DEVELOPMENT AND VALIDATION OF THE CLINICAL INSTRUCTORS' PERFORMANCE EVALUATION TOOL

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ABSTRACT

This study aimed to develop and validate the Clinical Instructor's Performance Evaluation Tool. Specifically, the study sought to describe the development of an instrument used in evaluating the performance of the clinical instructors; and to test its psychometric properties. A methodological design was utilized to guide the study. The respondents who comprised nursing students (n=51), clinical instructors (n=7) and nurse managers (n=14) from the affiliating agencies were asked to accomplish the survey questionnaire. The items of the performance evaluation tool being used by the college in assessing the performance of the clinical supervision in the clinical area were subjected to reliability analysis using Cronbach alpha and factor analysis using maximum likelihood extraction with direct oblimin rotation. The final instrument is formulated based on the results of the validity and reliability analyses. The evaluated questionnaire is reliable and construct valid. The items measured the same underlying construct. The result of the reliability measure was high at α=0.980. All items contribute to the reliability and construct validity of the questionnaire: the items correlate more than 0.4 with the factors that underlie them. Six factors identified and the 37 items were distributed in accordance with the factor loading. Since the evaluated questionnaire is reliable and construct valid, this may be utilized. The participation of the nurse managers as a third person may be considered as good source in evaluating and validating the performance of the clinical instructors.

Keywords: *Clinical, Development, Evaluation, Performance, Psychometric, Validation*

INTRODUCTION

One of the factors considered significant in the transfer of knowledge is the ability of the teachers to effectively convey what is supposed to be taught. The interaction between the student and the teacher will always be considered an important component of the educative process. Student supervision will never be effective unless learning takes place because learning encompasses blending of unique experiences between the teacher and the student. In the clinical setting the clinical instructors perform the role of a coach and a mentor of the student nurses who expect nothing but a meaningful journey throughout their clinical learning experience. Clinical instructors set the tone for learning thus, how they execute clinical supervision, manage the activities, and their deportment and bearing basically affects students' learning.

Clinical supervision is considered the strongest element in the clinical practice setting since it is during this interaction where students develop not only the competencies required of a beginning practitioner but also the essentials of being a professional. More often than not, students expect much from their clinical instructors when supervision is concerned. This is an acceptable fact because students consider their clinical instructors as "experts" and themselves "novices".

Effective clinical instructors enhance the learning process by promoting helpful behaviors. This together with clinical instructors' characteristics and skills are necessary components of clinical education (Levy, Sexton, Willeford, Barnum, Guyer, Gardner, Fincher, 2009). Accordingly, clinical instructor characteristics, behaviors and skills that promote effective clinical instruction include matching clinical teaching skills to student understanding and experience, having good communication skills, providing constructive feedback, facilitating a student-centered environment that help promote and develop self-confidence among students. As such, in order to improve nursing education learning must be facilitated by addressing proper assessment of clinical instructors' behaviors and nursing students' perception toward effective clinical instructors' characteristics (Ismail, Aboushady & Eswi, 2016).

Since clinical supervision is critical in students' skill integration (Tan, 2009), there is a need to check on how supervision is done because in some cases inadequate coverage and frequency of supervision are evident (Kilminster, Cottrell, Grant & Jolly, 2007).

This requires an effective tool which will show proof of what clinical supervision is all about. An instrument is believed to be an effective

measurement tool if it is valid and reliable. Because periodic evaluation of work performance of the teachers is part of the institutional processes, developing a valid instrument as an outcome of the study will help the college in accomplishing its objective whereby components that are supposed to be measured when assessing the clinical instructors' supervision in the clinical area are clearly articulated.

Validating and testing the reliability of an instrument provideds an objective reflection of the nurse instructors' effectiveness (Shahsavari, Yekta, Zare & Sigaroodi, 2014).

Conceptual Framework

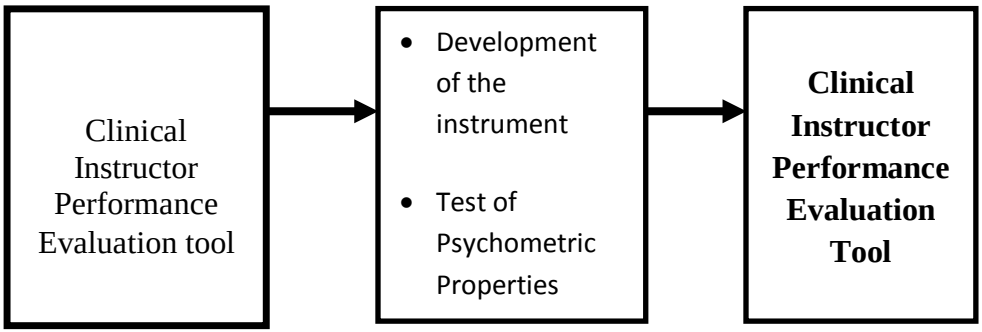

Figure 1. Conceptual Paradigm on Validation and Test of Psychometric Properties of the Clinical Instructor Performance Inventory

The framework of the study is based from Ludwig Von Bertalanffy's systems approach which proposes three factors – the input, process and output. For this study the utilization of the institutional clinical instructor performance evaluation tool serves as the input; the process comprises the development and testing of its psychometric property; while the output is represented by the validated Clinical Instructor Performance Inventory.

