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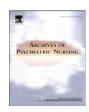
Archives of Psychiatric Nursing xxx (2016) xxx-xxx



Contents lists available at ScienceDirect

Archives of Psychiatric Nursing

journal homepage: www.elsevier.com/locate/apnu



Effects of Resourcefulness on Sleep Disturbances, Anxiety, and Depressive symptoms in Family Members of Intensive Care Unit Patients

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ABSTRACT

The study aimed to investigate the relationships among psychological distresses, resourcefulness, sleep disturbances, anxiety and depressive symptoms in family members of intensive care unit (ICU) patients. A cross-sectional, descriptive correlational design was employed. Using structural equation modeling (SEM) approach, relationships among factors, mediators, and outcomes were analyzed. The SEM explained 59% of the variances in depressive symptoms and 36% in anxiety. Family members with greater learned resourcefulness had fewer sleep disturbances, depressive and anxiety symptoms. Nursing professionals need to detect psychiatric disease of family members and must be especially vigilant with people who have low resourcefulness and sleep disturbances.

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Previous studies have emphasized the needs of families and their satisfaction with the intensive care unit (ICU) (Rego Lins Fumis, Nishimoto, & Deheinzelin, 2006). Minimal attention has been given to the emotional disorders of families in terms of depression or anxiety (Pochard et al., 2001; Pochard et al., 2005). The ICU experience may cause adverse health effects for families of patients during and after the patient's stay in the ICU. Family members (FMs) experience high anxiety or difficulty in making decisions about treatments, which may affect the future of critically ill patients (Choi, Donahoe, Zullo, & Hoffman, 2011). Choi et al. (2011) explained how FMs of critically ill patients perceive life restrictions and tension over time during the hospitalization of patients. The negative consequences for relatives may consist of high levels of stress, anxiety, or depressive symptoms (DSs), which may affect the well-being of family members. For relatives of individuals with conditions such as cancer and dementia, extensive evidence shows that negative psychological and behavioral consequences are common and may be linked to a decline in the total health of family members (Cameron, Herridge, Tansey, McAndrews, & Cheung, 2006; Huang, Musil, Zauszniewski, & Wykle, 2006). McAdam, Dracup, White, Fontaine, and Puntillo (2010) reported that 56.8% of FMs had

post-traumatic stress disorders (PTSDs) after their family members were hospitalized in the ICU for at least three days. Approximately 80% of these family members experienced anxiety symptoms, and 70.3% exhibited DSs. Some ICU patients have complex medical conditions with uncertain prognoses; their FMs need a substantial amount of information to make surrogate decisions regarding additional treatment (Evans et al., 2009; Shelton, Moore, Socaris, Gao, & Dowling, 2010). LeClaire, Oakes, and Weinert (2005) reported that more than half of FMs did not have adequate informational support regarding treatments; therefore, they hesitated to make these decisions (Hickman, Daly, Douglas, & Clochesy, 2010; Lee Char, Evans, Malvar, & White, 2010). Healthcare professionals need to consider how to provide adequate information to FMs and decrease negative consequences, such as psychological and physical symptoms (McAdam et al., 2010). Many conflicts and stresses exist in these situations (Cuthbertson, Roughton, Jenkinson, MacLennan, & Vale, 2010; Whitlatch, 2008; Wiencek & Winkelman, 2010); as a result, FMs may consequently develop adverse health outcomes (Paparrigopoulos et al., 2006).

If families have more learned resourcefulness (LR), FMs may engage in more positive thinking and develop control skills to address challenges. Rosenbaum (1980) developed the self-control schedule (SCS), in which he defined LR as a set of cognitive and behavioral skills, which a person accumulates from all learned experiences during his life span, and coping skills, which a person employs to handle stressful situations. LR also refers to an individual's ability to self-regulate psycho-physiological stress responses by positive thinking to handle negative thoughts and behaviors.

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http://dx.doi.org/10.1016/j.apnu.2016.02.002 0883-9417/© 2016 Elsevier Inc. All rights reserved.

Conflict of interest statement: None declared.

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Regarding the relationship between resourcefulness and health outcomes, previous studies have discussed LR, detailed the experiences of patients with breast cancer and diabetes, evaluated learning outcomes of students, and focused on uncertainty, DSs, the health-related quality of life (Gaston-Johansson et al., 2000; Huang & Guo, 2009; Huang et al., 2010; Zauszniewski, 1995), and work stress related depressive symptoms of nurses (Wang et al., 2015). In most of those studies, LR had significantly negative relationships with depressive symptoms or more likely was significantly related to health related quality of life.

Regarding mediating effects of learned resourcefulness on DSs or health, according to the study of breast cancer by Huang et al. (2010), LR was a strong predictor of depressive symptoms and quality of life, but no mediating effects of resourcefulness on depressive symptoms existed. However, the study on adolescents by Huang and Guo (2009) and the diabetes study by Huang et al. (2007) both reported significant findings of mediating effects occurring on depressive symptoms. In those findings, learned resourcefulness played a mediator role to decrease DSs. The separation regression approach to analyze mediation effects is commonly employed (Baron & Kenny, 1986; Huang & Guo, 2009; Huang et al., 2007). In the present study, we use SEM to integrate various paths to the whole. Based upon the acceptance of variance-covariance matrix of all exogenous variables, every mediation weight in a SEM can be both estimated and inferred without loss of generality.

