by the European Parliament (2013) requires that clinical practice to be at least 50 % of the total duration of the undergraduate nursing in order to get initial registration as a nurse. In Australia, nursing students must

complete at least 800 hours of clinical placements under supervision to be eligible to register to practice as registered nurses (Australian Nursing & Midwifery Accreditation Council, 2012). The Australian Nursing and Midwifery Accreditation Council (ANMAC), which is the regulatory body for nursing and midwives stipulates that clinical supervisors for pre-registration nursing students should be a registered nurse with a post graduate qualification (Australian Nursing & Midwifery Accreditation Council, 2012). However, in clinical practice a substantial number of the nurses who work at the bedside and supervise pre-registration nursing students do not meet this requirement (Health Workforce Australia (HWA), 2011; Mather et al., 2015).

Efforts to establish nurses' knowledge and skills required for clinical supervision have led to the adoption of the Clinical Supervision Self-assessment Tool (CSAT). The CSAT was originally developed for allied health professionals, however it has been adapted and is widely used for nurses in Australia. The CSAT is based on the core clinical supervision competencies outlined in the national clinical supervision competency resource developed by Health Workforce Australia (2014). It consists of two components of 30 items each relating to knowledge of clinical supervision (CSAT – knowledge) and the individual's skills (CSAT-skills) to perform the tasks of clinical supervision. Each component comprises of 30 items are categorised into six domains namely: 'prepare and plan' (three items), 'facilitate learning' (12 items), 'problem solve' (four items), 'communication' (four items), 'safety and quality in clinical supervision' (three items), and 'organisation' (four items). There is however no evidence in the literature of how the CSAT was developed and the six domain identified. Examining the structure and construct validity of instruments is considered critical particularly when instruments are modified, adapted or used in a different population from which it was originally developed for (Brown, 2014). In addition, the validity and reliability

of the instrument has not been previously reported. The use of measurement instruments that have been not been psychometrically tested for reliability, validity limits the translation of findings into practice and policy (Lapkin and Stephenson, 2017). Determining the validity of the CSAT for nurses would allow the adaptation and use of this instrument for assessing nurses' knowledge and skills regarding clinical supervision of pre-registration nursing students. Therefore, the aim of this study was to adapt and validate the CSAT when used to measure registered nurses' knowledge and skills regarding supervising pre-registration nursing students.

METHODS

Overview of Study design

The study was conducted in two phases. In the first phase, the two components of the CSAT (CSAT – knowledge and CSAT- skills) were modified for use with Registered Nurses (RNs). Content validity was then established by a panel of experts and the modified version called the mCSAT (mCSAT – knowledge and mCSAT- skills) was pilot tested. For the second phase, the underlying structure of the mCSAT was explored and validated using data from a convenience sample of RNs.

Phase I: Instrument Modification, Content validity and Pilot Testing

The original CSAT had forced binary responses options (Yes/No) and these have been shown to be less reliable as they decrease validity and affect the component structure of the measurement instruments. Evidence from studies that have investigated scale formats indicate that a wider range of respondent options increase validity and discriminating power as they accurately capture respondent opinions (Hancock and Klockars, 1991). Conversely, fewer number of response options may increase central tendency error and influence the level

of response bias. Hence modifications were made to include wider range of response options for the mCSAT.

Content validity refers to the comprehensiveness and extent to which items included in a measurement instrument represents all the facets of a given theoretical construct (Zamanzadeh et al., 2015). Consultation with a panel of experts was undertaken to assess the content validity of the mCSAT (Crookes and Davies 1998; DePoy and Gitlin, 2011). The members of the panel of experts included four nurse educators with extensive experience in supervising nursing students during clinical placements and two academics with expertise in nursing education and questionnaire development. The members were asked to indicate whether each item was relevant to the knowledge and skills relating to clinical supervision among nurses and to make relevant modifications were required. The mCSAT was then pilot tested with a sample of 20 nurses at the local hospital in February 2016.

Phase II: Validation of the mCSAT (mCSAT – knowledge and mCSAT- skills)

Design

A prospective cross sectional survey design with a convenience sample of RNs was used to collect data for this phase of the study.

