



## Effects of multimedia nursing education on disease-related depression and anxiety in patients staying in a coronary intensive care unit



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### ABSTRACT

**Aim:** We evaluated the effectiveness of an accessibility-enhanced multimedia informational educational program in reducing depression and anxiety increasing satisfaction with the information and materials received by patients in coronary care unit.

**Methods:** We selected 100 patients from among the patients who stayed at or who underwent surgery at one of two ICUs for any reason who satisfied the eligibility criteria, and agreed to participate in the research. The participants were included in the control or experimental group by random selection. The patients completed the Hospital Anxiety Depression Scale during ICU admission and 1 week after hospital discharge.

**Results:** The difference in HADSA score was significantly greater in patients who received education than in patients who did not receive multimedia nursing education ( $4.2 \pm 0.58$  vs.  $0.6 \pm 0.42$ ;  $p < .01$ ). Additionally, the difference in HADSD score was significantly greater in patients who received multimedia nursing education ( $2.2 \pm 0.53$  vs.  $0.64 \pm 0.46$ ;  $p < .01$ ).

**Conclusion:** This study showed that anxiety and depression associated with hospital can be reduced with multimedia nursing education.

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### 1. Introduction

It is well established that there is a bidirectional interaction between cardiac and psychiatric diseases. Furthermore, psychosocial risk factors play an important role in the development and progression of cardiovascular diseases (CVD). These diseases include coronary artery disease, heart failure and arrhythmias. For example, severe emotional stress may lead to coronary artery disease, heart failure and arrhythmias, while psychiatric complications may develop during the course of CVD. Psychiatric disorders in patients with CVD usually manifest as complications or comorbidities. The most common psychiatric disease is depression, followed by anxiety, delirium, and cognitive impairment (Tully & Székely, 2013).

Intensive care units (ICUs), such as that involved in the present study, are for the treatment and care of patients specifically with severe life-threatening diseases or injuries. (Holt, Phillips, Jameson, et al., 2013; Martens, Nyklíček, Szabó, et al., 2008). ICUs differ from other clinical units in terms of the physical characteristics of the unit and the clinical characteristics of the patients. In this setting, patients cannot move freely and their ability to communicate is impaired because of factors such as continuous monitoring of vital signs using monitors, placement of tubes and cables, pain, and other bodily restrictions (Foxwell, Morley, & Frizelle, 2013). Consequently, ICU stay can have a detrimental psychological effect on patients. Influences on the patient's quality of life include the environment and their family; most important, however, is the role of the healthcare team that treats the patient, and the nurses in particular. Reducing the extent of depression and anxiety is well known to reduce CVD-related mortality and morbidity.

Multimedia education as a new educational method is performed by conveying the concepts and educational materials in an easier, more wide and attractive along with text, sound, pictures and video (Aghvamy, Mohammadzadeh, Gallalmanesh, et al., 2010) and has a special capacity and potential to convey information for patients and especially those with low literacy (Wilson, Makoul, Bojarski, et al., 2012). This new education program can facilitate decision-making

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process by empowering patients for having an active role in selecting health-oriented programs (Jeste, Dunn, Folsom, et al., 2008) and if it is along with proper design will be highly effective in transferring data (Homer, Susskind, Alpert, et al., 2000).

Multimedia education or computer-based instruction is currently being used in both patient and nursing education for staff development, continuing education, general health information, and informed consent. It can be used to teach content, skills, and concepts, as well as to simulate situations. Multimedia may be incorporated as a part of other hospital systems to provide individualized patient education by using actual patient data. Multimedia as an instructional strategy has some definite advantages and disadvantages that can affect integration and use. It will be used more and more in the health care environment to provide consistent, accurate information to nurses and patients.

The present study investigated the effect of multimedia nursing education on the prognosis of patients with CVD in terms of the incidence of disease-related and intensive-care-related depression and anxiety.

## 2. Materials and methods

### 2.1. Study design

A total of 100 patients were randomly selected. Patients were eligible if they were admitted to a coronary ICU for any reason, had no verbal communication problem, were physically and psychologically comfortable while completing the questionnaire, and agreed to participate in the research. Patients who were being treated for a psychiatric disease at the time of admission, had a prior diagnosis of psychiatric disorders (e.g., mental retardation, organic brain syndrome/delirium, dementia, or psychosis), or were under the influence of alcohol or any substance that might prevent the patient from cooperating in the study or impair their ability to complete the questionnaire/telephone interview were excluded from the study.

The study was carried out with approval from the Clinical Research Ethics Committee. We selected 100 patients from among the patients who stayed at or who underwent surgery at one of two ICUs for any reason who satisfied the eligibility criteria, and agreed to participate in the research. Consent forms were obtained from all patients. Eligible patients in each center were allocated to a control or experimental group by random selection. The experimental group was given multimedia nursing education while the control group did not receive multimedia nursing education. Technical materials were prepared for multimedia nursing education. Materials were the same for each patient.

