



## Psychometric properties of the Scale for Quality Evaluation of the Bachelor Degree in Nursing Version 2 (QBN 2)

Loreana Macale<sup>a,1</sup>, Gennaro Scialò<sup>a,\*</sup>, Luca Di Sarra<sup>a,1</sup>, Maria Grazia De Marinis<sup>b,2</sup>,  
Gennaro Rocco<sup>c,3</sup>, Ercole Vellone<sup>c,4</sup>, Rosaria Alvaro<sup>c,5</sup>

<sup>a</sup> Nursing Science Degree Faculty of Medicine, Department of Biomedicine and Prevention University of Rome "Tor Vergata", Office of Sora Loc. S. Marciano s.n.c-03039, Sora, FR, Italy

<sup>b</sup> Campus Biomedico University of Rome, Via Alvaro del Portillo, 200 00128 Roma, Italy

<sup>c</sup> Faculty of Medicine, Department of Biomedicine and Prevention University of Rome "Tor Vergata", Via Montpellier 1, 00133 Roma, Italy

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### SUMMARY

To evaluate all the variables that affect nursing education is important for nursing educators to have valid and reliable instruments that can measure the perceived quality of the Bachelor Degree in Nursing. This study testing the Scale for Quality Evaluation of the Bachelor Degree in Nursing instrument and its psychometric properties with a descriptive design. Participant were first, second and third year students of the Bachelor Degree in Nursing Science from three Italian universities. The Scale for Quality Evaluation of Bachelor Degree in Nursing consists of 65 items that use a 4 point Likert scale ranging from "strongly disagree" to "strongly agree". The instrument comes from a prior version with 41 items that were modified and integrated with 24 items to improve reliability. Six hundred and fifty questionnaires were completed and considered for the present study. The mean age of the students was 24.63 years, 65.5% were females. Reliability of the scale resulted in a very high Cronbach's alpha (0.96). The construct validity was tested with factor analysis that showed 7 factors. The Scale for Quality Evaluation of the Bachelor Degree in Nursing, although requiring further studies, represents a useful instrument to measure the quality of the Bachelor Nursing Degree.

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### Introduction

The Italian National Agency for the Evaluation of Universities and Research Institutes (ANVUR) (2012) defined the quality in university education as the university's ability to establish valuable objectives and achieve them in a way to measure and increase the contiguity between objectives and results. Since the concept of quality in nursing education is wide and susceptible to analysis from a variety of evaluation methodologies, we focused our attention on the concept of perceived quality that favors interactive methodology and is focused on students (Saarikoski et al., 2002; Chan, 2003; Hosoda, 2006; Kari-Sand, 2009).

Evaluating students' satisfaction for the university education is important because it improves the competition among universities, the quality of services students are provided and the prestige of university

institutions (Hughes, 2000; Roberts, 1998). It is essential to measure in the academic world how educational aspects directly affect the students and indirectly the training environment with its physical, human, interpersonal and organizational dimensions (Knowles, 2007). It is also essential to evaluate how relational dynamics, cultural and clinical aspects influence the quality of nursing students' education (Cust, 1996).

To evaluate all these variables that affect nursing education it is important for nursing educators to have valid and reliable instruments that can measure the perceived quality of the Bachelor Degree in Nursing Science. Vellone et al. (2007) developed the Scale for Quality Evaluation of the Bachelor Degree in Nursing (QBN). This was a 41-item Likert scale comprising 10 domains. This instrument was tested for its content and discriminant validity and for construct validity as well. Reliability was tested by Cronbach's alpha but, while the first 6 factors showed adequate reliability (Cronbach's alpha  $\geq$  0.70), 4 factors did not. Therefore, the aim of this study was to modify the QBN in order to have a second version of the instrument with better psychometric properties of validity and reliability. The modified instrument was referred as the Scale for the Quality Evaluation of the Bachelor Degree in Nursing Version 2 (QBN 2).

### Background

For the past 30 years, there has been overwhelming evidence that new graduate nurses are not prepared to enter the workforce

\* Corresponding author. Tel.: +39 7761938027; fax: +39 7761938022.