Objectives of the Study

The purpose of the study was to develop and validate an instrument that will assess the clinical instructors' performance in clinical supervision. Further, the study sought to attain the following objectives: 1. to describe the development of the instrument used in evaluating the performance of the clinical instructors; and 2. to test the psychometric properties of the performance evaluation tool.

METHODOLOGY

The study utilized the methodological study design, a process aimed to develop and perform psychometric testing of data collection tools. (LoBiondo-Wood & Haber, 2013).

Three groups of respondents which were selected purposively were asked to accomplish the survey questionnaire. The first group (n=51) included second year to fourth year nursing students who were undergoing the Related Learning Experiences duty during the second semester of SY 2014 -2015 and were handled by the second study group, the clinical instructors (n=7). The third group was composed of the nurse managers (n=14) who were identified Head Nurses and Supervisors from the affiliating agencies who worked closely with the clinical instructors in the different units.

The study used the existing institutional performance evaluation tool being utilized by the students, Program Chair and the Dean to evaluate the performance of the clinical instructors at the end of every semester. The original tool comprised five component areas identified as: classroom routine (6 items), deportment and bearing (4 items), mastery of the clinical or specialty area (5 items), clinical area teaching skills and methodology (9 items) and clinical area management skills (15 items). The evaluation tool was revised in 2014 limiting the component areas into four namely: execution of clinical supervision (9 items), management of activities (11 items), deportment and bearing (6 items) and teaching skills and methodology (12 items). The revised 38 item tool was utilized by this study for testing of its psychometric properties. All items were rated using a four-point Likert scale with 1 as the lowest score and 4 as the highest.

The identified groups of respondents were requested to answer a survey questionnaire during the second semester of school year 2014-2015. Permission to undertake the survey was granted by the College Dean. Three approaches were used to collect the data. These included the student assessment of the clinical supervision, self-assessment of the clinical instructors of their own performance and the assessment of the nurse managers of the affiliating agencies on the clinical instructors' performance. Data collection for the students and the clinical instructors was administered by the researchers personally with 100% retrieval. However, the survey questionnaires for the nurse managers were left with proper instructions as respondents accomplished the survey during their free time. Accomplished questionnaires were completely retieved after a week with with 100% retrieval as well.

The items on the questionnaire were subjected to reliability analysis using Cronbach alpha and factor analysis using maximum likelihood extraction with direct oblimin rotation. The final instrument was formulated based on the results of the validity and reliability analyses.

Respondents were assured that all information gathered will be treated with utmost confidentiality and will be only used for the purpose of this study. Informed consent was secured from each respondent.

RESULTS AND DISCUSSION

The performance evaluation tool being used by the college in assessing the performance of the clinical supervision in the area was reviewed as to its components. Initially the five component areas included: classroom routine (6 items), deportment and bearing (4 items), mastery of the clinical or specialty area (5 items), clinical area teaching skills and methodology (9 items) and clinical area management skills (15 items). Items under each component area were analyzed and decided whether to be retained or removed from the list. Revision and adding of new items to develop a new tool was guided by the use of review of literatures and studies. Reliability index was determined using Cronbach's alpha and data reduction using factor analysis.

The quality and depth of the information generated depends in part on its psychometric properties. The psychometric properties of outcome measures include reliability and validity. Reliability is mostly measured as Internal consistency reliability this refers to the reliability of the way in which the questions within a test measure a particular characteristic or ability. Internal consistency is usually measured according to Cronbach's alpha coefficient of reliability, which ranges from 0 (low reliability) to 1 (high reliability). A high coefficient indicates that the questions in the test are similar in content, or uniform. It is important to note that the number of questions in a test can also affect its internal consistency and a very long test can yield an inflated reliability coefficient.

Validity is defined as the degree to which an instrument measures what we intend to measure. Because all measurement involves assigning numbers to represent some limited aspect of a phenomenon, it is critical to determine whether the measure you are using actually captures the aspect of the phenomenon of interest. Validity informs us about the extent to which a test accurately evaluates an individual's abilities or personality; reliability tells us the extent to which a test is stable or consistent. Test validity is established in reference to a specific objective. Evidence for the validity of a test comes

from demonstrating relationship/correlation between the test and other attributes it purports to measure. Content related validity exists when a test provides an adequate representation of construct that is being measured.

