—— ORIGINAL ARTICLE ——

Psychometric Validation of the Perceived Perioperative Competence Scale-Revised in the Swedish Context

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Purpose: *To psychometrically test the Perceived Perioperative Competence Scale-Revised (PPCS-R) in the Swedish context.*
Design: *Cross-sectional survey.*
Methods: *The 40-item PPCS-R was translated into Swedish using a forward-translation approach. A census of 2,902 registered nurse anesthetists (RNAs) and operating room (OR) nurses was drawn from a database of a national association in Sweden.*
Finding: *The response rate was 39% (n = 1,033; 528 RNAs and 505 OR nurses). Cronbach alpha for each factor was 0.78 to 0.89 among OR nurses and 0.79 to 0.88 among RNAs. Confirmatory factor analysis showed good model fit in the six-factor model.*
Conclusions: *Psychometric testing of the Swedish translation of the PPCS-R suggests a good construct validity, and the construct and its six factors are conceptually relevant among the Swedish OR nurses and RNAs.*

Keywords: *instrument development, nursing competence, advanced practice nursing, confirmatory factor analysis.*
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COMPETENCE ENCOMPASSES THE cognitive, social, and psychomotor skills required for nurses to practice safely. There are compelling reasons for assessing professional competence; without appropriate technical and nontechnical skills, there is a heightened risk of errors and adverse events.[1-3] Self-assessed competence is a commonly accepted and time-efficient approach.[4-7] When investigating agreement between nurse and manager and nurse competence, the managers assessed higher levels of competences than the nurses themselves.[8] When nurses assessed their level of competence, they identified several areas in need of additional education and clinical exposure.[9] Thus, assessing the competence of practicing nurses is an important strategy to identify areas of professional development and practice improvement, and thus ensure that nurses provide patients with high quality and safe care.

Over the last 2 decades, conceptualizations of nurse competence have been informed by specialty and context. Professional competence in nurses has been described as a process in which

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the nurse develops from a novice into an expert over time.[10] Generic nurse competence has been described in relation to the helping role, managing situations, the work role, diagnostic functions, teaching/coaching, therapeutic interventions, and ensuring quality.[6] A concept analysis by Smith[11] exploring the notion of nurse competence identified nine concepts involved in developing nurse competence: integrating knowledge into practice, experience, critical thinking, proficient skills, caring, communication, environment, motivation, and professionalism.[11]

More broadly within medicine, Epstein and Hundert[12] proposed that professional competence of physicians and trainees is the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served (p. 226). This definition is also applicable to advanced practice nurses such as registered nurse anesthetists (RNAs) and operating room (OR) nurses.

Background

THE LITERATURE REVIEW ON COMPETENCE INSTRUMENTS. Several researchers agree that there is a lack of consensus in defining nurse competence.[11-13] This lack of consensus may be related to the differences in specialty and context, leading to the development and psychometric evaluation of instruments nuanced to different settings with participants of varying levels of clinical experience.[4-6,14] Table 1 provides a summary of five tools developed to measure nurses competence across various nursing samples and contexts. To date, the only instrument developed specifically for the perioperative context is the Perceived Perioperative Competence Scale-Revised (PPCS-R).[7]

THE PERIOPERATIVE SETTING. In the perioperative context, surgical teams comprise physicians and nurses working in instrument and anesthetic roles, all of whom have circumscribed and well-defined roles.[15] In many instances, surgical teams work together on an *ad hoc* basis; as such membership often changes.[16] Although the perioperative nurse may not always work regularly with

other members of the surgical team, they must demonstrate knowledge of the procedure itself and particular patient requirements for anesthesia and other factors.[17] This requires nurses to be familiar with using the various surgical instruments and equipment. The fast pace of the work environment means that perioperative nurses must efficiently manage and coordinate busy lists and prioritize caseload based on patient acuity and case requirements.[18] The patient is central to the care nurses provide in the OR, and the perioperative nurses must work cohesively with other team members to ensure the best possible outcome for the patient.[19]

THE RNAS AND OR NURSES IN EUROPE. The RNA is a perioperative nurse with nursing qualification who has undertaken additional education and specialty training in anesthesia. To become an RNA in Europe requires between 1 and 4 years of postgraduate education. After accreditation by an anesthesiologist, the RNA independently induces, maintains, and concludes general anesthesia. RNAs work in several countries, including Sweden, Norway, Denmark, the United States, and Switzerland.[20] In addition to having nursing qualifications, the OR nurse has undergone additional postgraduate education in perioperative care, which takes from 1 to 4 years. OR nurses' duties encompass instrument and circulating roles. The role is based on the European Operating Room Nurses Association description of competence for perioperative nursing care, underpinned by the model of Tollerud et al.[21] Both RNA and OR nurse roles encompass patient safety and advocacy.[22,23]

Aim

The purpose of this study was to test the psychometric properties of the PPCS-R with a sample of RNAs and OR nurses in the Swedish context. To date, there has been no evaluation of the perceived competence of perioperative nurses in a Swedish setting.

Design

This methodological study used a cross-sectional survey to evaluate the psychometric properties of the PPCS-R.