The Effectiveness of Multimedia Education on Hypoglycemic Management

(NCT06516705)

2024/01/23

Study protocol

Objectives

To investigate the effectiveness of multimedia hypoglycemia education compared to conventional hypoglycemia education on knowledge, self-care behavior, fear of hypoglycemia, social support, quality of life, nursing hours, education satisfaction, and the recurrence rate of hypoglycemic events among elderly individuals with type 2 diabetes who have experienced hypoglycemic events.

Methods

Design: An experimental randomized controlled trial with a repeated measures design was conducted. They were recruited from the outpatient department of a medical center in southern Taiwan. Eligible participants were randomly assigned by computer to two groups and received hypoglycemia health education during their outpatient visits.

Participants: Patients with type 2 diabetes aged ≥60 years with blood glucose <70 mg/dl in the past six months. Exclusion criteria: cognitive impairment, inability to perform daily activities, severe or unstable medical conditions.

Procedure: Eligible participants who agreed to join the study proceeded to complete consent forms and relevant questionnaires. Before the intervention, both groups completed a pre-test (T1), which included questionnaires on sociodemographic data, the hypoglycemia management knowledge scale, hypoglycemia self-care behavior Scale, fear of hypoglycemia scale, social support scale, and quality of life scale. Participants were then computer-randomized during waiting periods to receive either multimedia hypoglycemia education as the experimental group, or conventional education as the contrast group.

After the hypoglycemia education session, both groups underwent a post-test (T2), completing the hypoglycemia management knowledge scale and education satisfaction scale. Participants in the experimental group received a QR code for the multimedia hypoglycemia education, allowing them to view the education material again at home. Follow-up tests were conducted three months (T3) and six months (T4) after the intervention, during which participants completed questionnaires and provided data on any recurrent hypoglycemic events.

SAP

Data were collected from December 2021 to December 2023. We recruited 83 participants who were willing to receive hypoglycemia education interventions. However, one participant withdrew from the study due to a cancer diagnosis, leaving

82 participants who completed the study. 41 participants received multimedia hypoglycemia education, and 41 received conventional hypoglycemia education. The collected data were subsequently analyzed statistically. Data analysis included descriptive statistics and inferential statistics such as chi-square, t tests, and generalized estimating equations (GEE).

Results: The experimental group showed significantly higher mean scores in hypoglycemia knowledge (8-item scale), hypoglycemia self-care behavior (10-item scale), and education satisfaction compared to the contrast group. The nursing time spent by the experimental group was significantly lower than those of the contrast group. There were no significant differences between the two groups in hypoglycemia fear, social support, and quality of life. Within six months after receiving hypoglycemia education, the recurrence rate of hypoglycemic events decreased by 61% in the experimental group and by 53.70% in the contrast group.