Analysis of the data shows the measures of reliability and validity of the statements contained in the clinical performance evaluation test. Reliability analysis was done using Cronbach alpha and factor analysis for validity.

The simplest method to test the internal consistency of a questionnaire is dividing the scores a participant received on a questionnaire in two sets with an equal amount of scores and calculating the correlation between these two sets (Field, 2009). A high correlation signals a high internal consistency. The Cronbach alpha is more commonly used today to measure the internal consistency of an instrument. Generally, a questionnaire with an alpha (α) of 0.8 is considered reliable (Field, 2009). Hence, this questionnaire certainly is reliable, since the Cronbach alpha for 38 items is 0.980. All the categories were likewise reliable as each of them translates to alpha values greater than 0.90. Results are shown in the table.

Reliability analysis reveals the clinical evaluation tool with all its statements is acceptable as shown in the overall reliability index of 0.980. The components as grouped have acceptable reliability indexes of greater than 0.80.

With factor analysis, the construct validity of a questionnaire can be tested (Ratray & Jones, 2007). If a questionnaire is construct valid, all items together represent the underlying construct well. The factors that explain the highest proportion of variance the variables share are expected to represent the underlying constructs. Factor analysis is assumed to be a more reliable questionnaire evaluation method than principal component analysis (Costello & Osborne, 2005). A common rule of thumb is that a researcher at least needs 10-15 participants per item. A factor with four or more loadings greater than 0.6 “is reliable regardless of sample size.” (Field, 2009).

The Kaiser-Meyer-Okin measure of sampling adequacy (KMO) can signal in advance whether the sample size is large enough to reliably extract factors (Field, 2009). The KMO “represents the ratio of the squared correlation between variables to the squared partial correlation between variables.” (Field, 2009, p. 647). When the KMO is near 0, it is difficult to extract a factor, since the amount of variance just two variables share (partial correlation) is relatively large in comparison with the amount of variance two variables share with other variables (correlation minus partial correlation). When the KMO is near 1, a factor or factors can probably be extracted, since the opposite pattern is

visible. Therefore, KMO "values between 0.5 and 0.7 are mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great and values above 0.9 are superb." (Field, 2009. p. 647). The KMO value of this dataset is good at a value of 0.769).

The maximum likelihood method of extraction was used. A correlation matrix can be a check on whether the variables do not correlate too highly or too lowly with other variables (Field, 2009). If variables correlate too highly ($r > 0.8$ or $r < -.8$), "it becomes impossible to determine the unique contribution to a factor of the variables that are highly correlated." (Field, 2009, p. 648). If a variable correlates lowly with many other variables ($-0.3 < r < 0.3$), the variable probably does not measure the same underlying construct as the other variables. Both the highly and lowly correlating items should be eliminated.

Results of analysis show that none of the questionnaire items correlates too highly with other items. To determine whether the items do not correlate too lowly, Barlett's test was used. However, that test tests a very extreme case of non-correlation: all items of the questionnaire do not correlate with any other item. If the Barlett's test gives a significant result, we can assume that the items correlate anyhow, like in this data set: $\chi 2$ (703) = 4.160e3, p = 0.000. The Barlett's test gives a significant result.

The algebraic matrix calculations finally end up with eigenvectors (Field, 2009; Tabachnik & Fidell, 2001). Eigenvectors are linear representations of the variance variables share. The longer an eigenvector is, the more variance it explains, the more important it is (Field, 2009). Statistical packages generally retain factors with eigenvalues greater than 1.0 (Costello & Osborne, 2005). Yet, then there is a considerable change that too many factors are retained. In 36% of the samples Costello and Osborne studied (2005), too many factors were retained.

Data analysis reveals 7 factors with eigenvalues greater than 1. However, we would like to retain only 6 factors as shown in the scree plot. The scree plot shows the factors with values above the point at which the curve flattens out should be retained (Costello & Osborne, 2005).. The factors with values at the break point or below should be eliminated. Goodness of fit test results in chi-square value of 1482.524 which is highly significant (p=.000).