A total of 3 intensive care nurses gave training to patients in two centers. Intensive care nurses' length of experience was between 1 to 3 years. Nurses are selected according to the volunteer. A total of four nurses were volunteers. Three of them were chosen because they had experience in psychiatry. The same nurse was always responsible for the same patient during the randomization process.

The patients completed the Hospital Anxiety Depression Scale (HADS) during ICU admission and 1 week after hospital discharge. The patients completed the first questionnaire on their own, although illiterate patients were given assistance as required. The second questionnaire was performed via telephone in the form of a question and answer session.

During the ICU stay, we interviewed the patients to obtain data on smoking status, history of psychiatric disease, and concomitant diseases. Smoking status was recorded as either non-smoker (i.e., never smoked) or smoker (current or ex-smoker). Regarding the history of psychiatric disease, we asked whether the patient had ever been diagnosed with a psychiatric disease and had ever received psychiatric therapy before ICU admission. Concomitant chronic diseases were reported as diabetes mellitus, hypertension, dyslipidemia, or other disease.

### 2.2. HADS

The HADS was completed by all patients during their ICU stay and via telephone at 1 week after discharge. The HADS scores for the anxiety (HADS<sub>A</sub>) and depression (HADS<sub>D</sub>) subscales at both times were compared between the two groups of patients who did or did not receive multimedia education. The HADS was originally developed in 1983 by Zigmund & Snaith (1983) to screen for mood disorders in patients undergoing investigation and treatment, and can be applied to population-based and hospital-based research. To differentiate between psychiatric and physical symptoms, the HADS places an emphasis on subjective mood deteriorations rather than physical symptoms. Furthermore, the depression subscale includes anhedonia, rather than sadness, as the basic symptom. Although the HADS does not assess all of the depressive symptoms mentioned in the *Fourth Edition of the Diagnostic and Statistical Manual of Mental Disorders*, anhedonic symptoms are good markers for depression in patients with various diseases. However, the HADS does not include suicide tendencies, guilt, or despair. The HADS is self-reported and consists of 14 items, each of which is scored on a 4-point Likert scale. The two subscales (HADS<sub>A</sub> and HADS<sub>D</sub>) each consist of seven items. The HADS<sub>D</sub> subscale scores range from 0 to 21, where scores of 0–7 indicate normal mood, 8–10 indicate mild mood disorders, 11–14 indicate moderate mood disorders, and 15–21 indicate severe mood disorders. The validity and reliability of the Turkish version of the scale were assessed in 1997 by Aydemir, Güvenir, Küey, et al. (1997). HADS was found to perform well in assessing the symptom severity and caseness of anxiety disorders and depression in both somatic, psychiatric and primary care patients and in the general population (Bjelland, Dahl, Haug, & Neckelmann, 2002).

### 2.3. Statistical analysis

Data were analyzed using SPSS software version 20.0 (IBM, Armonk, NY, USA). The HAD scores were compared between the two study groups using Student's *t* tests and  $\chi^2$  tests, as appropriate. Values are presented as means  $\pm$  standard deviation. Values of  $p < .05$  were considered statistically significant.

## 3. Results

A total of 100 patients were evaluated for this study (64 male, 36 female). There were no significant differences between the two groups of patients in terms of baseline characteristics, including history of chronic diseases, education status, and marital status (Table 1).

As assessed by Student's *t* test, the HADS<sub>A</sub> and HADS<sub>D</sub> subscale scores were  $6.1 \pm 0.7$  and  $5.4 \pm 0.6$ , respectively, during ICU stay, but decreased significantly to  $1.9 \pm 0.2$  and  $1.9 \pm 0.3$ , respectively, at 1 week after discharge in patients that received multimedia nursing education (both,  $p < .01$ ) (Table 2).

As assessed by Student's *t* test, among patients who did not receive multimedia nursing education, the HADS<sub>A</sub> and HADS<sub>D</sub> subscale scores were  $5.7 \pm 0.6$  and  $5.1 \pm 0.5$ , respectively, during ICU stay and decreased slightly to  $5.1 \pm 0.6$  and  $4.8 \pm 0.5$ , respectively, at 1 week after discharge (both  $p = 0.6$ ) (Table 2).

As assessed by  $\chi^2$ , the difference in HADS<sub>A</sub> score was significantly greater in patients who received education than in patients who did not receive multimedia nursing education ( $4.2 \pm 0.58$  vs.  $0.6 \pm 0.42$ ;  $p < .01$ ). Additionally, as assessed by  $\chi^2$  in Table 2, the difference in HADS<sub>D</sub> score was significantly greater in patients who received multimedia nursing education ( $2.2 \pm 0.53$  vs.  $0.64 \pm 0.46$ ;  $p < .01$ ).

In addition, as assessed by  $\chi^2$  in Table 3, the differences in HADS<sub>A</sub> and HADS<sub>D</sub> scores between the two study groups were independent of the disease and patient types. Table 3 includes, reasons for admission to

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