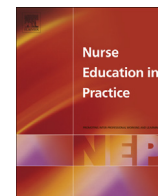




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Developing a short version of the test anxiety scale for baccalaureate nursing skills test – A preliminary study

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ABSTRACT

Aim: In this study, a brief and rapid skills test anxiety scale was developed to measure nursing students' anxiety before their first skills assessment test, and the measurement results were assessed using factor analysis.

Methods: A survey questionnaire design was used to gather cross-sectional data for the scale. The study subjects comprised 250 first-year bachelors of nursing students who completed a test anxiety survey before taking their first nursing skills test. This questionnaire evaluated first-year baccalaureate students' anxiety associated with applying nursing skills.

Results: The results indicated that students were most anxious about the attitudes of the teachers proctoring the tests (94.6%), followed by the test atmosphere (92.2%). These 2 items were determined to be conducive to high anxiety and were statistically correlated. Exploratory analysis was used to extract 2 common factors, nonspecific information and test atmosphere. Meanwhile, factor loadings were 19.45% and 50.41%, respectively.

Conclusion: This study evaluated the validity and reliability of the proposed scale. The evidence-based results presented in this investigation provide teachers with a crucial reference for helping students reduce their anxiety before their first skills assessment test.

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Introduction

Nursing is an academic discipline that emphasises practicality. Nursing education aims to cultivate professional nurses by integrating theory and practice (Chang, 2012). To ensure nursing service quality, nursing personnel must accurately apply clinical nursing skills. Consequently, assessing professional nursing skills is mandatory for nursing students before beginning clinical practice. Conventional written tests cannot accurately assess nursing student skills; thus, performance assessments have become an essential part of nursing education because they focus on the actual application of techniques and work performance (Beggs and Goodin, 2011). According to previous studies, performance assessments can enhance students' learning motivation and construct a meaningful learning process (Oermann and Gaberson, 2013; Chan et al., 2013). Meanwhile, through this process, students could

learn to improve their self-expression abilities (Cook, 2005; Dyrbye et al., 2006; Melo et al., 2010; Pfeil, 2003).

Background

All nursing students must undergo an assessment of their nursing skills before starting an internship. Prymachuk and Richards (2007) emphasised that gauging the actual nursing skills of students is necessary to ensure patient safety. Consequently, students must pass a nursing skills assessment test to qualify for an internship. Preparing for the test may arouse considerable anxiety in students. Susan et al. (2009) defined *anxiety* as a nonspecific and indistinct state of insecurity that has no cause. Characteristically, anxiety generates feelings of uncertainty and helplessness during a crisis. Numerous studies have indicated that nursing students experienced higher anxiety than students majoring in medicine, pharmacology, or social work, because their courses have higher requirements (Beggs et al., 2011; Melo et al., 2010). Test anxiety refers to temporary emotional responses produced during psychologically stressful situations involving tests. These emotional or biological responses are caused by concern regarding test results or pressure from the evaluation of personal capability during a test, thus resulting in insecure or impetuous behaviour (Johns, 2009).

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Students who feel that their learning methods are flawed, have not prepared sufficiently, experience peer competition, or have previously experienced learning failure typically experience test anxiety (Johns, 2009). Excessive test anxiety often negatively affects test performance (Cizek and Burg, 2006; Eum and Rice, 2011). During the learning process, teachers who neglect student needs cause student anxiety, further causing low self-confidence and poor learning achievement in students (Elliott, 2002; Cizek et al., 2006; Melo et al., 2010).

Skills tests are particularly relevant for nurse educators worldwide, because students are often highly anxious when receiving skill evaluations, particularly when these tests are gatekeepers to progressing in the programme. Nursing students suffering from test anxiety might be unable to demonstrate their knowledge, leading to poor academic performance (Prato and Yucha, 2013). Thus, assessing the anxiety of nursing students before they undergo skills assessment is necessary to reduce the interference of learning. A review of the relevant domestic and foreign research indicated that few investigations have developed rapid and valid scales to survey test anxiety for nursing students before an evaluation of their first nursing skills test. Therefore, the purpose of this study was to develop a simple yet reliable and valid Nursing Skills Test Anxiety Scale (NSTAS), enabling teachers to quickly gauge students' test anxiety.