Settings and Participants

The study setting was a large tertiary principal referral hospital in Sydney, Australia. The hospital provides a range of general medical, surgical and sub-specialty services and employs 560 fulltime equivalents RNs. The hospital is affiliated with two universities and provides supervised clinical placements for health students including pre-registration nursing students. Only RNs whose primary role was direct bedside patient care, who worked on a permanent basis and worked with nursing students during clinical placement, were eligible to participate

in the study. Nurse Unit Managers (NUM), Clinical Nurse Consultants, Nurse Practitioners, Nurse Educators, Clinical Nurse Educators, Casual or Agency RNs, Enrolled nurses, Assistants in nursing and University facilitators were excluded from the study.

Data Collection

Nurses were informed of the study by the NUM and were provided with an information sheet outlining the purpose of the study. They were also informed of their right to decline the invitation and were assured that all information provided would be kept confidential. Data were collected using a questionnaire comprising of participants demographic (age, gender, employment status and highest level of education) and mCSAT (mCSAT – knowledge and mCSAT- skills). The questionnaires were distributed to the RNs during the daily ward in-service and they were asked to place the completed questionnaires in a secure box. The questionnaires from the box were retrieved daily and handed to the principal researcher. To increase the response rate, nurses were reminded about the study at clinical handover during the data collection period.

Ethical considerations

Approval to undertake the project was obtained from the Health District Human Ethics Committee.

Data analysis

All data were entered into survey monkey and exported to SPSS version 21.1 for analysis. Missing data was less than 1% (100 missing values, 0.71 %). The series mean method was used to replace the missing values as more complex models were highly unlikely to change value estimates due to the small number of missing items (Cokluk and Kayri, 2011; Little and

Rubin, 2014). Relevant items were reverse coded before analysing to ensure that higher scores reflected higher knowledge and skills. Demographic data were summarized using descriptive statistics including means, standard deviations and frequency distributions.

Exploratory factor analysis was conducted using Principal Components Analysis (PCA) with Varimax Rotation. The Bartlett's test of sphericity was used to evaluate distribution of the participants' responses and the Kaiser-Meyer-Olkin (KMO) index was calculated to determine if the sample size was sufficient for factor analysis (Williams et al., 2012). The extraction of the components was based on visual inspection of the scree plot and established criteria (Kaiser, 1960). Consistent with this approach only factors with eigenvalues greater than one retained. Items that loaded ≥ 0.50 were retained on the respective factor (Osborne and Costello, 2009). Cross loading items were retained on a factor based on face validity and interpretability to ensure that items within that factor were coherently related to each other in a meaningful manner (Zeller and Carmines, 1980).

The Cronbach's alpha was computed to assess the internal consistency reliability for each item of the scale and the total scale. Values greater than or equal to 0.9 was considered as excellent, 0.8 - < 0.9 good, 0.7- < 0.8 acceptable, 0.6 - < 0.7 questionable, 0.5 - < 0.6 poor and less than 0.5 unacceptable .42. The identified factors were interpreted and named to reflect the underlining constructs of the mCSAT.

The known-groups technique was then used to evaluate the construct validity of the mCSAT. This technique compares scale scores across groups known to differ in the construct being investigated (LoBiondo-Wood and Haber, 2014). In this study the differences in mCSAT scores between participants based on specific demographics characteristics known to

influence nursing clinical practice namely clinical supervision training (Heaven et al., 2006) and years of clinical experience as an RN was undertaken (Tourangeau et al., 2016). For this purpose the sample was divided into three groups based on previous clinical supervision training (i) no previous training (ii) hospital based in-service program and (iii) post-graduate qualification related to clinical supervision (e.g. Certificate IV in Workplace and Assessment). The sample was also divided into three groups based number of years of clinical experience as a nurse namely those with (i) less than 2 years (ii) 2–5 years and (iii) more than 5 years of experience. Analysis of Variance (ANOVA) using Bonferroni post-hoc comparison was used to test if nurses who had completed clinical supervision training and those with more clinical experience as a nurse would achieve higher mCSAT- Knowledge and mCSAT- Skill scores. A *p*-value of less than 0.05 was considered statistically significant.

RESULTS

Instrument Modification, Content validity and Pilot Testing

The CSAT was modified to require participants to rate their knowledge and skills relating to clinical supervision on 5-point Likert-scale ranging from to strongly disagree (1), to strongly agree (5) with higher scores indicated higher knowledge and skills. The modified instrument was called the mCSAT and comprised of mCSAT – knowledge and mCSAT- skills. The minimum and maximum scores obtainable for each components were 30 and 150 respectively. No changes were made to the mCSAT based on the results of the pilot testing. Based on expert panel findings and the results of the pilot testing, the content validity of the mCSAT was considered satisfactory and all items were retained for the second phase of the study. Data obtained from participants in the pilot testing were not included in the next phase of the study.

