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Psychometric properties of an instrument to measure nursing students' quality of life

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SUMMARY

It is important for clinical nursing teachers and managers to recognize the importance of nursing students' quality of life (QOL) since they are the source of future nurses. As yet, there is no quality of life evaluation scale (QOLES) specific to them. This study designed a quantitative instrument for evaluating QOL of nursing students. The study design was a descriptive survey with mixed methods including literature review, panel discussion, Delphi method, and statistical analysis. The data were collected from 880 nursing students from four teaching hospitals in Wuhan, China. The reliability and validity of the scale were tested through completion of the QOLES in a cluster sampling method. The total scale included 18 items in three domains: physical, psychological, and social functional. The cumulative contributing rate of the three common factors was 65.23%. Cronbach's alpha coefficient of the scale was 0.82. This scale had good reliability and validity to evaluate nursing students' QOL.

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Introduction

"Quality of life" (QOL) is an indicator of the overall health of an individual, including physical, psychological and social aspects (Hosseinali et al., 2014). Nursing students are undertaking vital transition of clinical practice between education and career, and low QOL during this period may dissuade students from a future career in nursing. Due to the severity of the global nursing shortage, it is vital to increase the numbers of trained nurses in the field, and ensuring their quality of life may assist that goal. As yet, there is no quality of life evaluation scale (QOLES) specific to them. In this context, there is a need to establish a quality of life instrument for nursing students to identify their health problems in clinical practice in order to take effective measures to improve their QOL.

Background

QOL is a concept that is composed of multiple dimensions, and it can be defined in many different ways (Cimete et al., 2003). QOL refers to a person's overall sense of well-being, including all aspects contributing to his/her subjective satisfaction (S-Leung, 2005). These aspects include health, family, work, the social network, and the residential environment. The World Health Organization (WHO) defined QOL as individuals' awareness of their position in life in context of the cultural and value systems in which they live and in relation to their goals,

expectation standards, and concerns (Cimete et al., 2003; Palhares et al., 2014; Tavares et al., 2013). According to Colver, QOL can be described in broad ways that incorporate objective and subjective accounts of personal feelings, social relationships, local environment, societal values, political institutions, economic conditions, and international relations (Colver, 2009). QOL is a difficult concept to define, and there is still no consensus despite ongoing debate over the past few decades (Seidl and Zannon, 2004). However, a subjective and multidimensional approach, including physical and psychological health and social relations, is needed for quality of life assessment (Carr et al., 2001). In recent years, QOL has become an important outcome in clinical studies (Fairclough, 2002). Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. Instead of traditional indicators such as mortality and morbidity, QOL has become a new and important indicator for health status which can comprehensively reflect physical, psychological, and social aspects of overall health.

Clinical practice means the end of medical school and the beginning of clinical work for nursing students; it is a special period filled with high levels of stress (Al-Zayyat and Al-Gamal, 2013; Nelwat et al., 2013; Ya-Chu et al., 2012). Often for the first time, medical students are exposed to patient care responsibilities and "on-call" periods, and they must also make major career decisions (Raj et al., 2000). Clinical practice has been shown to affect how students view a future career in nursing (Ha, 2015; Lei et al., 2000). High levels of stress in this period can also impact students' clinical performance, producing a threat to their success in clinical rotation (Moscaritolo, 2009). In nursing education, the technical dimension is emphasized. Despite attempts at holistic

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training approaches, this allows for little internal professional growth (Esperidião and Munari, 2004). Nursing students are experiencing a crucial stage of life providing the possibilities of changes and new expectations. This can generate a profound impact on their current and future QOL (Beuter et al., 2005). The process of clinical training is associated with a decline in health status (Satish, 2000).

Nurses are the largest group of health professionals in any country. Nursing quality is closely related to the effectiveness of the healthcare system. However, the shortage of nurses is very severe globally and is expected to continue until 2020. There will be an estimated 400,000 registered nursing positions left vacant by that time (Murray, 2002). Nursing students are the main source of nurses. Nursing students are at an important learning stage, and clinical practice is a very important period for them to form mature and stable personalities. Thus, the health status of nursing students in this period not only affects their practice attitudes and results, but also affects their career values and career choice. Perhaps low QOL during clinical practice dissuades students from a future career in nursing; therefore, it is very important for clinical nursing teachers and nursing managers to recognize and appreciate the importance of nursing students' QOL. However, many QOL surveys conducted in hospitals focused only on doctors and nurses, but paid less attention to nursing students. Very few studies have been conducted to assess QOL of nursing students. This may be explained by the lack of measuring instruments specific to nursing students.

