Development and assessment of the validity and reliability of a scale for measuring the mentoring competencies of Japanese clinical midwives: An exploratory quantitative research study

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ARTICLE INFO

ABSTRACT

Background: Midwives are always involved in educational activities whenever novice midwives are present. Although various scales for measuring the educational competencies of nurses have already been developed in previous studies, a scale for the educational competencies particular to midwives has yet to be developed, or even no previous studies have revealed their functions as clinical educators.
Objectives: The purpose of this study was to develop a scale to measure the mentoring competencies of clinical midwives (MCCM Scale) and to confirm its validity and reliability.
Design: An exploratory quantitative research study.
Methods: Questionnaires were distributed to 1,645 midwives at 148 facilities who had previously instructed novice midwives. 1,004 midwives (61.0%) voluntarily returned valid responses and 296 (18.0%) voluntarily agreed to participate in the survey for test–retest reliability.
Results: Exploratory factor analyses were performed over 41 items and the following seven factors were extracted with a reliability coefficient (Cronbach's α) of 0.953: (i) supporting experimental study, (ii) personal characteristics particularly in clinical educators, (iii) thoughtfulness and empathy for new midwives, (iv) self-awareness and self-reflection for finding confidence, (v) making effective use of the new midwives' own experience, (vi) commitment to educational activities, and (vii) sharing their midwifery practice. Test–retest reliability was measured based on a convenience sample of 246 (83.1%). Pearson's test–retest correlation coefficient for the entire scale was r = 0.863. The factor loadings of each item on its respective factor were 0.313–0.925. The total score of the MCCM Scale was positively correlated with that of the Quality of Nurses' Occupational Experience Scale (r = 0.641, p = 0.000) and was negatively correlated with the total score of the Japanese Burnout Scale (r = −0.480, p = 0.000).
Conclusion: The MCCM Scale is composed of 41 items and three subscales measured from a total of seven factors. The validity and reliability of the MCCM Scale was supported by the statistical analyses.

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1. Introduction

Achieving consensus on how to prepare a competent midwifery teacher is an urgent concern being addressed by many countries (World Health Organization (WHO), 2015). The qualities of educators involved in the process of clinical settings greatly influence students' quality of clinical learning and the characteristics the students will have as practitioners in the future (Hand, 2006; Hughes and Fraser, 2011). In light of this, the effectiveness of these educators' practical abilities has been elucidated and their role and functions have been evaluated from various domains (Chow and Suen, 2001; Licqurish and Seibold, 2008). The English National Board (ENB) and Department of Health (2001) clearly defines a "mentor" as a nurse, midwife or health visitor who facilitates learning and supervises and assesses students in the clinical setting. The qualities and key activities particular to "good mentors" in midwifery have been identified (Jones, 2004; Hughes and Fraser, 2011) and the role and essential functions of such mentors have been outlined (Nursing and Midwifery Council (NMC), 2008).

In Japan, there are various courses for nurses to study to become midwives. In all courses, however, students should first be qualified as nurses. To obtain a midwifery qualification, all nurses must have assisted in about 10 deliveries during their practical training. Clinical midwives offer instruction in all cases where students provide delivery assistance. Midwives simultaneously provide care for parturient women during delivery and coordinate student practical training. They also sometimes provide instruction in the necessary knowledge, skills, and attitudes. In

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other words, midwives responsible for clinical education in midwifery practice must bear the responsibility of both providing care to parturient women and educating students (Hishinuma et al., 2015).

In practical training for delivery assistance, the midwife first confirms that the admitted parturient woman has given her consent to be under the care of a midwifery student. Once the parturient woman has given her consent, the educator contacts the student and the student begins intrapartum care. After the student has greeted the parturient woman and her family, they must promptly gather information to make a diagnosis and devise a nursing plan. The educator provides education to the student while simultaneously continuing to provide care to the parturient woman. As labor progresses, the necessary specialist knowledge and midwifery skills become more complex. Nonetheless, students must provide care by developing various midwifery skills together with the educator. Educators are required to ensure that quality education is provided to students in situations where the safety of the mother and child is of top priority. Hishinuma et al. (2015) defined the features of the mentoring competencies of clinical midwives (MCCM) assuming a construct formed of the following three concepts: "competencies as a professional (CP)", "competencies as an educator (CE)" and "personal characteristics". However, a scale for the educational competencies particular to midwives has yet to be developed, or even the features of excellent practical abilities for clinical education that midwives should have remained to be determined.

The aim of this study was therefore to conduct a survey of midwives who have already been involved in educational activities for novice midwives in order to specify the features of the practical abilities possessed by these midwives, and to develop a scale that can objectively evaluate the educational competencies of clinical midwives. The scale developed in this study is expected to be a useful educational resource for hospital organizations aiming to build and advance educational system in their facilities.