Validation of the modified version of the Clinical Supervision Self-assessment Tool

Design

Response rate and demographic characteristics of participants

A total of 229 participants completed the survey for a response rate of 41%. The majority of the participants were females (n = 178; 77.7%). The mean age of the participants was 38.5 (±11.3) years (Table 1). Most of the nurses (n =183; 79.9%) had previously worked with worked with pre-registration nursing students on clinical placement.

Insert Table 1 about here:

mCSAT scores

The mean and standard deviations scores of the mCSAT- Knowledge and mCSAT- Skill are presented in Tables 2 and 3 respectively. Responses were skewed to the left with most participants responding either "Agree" or "Strongly Agree" on all items for both the mCSAT – Knowledge and mCSAT – Skills scores.

Insert Tables 2 and 3 about here

Exploratory Factor Analysis (EFA)

The Kaiser-Meyer-Olkin Measure (KMO) of sampling adequacy values were 0.946 and 0.955 for mCSAT – Knowledge and mCSAT – Skills respectively. The Bartlett's test of sphericity reached statistical significance for mCSAT – Knowledge (chi-square = 5975.83, $p < 0.001$) and mCSAT – Skills (chi-square = 7327.51, $p < 0.001$). The values of the KMO and Bartlett test demonstrated that the data were suitable to undertake factor analysis (Tabachnick and Fidell, 2014).

mCSAT – Knowledge

Analysis of the mCSAT – Knowledge items revealed three factors with eigenvalues above 1, accounting for 70 % of the total variance. Inspection of the scree plot revealed a clear

departure from linearity consistent with a three-factor solution. Factor loadings ranged from 0.51 to 0.78 and the communality values were greater than 0.59 for all items. The three factors were descriptively labelled ‘Evaluating learning’, Facilitating learning’ and ‘Problem solving’. All but two items significantly loaded on one factor. These two items which were ‘Identify and use a range of approaches to resolve conflict within the clinical supervision relationship’ and ‘Identify issues regarding the student, their supervision or workplace, which may put the student at risk of failing’ were retained in the Problem solving factor as they were coherently related to other items in this factor. Items, factor loadings, and communalities are presented in Table 2.

The internal consistency for the full mCSAT- Knowledge was high (α= 0.98, M = 3.84). The Cronbach’s alpha values if item were deleted were lower than the resulting coefficients in each item, indicating that exclusion of the items would not improve the reliability of the instrument. The Cronbach’s alphas for the three factors of Evaluating learning; Facilitating Learning and Problem Solving were 0.96, 0.93 and 0.94 respectively for the mCSAT-Knowledge.

One-way analysis of variance yielded significant differences in mCSAT- Knowledge based on the type of clinical supervision training, F (2, 212) = 5.81, $p < 0.001$). Post-hoc comparison of the three groups indicated that nurses who had completed hospital based in-service program (M = 119.86 ± 18.95, 95% CI [116.16, 123.57]) or had a post graduate clinical supervision qualification (M = 119.71 ± 25.99, 95% CI [109.64, 70 86]) had higher mCSAT- Knowledge scores than those who had no previous training in clinical supervision (M = 110.15 ± 19.80, 95% CI [105.86, 114.45]), $p < 0$ 001 and $p < 0.05$ respectively.

Comparison of mCSAT- Knowledge scores based on number of years of experience as a nurse were not significant.

mCSAT- Skills

Analysis of the mCSAT- Skills items revealed three factors with eigenvalues above 1, accounting for 74.7 % of the total variance. Inspection of the scree plot revealed a clear departure from linearity consistent with a three-factor solution. Factor loadings ranged from 0.51 to 0.81 and the communality values were greater than 0.52 for all items. The three factors were descriptively labelled 'Evaluating learning', Facilitating learning' and 'Problem solving'. All but two items significantly loaded on one factor. One item 'Approach colleagues to discuss problems and develop strategies to resolve issues in the clinical placement' was retained on the Evaluating learning factor and the 'Facilitate the student to acquire the skills required for professional practice' was retained on the Problem solving factor. The items were retained on these factors as they were coherently related to other items in the respective factors. Items, factor loadings, and communalities are presented in Table 3.

