

2023 Abstract of Doctoral Dissertation
Graduate School of Nursing, Sapporo City University

Development of a Self-Care Behavior Assessment Tool for Patients 6 Months After
Acute Myocardial Infarction

Graduate School of Nursing, Sapporo City University (Doctoral Course)

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I. Research Background

In 2018, the Ministry of Health, Labour and Welfare advocated the establishment of a medical coordination system utilizing the Regional Clinical Alliance Path (RCAP), a treatment plan from an acute care hospital to home, and the promotion of lifestyle-related disease measures. In this study, we focused on acute myocardial infarction (AMI), a typical lifestyle-related disease and a target disease for RCAP. As AMI is a high risk of recurrence, lifestyle modification and control of coronary risk factors are essential. Patient self-care is also important to improve lifestyle-related diseases. However, to the best of our knowledge, there are no scales that measure self-care behaviors after AMI in Japan or abroad.

II. Objectives

This study aimed to develop and test the reliability and validity of a self-care behavior assessment tool (“assessment tool”) for patients 6 months after AMI onset.

III. Study design

A descriptive research design was used.

IV. Methods

1. Study 1

Study 1 aimed to identify recommended self-care behaviors and practices to prevent recurrence in patients 6 months after AMI onset. Study 1-1 analyzed 13 references on the prevention of recurrence after AMI using RCAP in Japan. Descriptions of self-care behaviors were collected through a literature review. The method of analysis was a matter-reference-type content analysis.

Study 1-2 analyzed patients who had utilized the *Anshin Renkei Notebook*, a post-AMI RCAP in Hokkaido. Patients were interviewed 6 months after AMI onset to collect data on their self-care behaviors to prevent recurrence. The analysis method employed was item content analysis.

2. Study 2

Study 2 aimed to develop an assessment tool and test its reliability and validity. The study subjects comprised patients from institutions employing the *Anshin Renkei Notebook*, 6 to 24 months after the onset of AMI. A draft evaluation table was prepared from the results of Study 1, and a survey was conducted. Analysis methods included item analysis, validity testing (exploratory factor analysis, confirmatory factor analysis, criterion-related validity through correlation analysis with the Self-Care Agency Questionnaire [SCAQ-30] developed by Honjo (2008), and hypothesis testing using eight hypotheses), and reliability testing (internal consistency using the Cronbach’s alpha coefficient, item-total analysis, and reproducibility using the retest method).

V. Ethical considerations

Approval by the Sapporo City University Graduate School of Nursing Ethics Review Board (2021 No. 8

and 2023 No. 18).

VI. Results

Study 1-1 yielded 83 codes, 18 subcategories, and 6 categories. In Study 1-2, seven subjects were interviewed. Three subjects were in their 50s, two in their 60s, and two in their 70s. Six were male, and one was female. We extracted 184 codes, 42 subcategories, and 21 categories. The results of Studies 1-1 and 1-2 were combined to 21 categories. 44 self-care behaviors after AMI were classified into categories. In Study 2, assessment tool consisting of 44 items was prepared and surveyed. 310 copies were distributed to nine medical institutions, and 115 responded (collection rate: 37.1%; response rate: 98.3%). Basic attributes a male-to-female ratio of 4:1, and 65.5% of the respondents were between 65 and 80 years of age. The follow-up period after AMI treatment was 19-24 months for 41.6% and 6-12 months for 37.2% of the respondents. 60 copies of the draft retest evaluation form were distributed to three medical institutions, and responses were received from 21 respondents (40.3% collection rate, 100% valid response rate). Exploratory factor analysis (maximum likelihood method, promax rotation) was performed, yielding 3 factors and 25 items. The Kaiser-Meyer-Olkin (KMO) sample validity of the factor analysis results was 0.786 ($p < 0.01$), and the approximate χ^2 value of Bartlett's sphericity test value was 1343.307 ($p < 0.01$). The first factor was "Life Management Behaviors," which included diet, lifestyle, recording weight, and weight maintenance. The second factor was "Treatment-Receiving Behavior," which included receiving tests and treatment based on instructions and explaining the results. The third factor was "Blood Pressure Control Behavior," which consisted of measuring blood pressure, recording it, and explaining the results. The model fit by confirmatory factor analysis was GFI = 0.95, AGFI = 0.94, NFI = 0.93, and RMR = 0.11. The criterion-related validity was 0.739 ($p < 0.01$) for the correlation between items in the draft assessment table and SCAQ-30. Hypothesis testing resulted in $p < 0.01$ for three hypotheses. The Cronbach's alpha coefficient was 0.869. I-T analysis showed correlation coefficients >0.3 for 24 items. The intra-class correlation coefficient between the first time and the retest was 0.930.

VII. Discussion

The 44 items extracted in Study 1 represented novel self-care behaviors, integrating findings from literature reviews and interviews. In Study 2, we validated the factor structure through exploratory factor analysis on 113 subjects, supported by KMO and Bartlett values. Additionally, we assessed the model fit adequacy and positive correlations for criterion-related validity in the confirmatory factor analysis. Hypothesis testing supported three hypotheses. Internal consistency was confirmed by Cronbach's alpha coefficients, and reproducibility was confirmed by the positive correlation of I-T analysis and the number of intra-class correlation relations. Therefore, the reliability and validity of the assessment tool are ensured. Using the newly developed assessment tool, patients can systematically self-evaluate self-care behaviors to prevent recurrence, focusing on aspects such as lifestyle management, medical visits, and blood pressure control.

VIII. Conclusion

After confirming the reliability and validity, a self-care behavior assessment tool (3 factors and 25 items) was developed for patients 6 months after AMI onset. Patients may be able to use the assessment tool to identify self-issues and examine goals for self-care behaviors. Future goals include data accumulation, continued validation, and practical application in clinical practice.