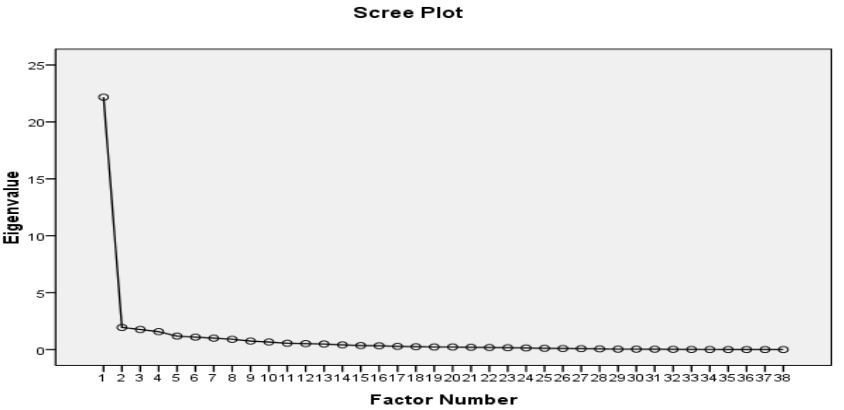

Figure 1. Scree plot of the data

Rotation Analysis

The type of rotation used is the oblique rotation. The first kind of rotation 'orthogonal rotation' is used, when the factors are assumed to be independent (Field, 2009; Tabachnik & Fidell, 2001). The second kind of rotation 'oblique rotation' is used, when the factors are assumed to correlate. Since it was assumed that all 38 items in this questionnaire measured the same construct, we may expect that an oblique rotation is appropriate. It is highly recommended to always do a factor analysis with oblique rotation first, even if you are quite sure that the factors are independent (Costello & Osborne, 2005).

After analysis of the items under each of the factors, it was decided to consider only 6 factors. The items were classified accordingly.

Table 1. Reliability indexes of the categories

Category	Reliability index	Number of items
Execution of clinical supervision	0.949	8
Organization	0.909	7
Management of activities	0.874	5
Teaching skills and methodology	0.933	7
Assessment	0.913	4
Deportment and bearing	0.927	6
Overall	0.980	37

The items were to be included in the final instrument are shown in the table.

Table 2. Copy of the Clinical Instructor's Performance Instrument

A. Execution of Clinical Supervision

1. Specifies the expected learning outcomes on the care of specific type/s of clients
2. Provides opportunities to develop the learning outcomes/competencies
3. Applies and maintains appropriate discipline.
4. Helps students to learn how to learn and to take responsibility for their own learning
5. Involves active participation of the students on the use of :
5.1 selected references/learning materials/worksheets or exercises/ opportunities to enhance cognitive competencies
5.2 coaching strategies to develop psychomotor competencies on the care of specific types of clients
5.3 mentoring opportunities to address the students' affective/attitudinal competencies and learning needs, concerns/problems
5.4 adequate feedback on clinical performance at each stage in the Learning process

B. Management of Activities

1. Conducts pre and post clinical conferences
2. Starts and dismisses students on time
3. Monitors students' attendance.
4. Respects diverse talents and ways of learning.
5. Evaluates the students by determining with them their progress in attaining specific learning outcomes/competencies

C. Organization

1. Provides copies of appropriate performance evaluation tools which contain the indicators of achievement of terminal competencies
2. Orients students to organizational/unit structure, physical set-up, ward personnel and policies and regulations
3. Discusses clinical focus, requirements, grading system and expectations of the clinical exposure
4. Maintains a safe environment for learning
5. Is well-prepared and well-organized.
6. Guides students in integrating knowledge into practice through direct participation in client care

7. Maintains a climate of learning by using time wisely.

A. Teaching Skills and Methodology

1. Addresses the learning needs/concerns and problems of the students
2. Supplements student's knowledge during conferences, case studies, student-patient interaction, group discussions
3. Involves students in different ward/unit activities that may develop decision – making and critical thinking abilities
4. Applies innovative approaches to sustain student's attention and interest
5. Motivates students.
6. Communicates effectively and explains concepts clearly
7. Responsive to the students' learning needs.

B. Assessment

1. Assigns students to different learning opportunities
2. Checks requirements regularly
3. Provides constructive feedback on student's performance
4. Identifies the strengths and weaknesses of students during performance of ward procedures

C. Deportment and Bearing

1. Observes dignity through attire.
2. Modulates voice appropriately.
3. Shows interest in teaching and guiding students.
4. Models professional qualities.
5. Demonstrates accountability for one's actions.
6. Maintains a professional level of knowledge and competence

CONCLUSION

The evaluated questionnaire is reliable and construct valid. The items measure the same underlying construct. The result of the reliability measure was high at α=0.980. All items contribute to the reliability and construct validity of the questionnaire: the items correlate more than 0.4 with the factors that underlie them. There were six factors identified and the 37 items were distributed in accordance with the factor loading.

RECOMMENDATIONS

Since the evaluated questionnaire is reliable and construct valid, this may be utilized by the College of Nursing in evaluating the performance of the clinical instructors' in the clinical areas.

Nurse managers from partner institutions may be considered as good source in evaluating the performance of the clinical instructors. The participation of a third person in the evaluation process may be a good way of validating their performance.

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