The internal consistency for the full mCSAT- Skills was high ($\alpha = 0.98$, M = 3.95). The Cronbach's alpha values if item were deleted were lower than the resulting coefficients in each item. The Cronbach's alpha for Evaluating Learning, Facilitating Learning and Problem Solving were 0.96, 0.95 and 0.96 respectively.

There was a significant effect of the type of clinical supervision training on mCSAT- Skills scores, $F(2, 208) = 5.12$, $p < 0.001$). The mean mCSAT- Skills scores were significantly higher for nurses who had completed a hospital based in-service program (M = 119.60 ± 20.00, 95% CI [115.67, 123.53] compared to those who had not done any training (M =

109.12 ± 21.73, 95% CI [104.35, 113.90]), $p < 0.001$. Those who had a post-graduate qualification related to clinical supervision (M = 115.78 ± 29.82, 95% CI [103.98, 127.57]) had higher mean mCSAT- Skills scores than those who had not done any training (M = 109.12 ± 21.73, 95% CI [104.35, 113.90]), however the difference was not statistically different ($p = 0.53$). There were no significant differences based on years of clinical experience as an RN.

DISCUSSION

Effective supervision during clinical placements is essential to ensure that pre-registration nursing students can deliver safe, effective care when they enter the workforce. A review of the literature did not identify any validated instruments to measure registered nurses knowledge and skills regarding clinical supervision. This study was conducted to investigate the structure and construct validity of the mCSAT designed to measure registered nurses' knowledge and skills regarding clinical supervision of pre-registration nursing students. The mCSAT was adapted from the CSAT that was originally developed for allied health professionals. A major strength of the study was the use of well-established techniques for the adaptation of the instrument and the rigour in which the validation was conducted. A panel of six experts with extensive clinical and research experience in the supervision of nursing students established the content validity of the mCSAT. Pilot testing with a sample of sample of 20 nurses further enhanced the content validity of the mCSAT.

The mCSAT was subsequently administered to a sample of 229 nurses. The results of the factor analysis revealed a three-factor structure relating to evaluating clinical learning, facilitating clinical learning and problem solving for both the mCSAT – Knowledge and mCSAT- Skills components. For both components, the first factor, evaluating clinical learning consisted of 11 items, the second factor, facilitating clinical learning, included nine

items and the third factor, problem solving, consisted of 10 items. The Cronbach's alpha values ranged from 0.93 to 0.96 and from 0.95 to 0.96 for the mCSAT- Knowledge and mCSAT- Skill respectively. These values suggest that the instrument displayed adequate internal consistency and therefore is a reliable measure for assessing knowledge and skills of RN in relation to clinical supervision (Rodriguez et al., 2016).

The results from the known-groups technique supported the construct validity of the three-factor structure. Our findings confirmed that nurses who had completed further training specific to clinical supervision achieved higher mCSAT- Knowledge scores than those who had not. However, when compared to those who had a post-graduate qualification related to clinical supervision and those who had no training, nurses who had completed a hospital based in-service program had higher mCSAT- Skill scores. These results are congruent with previous studies where training has been identified as important for effective clinical supervision (Needham et al., 2016). In this study a significant proportion of the nurses (n = 97, 42.4%) had not completed any formal clinical supervision training highlighting the need for efforts to be placed on ongoing training and developing resources to support nurses who supervise nursing students. Such efforts must be consolidated by ongoing professional development and training. Other strategies that have the potential to increases nurses' knowledge and skills in clinical supervision include networking and mentoring from more experienced clinical facilitators (Darwin and Palmer, 2009; Myall et al., 2008) .

There is also a widespread belief that the number of years of experience as a nurse makes them better clinical supervisors. However, an interesting finding in this study was that there were no statistically significant differences in both the mCSAT- Knowledge and the mCSAT- Skill scores based on the participant's years of experience as a registered nurse. This finding

suggest that clinical experience alone does not translate to knowledge and skills required for effective clinical supervision. This is not a surprising considering effective clinical supervision requires knowledge of the expectations of the education providers, curricula, and student's scope of practice (Price, 2012) and not merely experience in the clinical arena. This is consistent with other studies that identified the need for appropriate strategies to ensure quality clinical experiences for undergraduate nursing students (Needham et al., 2016).

