

Abstract

Developing an educational program for nurses to emphasize the mental care of
isolated patients with multidrug-resistant organisms

2018

Graduate School of Nursing and Social Services,
Health Sciences University of Hokkaido

Michiko Saito

Purpose

The purpose of this study is to develop and implement an educational program for nurses to emphasize the mental care of isolated patients with multidrug-resistant organisms (MDROs), and to identify the effectiveness of the program.

Definition of terms

1. isolation in single-patient rooms: Physical isolation for patients known to be infected or colonized with MDROs involves the isolation of patients in single-patient rooms to prevent infection transmission to other patients and healthcare-workers who wear personal protective equipment (PPE) when in contact with patients. It is a situation in which a patient is placed in his/her care area alone, separated from cohorting, isolated in a multi-patient room or a non-isolated area.

2. mental care: To observe how patients reacts to distress caused by single-patient room isolation, to assess what support is necessary for patients to live as they choose, and to take an action to improve the mental state of the patient.

Study methods

1. Study design: Pretest and posttest design with an implementation group and a comparison group.

2. Participants and setting: A total of twenty-five nurses who worked at the acute inpatient wards in four facilities and took care of patients with MDROs on many occasions were assigned to the implementation group of the educational program. A total of fifty-three nurses who worked at the same ward as the implementation group were assigned to a comparison group.

3. Development and overview of the educational program: The educational program was developed based on the ADDIE Model which is used in Instructional Design. The ADDIE Model has five phases; Analysis, Design, Development, Implementation, and Evaluation. The goal of the program is to learn and practice mental care and to understand the situation of the patient. The program consists of two classes, "Infection control" and "Mental care", which take 45 minutes each. The class is small and participatory, with a roughly 10 minutes long lecture including examples of cases with explanations, followed by a group debate. For this the conference rooms in their facilities were used.

4. Schedule of implementation program and survey period: The educational program took place from January to March in 2018. The implementation group took a pretest before the class and took posttest 1 after two classes, and then took a second posttest (posttest 2) two months later, from April to June, on the contents of the same two classes. The comparison group took the pretest and posttest 2 at the same time as the implementation group did.

5. Ethical considerations: This study was approved by the Ethics Committee of the School of Nursing and Social Services Graduate School of Nursing and Social Services, Health Sciences University of Hokkaido (Approval No. 16N035033, 17N019019).

6. Data collection:

1) Characteristic of participants: The participants reported age, sex, total years of working as a nurse, current job position, educational background, qualifications, whether they have experience as a link-nurse in infection control or not, and whether they have taken any seminar related to MDROs in the past or not, in a questionnaire.

2) Pretest: The participants answered questions regarding basic knowledge of MDROs and infection control practice (4 questions), choice of personal protective equipment (PPE) depending on the situation in which a patient has been infected or colonized (6 questions), influence of patients' mental state by isolation in single-patient room (4 questions), and their experience of implementation of mental care (observation; 14 questions, practice; 6 questions).

3) Posttest 1: To measure how much they had learned the implementation group answered the same questions as in the pretest. Regarding mental care, they answered questions regarding their attitude to putting what they had learned into practice.

4) Posttest 2: The implementation group was asked whether they had been able to implement the practice they had learned in class (change of behavior) when taking care of isolated patients with MDROs. Those who had not were asked about their attitude toward implementing these practices when taking care of them.

The questioning consisted of an anonymous self-administered questionnaire, where the participants answered according to a 4 point scale; "Most of the time/ Strongly agree (4 point) ~ Never/ Strongly disagree (1 point)".

7. Data analysis

1) A comparison of before and after the class in the implementation group: The result of the pretest was compared with the results of posttest 1 using the McNemar test to measure choice of PPE depending on the situation, and using the Wilcoxon signed-ranks test to measure perception of the mental state of the patient with MDROs.

2) A comparison of changes in the implementation group and the comparison group: Four points scales answers were converted into scoring, and using Two-way repeated measures analysis of variance to measure two factors, whether the class had been taken or not (the implementation group having taken the class, and the comparison group not having taken the class), and time (pretest, and posttest 2).

Results

1. Characteristic of participants: The mean age for the implementation group was 31.5 years, ranging from 22-45 years, of which 23 (92.0%) were female. The mean age for the Comparison group was 33.4 years, ranging from 22-60 years, of which 48 (90.6%) were female. The case where total years of working as a nurse was "over 5 years" was 17 (68.0%) in the implementation group, and 38 (71.1%) in the comparison group. There was no significant difference in the characteristic of the implementation group and the comparison group.

2. Effectiveness of the educational program:

1) When comparing before and after the class in the implementation group, it was evident that after the class they could make more accurate judgment when choosing PPE depending on the situation, based on the knowledge of Standard precaution and Contact precaution ($p < .05$). Regarding the mental state of patients with MDROs, they are easily anxious and depressive, have feelings of anger easily, and are easily stressed. The perception of the mental state of the patient was raised in the implementation group ($p < .05$).

2) The difference between the implementation group and the comparison group was compared. When

observing the physiological response of the patient, such as “dizziness”, “headache”, “palpitation”, “hands shaking” and psychological response, such as “sentimental”, “short temper”, “restless”, “nervous”, “frustrated”, “excited”, the score of the implementation group had increased ($p < .05$). Regarding actions to improve patients’ mental state, such as “to provide patients with information”, “to create space for nurse-patient communication by visiting patient rooms”, “to hold meetings where patient treatment is continuously discussed”, and “to consult a specialist”, the score of the implementation group had increased ($p < .05$).

Discussion

It was thought that the motivation to learn was increased in the implementation group, that the practice of isolation precaution to prevent the spread of MDROs’ infections was provided, that the problem of the effect on the mental state of the patient was raised, that the level of caution in the implementation group was improved, and that the relation of the educational program to the participants’ real-life practice was shown. It was also thought that the instructional strategy was effective in providing case examples, in reactivating previously learned content, and in making the participants work with problem solving.

The implementation group was able to practice patient observation and providing patients with information as included in the mental care practice. By specific instruction in how to improve communication, the participants felt more confident in their practice. It was evident that the participants were satisfied with the interactive element of group debate and positive feedback, as it strengthened motivation. These were thought to be factors to maintaining the effectiveness two months later. Therefore, it was suggested that development of teaching materials, instructional strategy and a learning environment based on the Instructional Design, the ARCS model and the First principles of instruction, was effective.

Research limitations and Challenges to address

The participants in this study were selected by convenience sampling with the limitations of overgeneralization. Evaluation of effectiveness of the program was not based on the actual practice itself, but the evaluation of change of behavior or attitude in the implementation group was based on a self-report. In the future, in the evaluation of effectiveness, it is necessary to include observation of actual nurses’ performance, measurement of personal and organizational growth, and patient outcome from a long-term perspective. Also, as the practice was based on knowledge from previous research, whether the mental state of the patients in this study was improved, was not verified. It is necessary to consider a more sophisticated program by further examining the program and to accumulate knowledge about mental care for patients with MDROs in the future.