E-mail addresses: [loreana.macale@torvergatasora.it](mailto:loreana.macale@torvergatasora.it) (L. Macale), [gennaro.scialo@torvergatasora.it](mailto:gennaro.scialo@torvergatasora.it) (G. Scialò), [lucadisarra1@gmail.com](mailto:lucadisarra1@gmail.com) (L. Di Sarra), [m.demarinis@unicampus.it](mailto:m.demarinis@unicampus.it) (M.G. De Marinis), [g.rocco@mclink.it](mailto:g.rocco@mclink.it) (G. Rocco), [ercole.vellone@uniroma2.it](mailto:ercole.vellone@uniroma2.it) (E. Vellone), [rosaria.alvaro@gmail.com](mailto:rosaria.alvaro@gmail.com) (R. Alvaro).

URLs: <http://www.torvergatasora.it> (L. Macale), <http://www.torvergatasora.it> (G. Scialò).

<sup>1</sup> Tel.: +39 7761938027; fax: +39 7761938022.

<sup>2</sup> Tel.: +39 06225411051.

<sup>3</sup> Tel.: +39 0672596802; fax: +39 0672596961.

<sup>4</sup> Tel.: +39 06 72596802, +39 338 7491811 (mobile); fax: +39 06 72596961.

<sup>5</sup> Tel.: +39 06 72596802; fax: +39 06 72596961.

(Shipman et al., 2012). The American Society for Quality identifies four teaching quality dimensions: responsibility, curricular alignment, assessment and student satisfaction (Brown and Marshall, 2008). An approach based on the process of Continuous Quality Improvement (CQI) (Deming, 1986) showed that all the decisions had to be based on obvious facts demonstrated by objective data analysis, and that all the stakeholders had to know at best their own job description; therefore students, administrators and managers have to be part of the same Continuous Quality Improvement team (Brown and Marshall, 2008; Germini et al., 2010). One of the main learning quality issues concerns students' perception about their own achievements (Kari-Sand, 2009), making it necessary for educators actually evaluate to the students' results and their learning throughout the process (Shipman et al., 2012). The impetus for transformation in nursing education has created the need for educators to evaluate effectively the quality of student achievement and learning through the educational process (Shipman et al., 2012).

The relationship between teacher and student affects the undergraduate performance (Orland-Barack and Wilhelem, 2005; Alvaro et al., 2009) and is considered a positive aspect between teachers and students (Wilkes, 2006). Student evaluation should create a supporting learning environment and a positive atmosphere for the student (Jokelainen et al., 2011; Saarikoski et al., 2002; Pearcey and Elliott, 2004) that encourages good relationship with colleagues, discussions and encourages students' curiosity (Kell and Jones, 2007; Senge, 2006; Henderson et al., 2012; Chan, 2001). In addition, during the learning process students want to be treated as individuals and colleagues so students' learning independence, responsibility and self-management are increasingly important (Andrews and Chilton, 2000). Some authors (Pellatt, 2006; Bray and Nettleton, 2007; Webb and Shakespeare, 2008) have suggested organizing teaching in a formal, impartial, constructive and objective manner without the influence of other factors like friendship. Furthermore, the highlights for clinical learning are acceptance and orientation, intermediate evaluation (formative) and final evaluation (certification) (Kim, 2003; Scalorbi and Burrai, 2008). In this perspective, some authors stated that classroom learning didactic does not have any advantages compared to on-line learning didactic (Billings, 2000; Schoech and Helton, 2003; Bata-Jones and Avery, 2004; Wells and Dellinger, 2011), but there are still controversies about the issue (Rovai, 2002; Frith and Kee, 2003). In this context it is also important the "peer" student relationship (Bonnel et al., 2007; Bulfone et al., 2008): the discussion among colleagues is considered a teaching method (Stevens and Levi, 2005), even if the students are reluctant to express negative opinions on colleagues or correct them based on didactic value (Chaves et al., 2006).