Limitations

This study was conducted using a convenience sample of nurses from a single hospital, which may limit the generalizability of the findings. In addition, all data were self-reported and the responses may have been influenced by social desirability bias. However, efforts were made to minimize that effect, by ensuring that participants' responses were anonymous (Grimm, 2010). Other forms of psychometric properties that would strengthen the applicability of the mCSAT such as test–retest reliability were not conducted. Despite these limitations, the findings have clinical and education implications as the mCSAT can be used by researchers, educators, RNs, managers and health-care providers to better understand the knowledge and skills regarding clinical supervision. This can then inform the development of appropriate strategies to improve nurses' knowledge and skills in clinical supervision.

Conclusion

The results of this study provide empirical support for the mCSAT as a valid measure of nurses' knowledge and skills in clinical supervision of pre-registration nursing students. The psychometric properties of the mCSAT – Knowledge and mCSAT- Skills were established in relation to content validity, underlying structure, internal consistency and construct validity using data obtained from a sample of 229 nurses. These mCSAT instrument may be used to

evaluate the effects of professional development and in-service training programmes aimed at improving nurses' knowledge and skills regarding supervising pre-registration students. However, further psychometric testing is needed with more diverse populations that include other health disciplines to establish the psychometric properties of the instrument in other settings.

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Table 1 Demographic characteristics of participants (n= 229)

	Frequency (%)
Gender	
Male	51 (22.3)
Female	178 (77.7)
Employment status	
Permanent F/T	178 (79.8)
Permanent P/T	45 (20.2)
Highest qualifications	
Certificate of Nursing	2 (0.9)
Diploma of Nursing	16 (7.0)
Bachelor of Nursing	158 (68.7)
Graduate Certificate	31 (13.5)
Masters Degree	23 (10.0)
Type of clinical supervision training	
Hospital based in-service program	104 (45.4)
Post-graduate qualification related to clinical supervision	28(12.2)
No previous training	97 (42.4)
Number of years working as an RN	
Less than 2 years	39 (17.0)
2–5 years	150 (65.5)
More than 5 years	40 (17.5)

Table 2 Factor analysis of the modified Clinical Supervision Self-assessment Tool (mCSAT) – Knowledge items

	Factor loadings			Communalities (h^2)	Mean ±SD
	1	2	3		
Factor 1: Evaluating learning (α= 0.96)					
1. Make recommendations with respect to how the student has met the objectives of the clinical placement.	**0.51**	0.35	0.49	0.61	3.92 ± 0.79
2. Conclude the feedback session with agreed priorities and plan of action to improve student performance	**0.74**	0.48	0.29	0.83	3.88 ± 0.84
3. Adapt my teaching strategies to support different approaches to learning in a variety of settings.	**0.70**	0.40	0.41	0.82	3.91 ± 0.82
4. Evaluate the student's performance using standardised criteria or assessment tools	**0.53**	0.44	0.29	0.62	3.86 ± 0.80
5. Incorporate activities to help the student identify their learning needs, analyse their progress and guide ongoing learning.	**0.70**	0.49	0.31	0.81	3.88 ± 0.83
6. Use strategies developed in consultation with the student, education provider staff and managers, to effectively address issues contributing to at risk performance.	**0.78**	0.26	0.40	0.85	3.84 ± 0.80
*7. Negotiate with colleagues to develop a timetable and the space /equipment required for the clinical placement.	**0.69**	0.27	0.69	0.68	3.88 ± 0.82
8. Adapt my methods for giving feedback to suit different preferences and learning styles	**0.66**	0.49	0.29	0.74	3.90 ± 0.84
9. Approach colleagues to discuss problems and develop strategies to resolve issues in the clinical placement.	**0.59**	0.30	0.61	0.67	3.91±0.78
10. Effectively manage the student who displays challenging behaviour.	**0.74**	0.13	0.57	0.75	3.81 ± 0.84
11. Actively encourage the student to engage in critical dialogue about professional practice where they can question, reflect and discuss issues in a supportive environment	**0.56**	0.40	0.38	0.77	3.96 ± 0.78
Factor 2: Facilitating learning (α= 0.93)					