1.1. Operating Definitions

In this study, the following definitions were used after the Hishinuma et al.'s (2015) definitions.

1. New midwife — a pre-registered midwife or a midwife who was newly qualified within the past year.
2. Mentoring competency — the term used for "educational competency" in this study.
3. Mentoring competencies of clinical midwives (MCCM) — the mentoring competency that midwives exercise when they conduct educational activities for new midwives in clinical settings.

2. Methods

2.1. Design

This was an exploratory quantitative research study, planned as a continuation of Hishinuma et al.'s (2015) study, and was implemented in the following three phases: (1) developing a scale for measuring MCCM (hereafter "MCCM Scale"), (2) confirming the construct of the MCCM Scale, and (3) confirming the validity and reliability of the MCCM Scale.

2.2. Settings and Participants

First, 623 obstetrics facilities were selected from a list of 3,200 facilities (large hospitals, small clinics, and maternity centers) compiled by an Internet search with the exception of the facilities that were asked to participate in Hishinuma et al.'s (2015) questionnaire survey. The administrators and nurse managers of each facility were sent a written request explaining the purpose and protocol of the study and asking for permission to conduct the study in their facility. As a result, 238 (38.2%) facilities returned written informed consent and 148 (21.7%) facilities agreed to participate in the study. The questionnaires were then distributed to the 1,645 midwives who belonged to those 148 facilities and had been involved in educational activities with new midwives at least once.

2.3. Questionnaire

The questionnaire distributed in this study was comprised of the following three items: the initial version of the MCCM Scale (i-MCCM Scale), the Quality of Nurses' Occupational Experience Scale (QNOES) (Suzuki et al., 2004), and the Japanese Burnout Scale (BO Scale) (Kubo and Tao, 1992).

The i-MCCM Scale was comprised of 41 items on a five-point Likert scale, which Hishinuma et al. (2015) proposed as a future instrument for measuring the mentoring competencies of clinical midwives. Hishinuma et al. (2015) assumed that the midwives' practical abilities for clinical education could be defined by three concepts: CP, CE, and PC (Fig. 1). Then, Hishinuma et al. (2015) collected descriptions relevant to the abilities, created a primitive form of a five point-Likert questionnaire and conducted a survey with the resulting questionnaire. In the survey, 694 midwives were asked to participate and 451 (65.0%) valid responses were received and analyzed. Hishinuma et al. (2015) performed exploratory factor analyses and nine sub-concepts and 41 items that described the competencies more specifically were extracted. The reliability of this 41-item questionnaire, as the i-MCCM Scale, was supported by the overall reliability coefficient (Cronbach's $\alpha = 0.944$) and the factorial validity was also supported by the values of the factor contribution ratio of each factor (44.0–81.2%). Hishinuma et al. (2015) concluded that the competencies required for midwives who educate new midwives or who actually develop the behavior, thoughts, and attitudes of midwives in clinical settings could be defined by the three concepts mentioned above and that the 41-item questionnaire could explain the features of such competencies. Therefore, we started this study using the previously developed 41-item questionnaire with a five point-Likert scale as the i-MCCM Scale.

For the purpose of assessing the validity of the i-MCCM Scale, especially the criterion-related validity, we included QNOES and the BO Scale in the questionnaire. QNOES was developed to evaluate the quality of nurses' occupational experiences. 618 valid responses were analyzed and high internal consistency (Cronbach's $\alpha = 0.945$) was indicated. Pearson's test–retest correlation coefficient was $r = 0.811$ ($p = 0.000$). We thought that midwives' educational activities were affected by what they had learned from their senior staff. Therefore, we hypothesized that midwives with high quality occupational experience could exercise their mentoring competencies much better. That is, we supposed that there would be a positive relationship between the MCCM Scale score and that of QNOES.

Additionally, the BO Scale was included for the same purpose. Kubo and Tao (1992) revised the BO Scale developed by Tao (1989). Tao and Kubo (1994) confirmed the structure of the scale with a sample of 976 nurses. Additionally, Kubo (2007) confirmed the factorial and construct validity of the BO Scale with a sample of 1,897 nurses. We presumed that midwives who were not motivated in their jobs would also be unmotivated to be involved in any kind of educational activities. Therefore, we hypothesized that midwives who exhibit excellent practical abilities for clinical education have a lower tendency for burnout. That is, we supposed that there would be a negative relationship between the MCCM Scale score and that of the BO Scale.

When we decided to utilize QNOES and the BO Scale, we contacted the original authors by email and by written form to explain the outline of our study and to ask for permission to use their scales. Both of the authors approved our request.

2.4. Data Collection and Analyses

The procedure for data collection and analysis was threefold. First, we specified the structure of the MCCM Scale. Second, to confirm the