In the Italian Bachelor Degree in Nursing there are different teacher categories with different backgrounds: nursing teachers have different experiences so a systematic evaluation is important (Herbert et al., 2002). The number of sessional teachers is increasing followed by a decreasing number of tenured teachers, especially in practical disciplines like nursing (Kovner et al., 2006; Thedwall, 2008). However, from the literature it emerged that sessional teachers are recruited with less strict criteria than tenured teachers (Herbert et al., 2002; Andrew et al., 2010), consequently, sessional teachers are often lacking of pedagogical notions and didactic principles (Herbert et al., 2002; Anibas et al., 2009; Andrew et al., 2010). This is perceived by the students as weak commitment, lack of preparation, inappropriate qualification and inadequate performance management (Percy et al., 2008; Anibas et al., 2009; Halcomb et al., 2010). Sessional teachers' grades are higher than those given by tenured teachers (Kezim et al., 2005; Cavanaugh, 2006; Salamonson et al., 2010). Furthermore, Cavanaugh (2006) indicates that this is a strategy to reduce students' potential complaints about teaching and to improve their teachers' evaluations (Landrum, 2009; Salamonson et al., 2010). However, it was shown that for sessional teachers positive evaluations, high passing rate and a low number of students' negative comments can have an important

role on contract renewal (Halcomb et al., 2010). According to students' evaluations, sessional teachers are often considered inexperienced (Salamonson et al., 2010); and since those teachers are seen as more enthusiastic in their job (Green and Baird, 2009) compared to tenured teachers, in their classes students often learn more. On the contrary, students attending the last year of course tend to evaluate tenured teachers better than sessional ones. Some authors state that this is due to students' maturity (Salamonson et al., 2010), and the need of a wider and professional nursing knowledge that is likely to be provided by tenured teachers (Egan and Jaye, 2009).

Another important concept to consider when measuring degree courses' quality is the dropout prevention, the students abandoning the courses are usually those who had low grades in pre-entrance tests (Houltram, 1996; Kevern et al., 1999; Prymachuk et al., 2009), with parents who did not graduate, with a lower socioeconomic status; other important factors are student's age (Houltram, 1996; Kevern et al., 1999; Mulholland et al., 2008; Prymachuk et al., 2009), gender (Mulholland et al., 2008; Prymachuk et al., 2009) and course's topic (Higher Education Funding Council England, 2000; McMillan, 2005; Jeffreys, 2007). However, just one factor can be sufficient to cause drop out. Almost 50% of the students say that they have two causes of courses drop out (Glossop, 2002). Furthermore; factors promoting course pursuance are being taken care of by a competent nurse (Sadler, 2003; Lai et al., 2008); conceptualizing "being" a nurse, and not "acting like" a nurse (Kotecha, 2002); having good tutors or close relatives performing the same job (Bowden, 2008); having tenured teachers instead of sessional ones (Colalillo, 2007; Sutherland et al., 2007); having the chance to share the same experiences with fellow students (Rudel, 2006; Bowden, 2008; Green and Baird, 2009); developing a "sense of belonging" to the campus (Levett-Jones et al., 2009). Moreover, a positive profession's image strengthens the vision of a career as a nurse, while a negative image interferes with career planning (Pearcey and Elliott, 2004). A clear comprehension and appreciation of students' satisfaction are fundamental to improve educational processes, education's quality and to evaluate institutional efficiency (Kantek and Kazanci, 2012).

## Aim

The aim of this study was to test the psychometric properties of the QBN 2. Specifically, we tested the validity of the QBN 2 by exploratory factor analysis and then we tested its internal consistency and test-retest reliability.

## Methods

### Design

A descriptive design was used to carry out the study.

### Instruments

#### *The Sociodemographic Questionnaire*

This instrument was developed by an expert panel (formed by a Nursing Associate Professor, three nurses with a PhD in Nursing Science, one nursing researcher, three Bachelor Degree in Nursing programs' directors), in order to collect information such as high school diploma and grade obtained, any formative experiences with other faculty and/or university degree courses, average grade for taken exams, lesson attendance percentage, how far was the campus from where they lived and the means of transport.

#### *The Scale for Quality Evaluation of Bachelor Degree in Nursing Version 2 (QBN 2)*

It consists of 65 items that use a 4 point Likert scale ranging from "strongly disagree" to "strongly agree". The instrument comes from a strong version with 41 items (Vellone et al., 2007) that were modified

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