In order to resolve the nurse shortage, an important strategy should be increasing the life quality of nursing students, thus encouraging nursing students to choose the nursing field as their final careers after clinical practice. The first step to increase the QOL of nursing students is to develop QOLES specific to nursing students. Only with the right instrument can we truly and accurately know the QOL of nursing students and take effective measures to increase it.

Now, although most of QOL evaluation tools are mature, including the World Health Organization Quality of Life Scale (WHOQOL-100), the World Health Organization Quality of Life Scale Summary (WHOQOL-BREF), a comprehensive assessment of quality of life questionnaire (GQOLI-74), and Medical Outcomes Study scale (SF-36), they are universal tools suitable especially for married groups. Nursing students in clinical practice are in a special setting, and they have their own unique physical, psychological, and social characteristics. Typically, nursing students in China are an unmarried group, so universal tools do not reflect the real QOL of nursing students at this special time. It is necessary to focus on the clinical characteristics of nursing students to evaluate their QOL. The aim of this study is to develop a scientific and objective scale suitable for the investigation of QOL of nursing students in clinical practice.

Method

The study design was a descriptive survey with mixed methods including literature review, panel discussion, the Delphi method, and statistical analysis of the data collected from nursing students through completion of the QOLES, and it was approved by the Institutional Review Board approval from Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology.

Scale development

Based on the concept of QOL proposed by WHO, the authors designed four domains for QOLES, namely physical health, psychological health, social relationships, and environmental health. The item pool containing 30 items was developed initially through a thorough review of the QOL literature. China's national conditions and characteristics of nursing students in clinical practice were considered in the process of developing the item pool of QOLES. To ensure the comprehensiveness and feasibility of scale items, a panel discussion was conducted. Based

on opinions of group members, some items were modified, added, or deleted, and an initial scale containing 33 items was produced.

The initial scale was mailed to fifty experts from different parts of China to validate and prioritize the 33 items into a more manageable inventory by the Delphi technique. This technique aims to reach a consensus among experts' opinions on a topic through a series of structured questionnaires (Hasson et al., 2000). Selection criteria for the expert panel included a minimum ten years of experience in direct clinical nursing management and/or clinical nursing teaching. In the first phase, thirty of them completed the questionnaires fully and returned them in a timely manner. Three of them were male, 27 were female; nine were professors, and 21 were associate professors; 20 were nursing managers, 10 worked in clinical nursing education. Each item of the initial scale had five answers, so experts were asked to evaluate the items on a score of 0–5 according to how important they felt each item was in reflecting the QOL of nursing students (1 = not at all important, 2 = less important, 3 = important, 4 = more important, and 5 = highly important). Using the scores of each item given by experts, the 26 top ranking items scored equal to or greater than 3 from the original 33 items were retained for the second version of the inventory. Together with the first questionnaire, the experts were asked to complete data on personal and professional characteristics. A random sample of 20 experts from the panel were consulted in the same manner in the second phase, and 18 responses were fully completed and returned. On review of the experts' ratings, four items were eliminated and the top ranking 22 items were retained for QOLES.

QOLES was a 22-item instrument consisting of four domains: physical health (six items), psychological health (seven items), social relationships (five items), and environmental health (four items). The physical health domain included items on pain and discomfort, fatigue and energy, rest and sleep, and working ability. The psychological domain measured positive attitudes and negative thoughts, self-confidence, memory, and concentration. The social relationships domain contained questions on interpersonal relationships, social support, and social station. The environmental health domain covered issues related to safety, clinical environment, opportunities to acquire new skills and knowledge, and recreation. Each item had five answers, so respondents were asked to evaluate each item on a score of 0–5 in terms of how they feel about their lives. Because six items contained negative statements (items 1.1, 1.2, 2.3, 2.4, 2.5 and 3.1), their scores were calculated inversely. Total score of the scale was the sum of each item score with higher scores corresponding to a better QOL.

Sample

In order to test psychometric properties of the scale, QOLES was used to investigate 880 nursing students selected through cluster sampling in September 2013 from four different teaching hospitals in Wuhan city in central China. In order to help all participants clearly understand the objectives and process of the study, a workshop was conducted to provide information to them, and all study participants provided informed consent. With the help of clinical nursing teachers, QOLES was administered to the students before the completion of their clinical practice. Students took about 15 min to complete the forms. Of the 880 students, 755 responses were fully completed with 39 (5.2%) from males and 716 (94.8%) from females. 418 of these 755 participants were four-year undergraduate nursing students, and 337 of them were three-year junior college nursing students. The age of participants ranged from 16 to 26, and all of them had completed their theoretical nursing curriculums in nursing schools and practiced in hospitals for 7–9 months.

Statistical analysis

Two psychometric properties of the QOLES were investigated in this study. The validity of QOLES was tested mainly by construct validity. Other forms of analysis, such as factor analysis, correlation matrix