12. Conduct a variety of education activities (demonstrations, guided practice, tutorials) to achieve the learning goals for the clinical placement.	0.36	**0.70**	0.27	0.68	3.88 ± 0.87
13. Utilize learning opportunities effectively to support or extend the student appropriately as their capabilities develop.	0.36	**0.77**	0.30	0.75	3.98 ± 0.77
14. Develop positive and effective relationships with students	0.08	**0.71**	0.41	0.68	4.29 ± 0.65
15. Provide a range of experiences so the student can effectively apply their theoretical knowledge to clinical practice.	0.36	**0.74**	0.28	0.73	3.98 ± 0.76
16. Develop a learning plan with the student that is manageable, realistic and appropriate for my clinical setting	0.39	**0.54**	0.35	0.59	3.97 ± 0.77
17. Develop a variety of strategies for assisting skill acquisition based on student goals and analysis of their learning needs.	0.45	**0.58**	0.34	0.72	3.86 ± 0.78
18. Identify and clearly articulate to the student the boundaries of our respective roles and relationship	0.21	**0.69**	0.44	0.71	4.07 ± 0.72
19. Provide consistently clear and constructive feedback including checking the student's understanding of my feedback.	0.42	**0.70**	0.26	0.72	4.02 ± 0.75
20. Use educational resources to facilitate learning effectively for individuals and groups.	0.44	**0.71**	0.32	0.80	4.00 ± 0.75
Factor 3: Problem solving (α= 0.94)					
21. Seek support from senior staff to help resolve challenging situations in the clinical placement.	0.16	0.42	**0.73**	0.75	4.04 ± 0.70
22. Identify and act on any risks to patients /consumer, student and supervisor to ensure emotional, physical and psychological wellbeing of all patients.	0.33	0.43	**0.67**	0.79	4.01 ± 0.71
*23. Effectively manage my emotions and the emotions of others in interactions, even when tensions arise.	0.43	0.38	**0.66**	0.71	3.92 ± 0.78

24. Identify opportunities to collaborate with colleagues to achieve the learning outcomes of the placement.	0.37	0.36	**0.73**	0.84	3.97 ± 0.71
25. Develop an approach to clinical supervision that is evidence based and grounded in educational principles.	0.49	0.29	**0.62**	0.78	3.92 ± 0.77
*26. Effectively guide and support the student's patient care performance, including dealing with mistakes.	0.40	0.42	**0.58**	0.75	4.07 ± 0.69
27. Identify and use a range of approaches to resolve conflict within the clinical supervision relationship.	0.57	0.33	**0.60**	0.73	3.88 ± 0.76
28. Effectively manage the competing demands of my responsibilities to my patients, students and colleagues.	0.37	0.32	**0.75**	0.82	3.94 ± 0.74
29. Identify issues regarding the student, their supervision or workplace, which may put the student at risk of failing.	0.62	0.35	**0.62**	0.74	3.91 ± 0.78
30. Facilitate the student to acquire the skills required for professional practice in my setting.	0.29	0.49	**0.64**	0.75	3.99 ± 0.73

Note: (mCSAT) – Knowledge items. Unique factor loadings **> 0.50 are in bold**. Factor 1 = Evaluating learning (11items), Factor 2 = Facilitating learning (9 items) and Factor 3 = (10 items); Each item was rated on a 5-point Likert Scale (5 = Strongly agree, 4 = Somewhat agree, 3 = Neither agree nor disagree, 2 = Somewhat disagree, 1 = Strongly disagree). * Reverse coded

Table 3 Factor analysis of the modified Clinical Supervision Self-assessment Tool (mCSAT) – Skill items

	Factor loadings			Communalities (h^2)	Mean (SD)
	1	2	3		
Factor 1: Evaluating learning ($\alpha = 0.96$)					
1. Make recommendations with respect to how the student has met the objectives of the clinical placement.	**0.72**	0.40	0.28	0.75	3.88 ± 0.91
2. Conclude the feedback session with agreed priorities and plan of action to improve student performance	**0.72**	0.22	0.52	0.80	3.81 ± 0.90