Methods

Research design

A cross-sectional study was conducted. To ensure the high quality of and safety in caring for patients, all of the students were required to demonstrate their nursing skill performance after completing all of the skills exercises in the fundamental nursing curriculum. Students knew about the test ahead of time, but they did not know which skill they would be required to demonstrate. The skill item was randomly selected at the beginning of the test.

Sample

The purposive study sample was selected from the only national technical university of nursing in Taiwan. All of these nursing students were major human resource in the future employment. The first-year students were invited to participate in this study and they completed the test anxiety survey before taking their nursing skills test. The survey was administered using a questionnaire, and the students had the right to decline participation.

Nursing Skills Test Anxiety Scale

The NSTAS contains 7 question items: 'I am uncertain of the passing standards of the nursing skills test', 'I am worried that insufficient channels exist for test consultation', 'I am worried about the effectiveness of my skills', 'I am worried about the attitude of the teachers monitoring the tests', 'I am worried about the atmosphere during the nursing skills test', 'I am anxious about the nursing skills test', and 'I am not confident that I will pass the nursing skills test'. A 5-point Likert scale was adopted and incorporated responses ranging from *strongly disagree* (1 point) to *strongly agree* (5 points). A high score indicated high anxiety.

Ethical considerations

This study passed the review of the Institutional Review Board (IRB) (CN-IRB-2010-005) in Taiwan. Instructions and consent forms were attached to the questionnaire. Participants accepted the oral

explanation provided by the research assistants and were invited to join this study. The questionnaires were coded and the results were simultaneously analysed to ensure that no personal information was leaked.

Sample size

According to previous studies (Hair, 2006), the number of samples required to conduct factor analysis should be 5 to 10 times that of the study variables and no less than 100 in the total sample. This investigation gathered 244 valid samples, achieving a recovery rate of 97%.

Data analysis

Data analysis was conducted using SPSS15.0. Descriptive statistics included mean standard deviation, item analysis, frequency, and percentage. The coefficients of inter-item correlation were also determined and exploratory factor analysis (EFA) was conducted.

Results

Demographics

Among the 250 students who voluntarily participated in this study, 244 (97.6%) provided complete data. All of the students were women and ranged in age from 20 to 22 years.

Item analysis

Item analysis is a specific method used in education to evaluate test items, generally for the purpose of test construction and revision. Table 1 lists the results of item analysis for the NSTAS. A *t* test was performed to test the critical ratios (CR) of each question item. Excluding the item, 'I am not confident that I will pass the nursing skills test', which did not meet the set criteria ($CR > 4$) (Oermann and Gaberson, 2013) and was thus eliminated, the remaining items exhibited CR ranged between 9.58 and 17.74, and were all statistically significant ($P < .05$). Meanwhile, a Cronbach's α of 0.77

Table 1
Item analysis results for Nursing Skills Test Anxiety Scale ($n = 244$).

Question item	Mean	Standard deviation	Item–total correlation	Alpha coefficient after elimination	Critical ratio <i>t</i> -test
1. I'm uncertain of the passing standards of the nursing skills test.	3.7131	1.02624	0.388*	0.531	17.742**
2. I'm worried that there are insufficient channels for test consultation.	3.7828	0.83515	0.457*	0.483	14.892**
3. I'm worried about the effectiveness of my practicing.	4.2181	0.78583	0.553*	0.450	17.294**
4. I'm worried about the attitude of the teachers monitoring the tests.	4.5861	0.60584	0.567*	0.474	12.148**
5. I'm worried about the atmosphere during the nursing skill test.	4.4959	0.66356	0.458*	0.499	9.578**
6. I'm very anxious about the nursing skill test.	4.2346	0.78632	0.503*	0.470	14.942**

$P^* < 0.05$; $P^{**} < 0.01$.

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