

AY2020 Summary of Doctoral Dissertation
Doctoral Program, Graduate School of Nursing, Sapporo City University

Development of Simulation Education Program Building Midwives' Practical Capacities and Its Effectiveness:
Continuing Education Program Focusing on Delivery Stage

Doctoral Program, Graduate School of Nursing, Sapporo City University

Student ID Number: 2075301 Name: Mayumi YAMAUCHI

I. Introduction

Many of continuing education programs for midwives are implemented along with nurses in order to build their nursing practical capabilities, but continuing education exclusively for midwives is significant to build their practical capabilities. It has been shown that simulation learning methods based on experience learning are useful especially for adult learners. With this background, the purpose of this research was to develop a continuing education program incorporating simulation education which builds midwives' practical capabilities at the delivery stage as the type of work legally authorized for them and to evaluate its effectiveness. It was thought that proving the effectiveness of a continuing education program could contribute to the continuing education for midwives.

II. Research Method

1. Research Design: This research was designed in two stages. Research Stage 1 was a Secondary Analysis (Exploratory factor analysis: EFA) and Research Stage 2 was a single-group before-and-after test design. **2. Research Stage 1:** The existing data from a previous research titled as "Fact-finding Survey on Midwives'" were analyzed. As for the analysis method, using Mann-Whitney U test, Kruskal-Wallis test and factor analyses, educational goals, educational contents and the service years of midwives to be the gist of the education program were selected. **3. Research Stage 2:** The process of Research Stage 2 consisted of the following six steps: (1) the preparation of the draft of a continuing education program by the researcher (hereinafter referred to as Original Draft), (2) the securing of appropriate contents of a simulation scenario by the expert meeting (hereinafter referred to as Scenario), (3) the modification of Original Draft into the draft of a modified continuing education program (hereinafter referred to as Modified Draft), (4) the securing of the implementation and validity of a pre-test using Modified Draft, (5) the development of a continuing education program named as YAMAUCHI-Program for Midwife based on Modified Draft (hereinafter referred to as YPFM), and (6) the implementation of a single-group before-and-after test. Then, the effectiveness was evaluated based on the results of the said test and YPFM was finally established. Freidman two-way variable analysis method through ranking, Kruskal-Wallis test and Spearman rank-correlation coefficient were used to analyze obtained data (midwives' practical capabilities, the preparedness of self-decision-type learning, general self-efficacy, the scores for the objective structured clinical examination (OSCE), free descriptions on their own challenges and goals, and the level of satisfaction with attending the program) while KJ method invented was used to analyze free descriptions. **4. Research Hypothesis:** The research hypothesis was that "Midwives' practical capabilities at the delivery stage will be built by their attending a continuing education program". **5. Ethical Consideration:** This research was approved by the research ethical review committee of Graduate School of Nursing, Sapporo City University. (Notification # 26)

III. Results

1. Research Stage 1: The educational goal of the continuing education program was set as “to be able to learn how to make judgements on and take appropriate measures against the bleeding after the delivery of the placenta”; the educational content was set as how to make judgements and take measures against abnormal bleeding; and the service years of midwives subject to this research was set as 2 - 10 years. **2. Research Stage 2:** Original Draft was prepared by the researcher and then modified as Modified Draft while securing the content validity of Scenario at the expert meeting. YPFM was developed after conducting 3 pre-tests using Modified Draft and confirming that it was able to be operated properly. YPFM was outlined by a simulation learning part (exercises and OSCE) and its debriefing part. The former part was a group learning exercise in which one group was composed of 7 members and all the members played a role (birth assistance midwife, indirect assistance midwife, parturient woman, husband, doctor or observer). 3 sessions in total were scheduled to be conducted in this program. The second session was held on the next day of the first session and the third session was held three weeks after the first session. Learning materials were substituted by the laminated pictures of medical equipment and a wearable-type parturient woman model was used. 19 midwives were subjected to the before-and-after test and their averaged service years was 4.7 (SD2.5). The average score of 149.8 (SD25.2) indicating the level of their practical capabilities as a midwife before the test significantly increased to 164.9 (SD23.9) ($p < .001$) after the test. The average score of 199.4 (SD18.1) representing their preparedness of self-decision-type learning before the test also significantly increased to 205.7 (SD19.1) ($p < .05$) after the test. Meanwhile, the score for their general self-efficacy before the test was 5.6 (SD4.3) while that after the test was 6.4 (SD4.8), not showing any significant difference. Any significant change was not observed in OSCE scores. The scores indicating the level of their satisfaction with the prior learning ranged between 4.6 and 4.9 (on a 5-point scale) throughout the three sessions. In the free descriptions, their ability to make judgements on and handle (deal with) abnormal bleeding was improved and their own goals were achieved.

IV. Discussion

It has been confirmed that developed YPFM builds midwives' practical capabilities at the delivery stage and thus determined that it is effective. YPFM was evaluated using Kirkpatrick's four-level model to describe the evaluations of a training program. Among Level 1 (Reaction of Learner), Level 2 (Performance of Learner), Level 3 (Transition of Learning) and Level 4 (Result of Group), the learners showed a high level of satisfaction for Level 1, indicating that the program was effective in terms of giving satisfaction to them. As for Level 2, based on the fact that the learners' scores indicating their midwifery practical capabilities increased significantly, it is considered that the program was effective enough for them to achieve their own goals. While no data were collected for Level 3 or Level 4 during this research, at Level 3, the learners' free descriptions suggested that they were actually making use of their capabilities. Regarding Level 4, it is necessary to continue to conduct researches on a long-term basis. As learning materials, a wearable-type parturient woman model was used instead of a sophisticated simulator and the laminated pictures of medical equipment were used as well. Although the level of fidelity was low consequently, those learning materials were evaluated as effective from the facts that the learners' midwifery practical capabilities were successfully built and that their learning satisfaction level was high. Therefore, it is concluded that YPFM can be used for the continuing education for midwives.

V. Conclusion

The developed continuing education program was simulation education focusing on the building of midwives' practical capabilities at the delivery stage. These can contribute to the building of midwives' practical capabilities at the delivery stage and further the enhancement of their lifelong learning ability.