3. Adapt my teaching strategies to support different approaches to learning in a variety of settings.	**0.72**	0.40	0.34	0.79	3.83 ± 0.96
4. Evaluate the student's performance using standardised criteria or assessment tools	**0.70**	0.34	0.26	0.68	3.79 ± 0.93
5. Incorporate activities to help the student identify their learning needs, analyse their progress and guide ongoing learning.	**0.67**	0.33	0.46	0.70	3.88 ± 0.86
6. Use strategies developed in consultation with the student, education provider staff and managers, to effectively address issues contributing to at risk performance.	**0.64**	0.52	0.27	0.73	3.86 ± 0.82
*7. Negotiate with colleagues to develop a timetable and the space /equipment required for the clinical placement.	**0.64**	0.39	0.18	0.52	3.72 ± 0.93
8. Adapt my methods for giving feedback to suit different preferences and learning styles	**0.63**	0.24	0.55	0.71	3.88 ± 0.83
9. Approach colleagues to discuss problems and develop strategies to resolve issues in the clinical placement.	**0.62**	0.61	0.20	0.74	3.89 ± 0.80
10. Effectively manage the student who displays challenging behaviour.	**0.60**	0.51	0.27	0.65	3.79 ± 0.89
11. Actively encourage the student to engage in critical dialogue about professional practice where they can question, reflect and discuss issues in a supportive environment	**0.55**	0.33	0.49	0.62	3.98 ± 0.81
Factor 2: Facilitating learning ($\alpha = 0.95$)					
12. Conduct a variety of education activities (demonstrations, guided practice, tutorials) to achieve the learning goals for the clinical placement.	0.14	**0.77**	0.20	0.71	4.01 ± 0.82
13. Utilize learning opportunities effectively to support or extend the student appropriately as their capabilities develop.	0.17	**0.73**	0.38	0.64	4.08 ± 0.68
14. Develop positive and effective relationships with students	0.45	**0.71**	0.28	0.65	4.34 ± 0.63

15. Provide a range of experiences so the student can effectively apply their theoretical knowledge to clinical practice.	0.32	**0.71**	0.25	0.68	4.00 ± 0.79
16. Develop a learning plan with the student that is manageable, realistic and appropriate for my clinical setting	0.50	**0.69**	0.24	0.68	3.95 ± 0.78
17. Develop a variety of strategies for assisting skill acquisition based on student goals and analysis of their learning needs.	0.38	**0.66**	0.36	0.72	3.89 ± 0.76
18. Identify and clearly articulate to the student the boundaries of our respective roles and relationship	0.40	**0.66**	0.33	0.71	4.21 ± 0.70
19. Provide consistently clear and constructive feedback including checking the student's understanding of my feedback.	0.45	**0.63**	0.25	0.64	4.02 ± 0.78
20. Use educational resources to facilitate learning effectively for individuals and groups.	0.47	**0.62**	0.20	0.63	4.01 ± 0.74
Factor 3: Problem solving ($\alpha = 0.96$)					
21. Seek support from senior staff to help resolve challenging situations in the clinical placement.	0.27	0.23	**0.81**	0.69	4.12 ± 0.75
22. Identify and act on any risks to patients /consumer, student and supervisor to ensure emotional, physical and psychological wellbeing of all patients.	0.01	0.35	**0.75**	0.73	4.11 ± 0.63
*23. Effectively manage my emotions and the emotions of others in interactions, even when tensions arise.	0.38	0.15	**0.66**	0.61	3.95 ± 0.76
24. Identify opportunities to collaborate with colleagues to achieve the learning outcomes of the placement.	0.07	0.46	**0.65**	0.73	3.94 ± 0.77
25. Develop an approach to clinical supervision that is evidence based and grounded in educational principles.	0.24	0.33	**0.63**	0.66	3.97 ± 0.78
*26. Effectively guide and support the student's patient care performance, including dealing with mistakes.	0.48	0.17	**0.62**	0.66	4.03 ± 0.77

27. Identify and use a range of approaches to resolve conflict within the clinical supervision relationship.	0.48	0.16	**0.61**	0.71	3.88 ± 0.82
28. Effectively manage the competing demands of my responsibilities to my patients, students and colleagues.	0.41	0.25	**0.60**	0.64	3.91 ± 0.78
29. Identify issues regarding the student, their supervision or workplace, which may put the student at risk of failing.	0.46	0.29	**0.59**	0.59	3.88 ± 0.91
30. Facilitate the student to acquire the skills required for professional practice in my setting.	0.57	0.20	**0.51**	0.56	3.98 ± 0.73

Note: (mCSAT) – Skill items. Unique factor loadings **> 0.50 are in bold**. Factor 1 = Evaluating learning (11 items), Factor 2 = Facilitating learning (9 items) and Factor 3 = (10 items); Each item was rated on a 5-point Likert Scale (5 = Strongly agree, 4 = Somewhat agree, 3 = Neither agree nor disagree, 2 = Somewhat disagree, 1 = Strongly disagree). * Reverse coded items