In this study, FMs with high stress during the hospitalization of family members exhibited various responses due to learned experiences. In these circumstances, the SCS is applied to evaluate the skills of learned resourcefulness, problem-solving strategies, inner self-control, self-direction, and self-efficacy (Zauszniewski, 2012). Zauszniewski defined "resourcefulness" as the combination of "personal resourcefulness" and "social resourcefulness". He defined personal resourcefulness as self-help skills that are independently performed and defined social resourcefulness as self-help skills that involve seeking help from others (Zauszniewski, 2012).

Previous studies focused on the family needs in the ICU to identify determinants of satisfaction or needs (Azoulay et al., 2001; Johnson et al., 1998; Rego Lins Fumis et al., 2006); moreover, poor sleep has also been identified as an important factor in the physical and mental health of family caregivers (Carter & Clark, 2005; Dhruva et al.; 2012; Van Horn & Tesh, 2000). However, the determinants of anxiety and depression, especially the causal effect among factors and outcome variables, remain ambiguous (Cameron et al., 2006; Wiencek & Winkelman, 2010). Therefore, the objectives of this study were to examine sleep disturbances, anxiety, and depressive symptoms of the FMs of patients in the ICU are as follows: (1) to examine the relationships among FMs' demographic variables, patients' disease characteristics, LR, sleep disturbances, anxiety and DSs; and (2) to examine the path analysis of factors and to analyze whether the mediating effects occur by using structural equation model (SEM) approach in FMs with critically ill patients (Fig. 1).

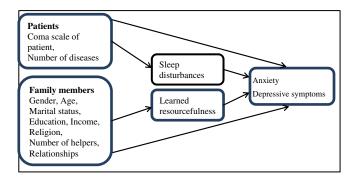


Fig. 1. The hypothesis model of factors for family members.

METHODS

Research Design

A cross-sectional, descriptive correlational design was employed. A convenience sampling of 200 family members of critically ill patients was recruited from multiple ICUs in southern Taiwan. After Institutional Review Board (IRB) approval was obtained, the potential participants who satisfied the inclusion criteria were provided complete information about the study. The criteria for eligible family members to participate in the study included 1) the patients with Acute Physiology and Chronic Health Evaluation II (APCHE II) scores greater than 15 (one criterion of the ICUs in the health center where we collected data); 2) age of 20 or above; 3). proficiency in Chinese or Taiwanese. Exclusion criteria were as follows: alcohol or drug abuse or dependence, clinically diagnosed neurological illness such as dementia, medical illness, physical impairments severely influencing the individual's communication skills, and history of anxiety or depression. For each patient, we included the family member who fell highest in the hierarchy for substitute decision making (parent/children spouse, and siblings). After receiving written informed consent from FMs, an investigator conducted individual, face-to-face, and structured interviews to collect data. The adequate sample size for the correlation analyses to achieve 80% power was determined by a power analysis with an alpha level of .05 and a medium effect size of $f^2 = .15$ (Cohen, 1988).

Measures

The demographic variables of family members with critically ill patients were measured with a purposely designed information sheet (age, gender, education, household monthly income, marital status, religion, relationship, and number of helpers). The disease characteristics of patients included the Glasgow coma scale (GCS) (ranges from 0 to 15), the number of chronic diseases, the disease severity, and the length of stay (LOS).

Sleep disturbances were measured by the Pittsburgh Sleep Quality Index (PQSI) (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989) and collected by the Chinese version, which includes 19 items in seven sections and assesses an individual's perspective of sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction. The sum is a sleep quality score ranging from 0 to 21 to yield a global PSQI score, with higher scores indicating worse sleep quality. A PSQI score >5 identifies individuals with sleep disturbances (Buysse et al., 1989). Cronbach's α for the seven components was .83 (Chan, Chan, & Mok, 2010) and was .82 in this study.

Anxiety was assessed by the State–Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970), which consists of 20 items that assess how individuals generally feel. This scale has been reported to be valid and reliable (McKinley & Madronio, 2008). This anxiety scale is a self-reported questionnaire that employs a Likert scale that ranges from 1 to 4 (1 = not at all, 4 = very often). Scores lower than 20 indicate the absence of anxiety, and a score of 80 indicates the highest level of anxiety. For the classification of anxiety level, scores of 20–39 indicate that mood status has reached mild anxiety; scores of 40–59 indicate moderate anxiety; and scores of 60–80 indicate severe anxiety (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). The Cronbach's α of the Chinese version, which was utilized in this study, was .92.

Depressive symptoms were measured by the Center for Epidemiological Studies Depression (CES-D) questionnaire (Radloff, 1977), which consists of 20 items that are ranked on a scale from 0 (rarely or none of the time) to 3 (most or all of the time). The total score of CES-D ranges from 0 to 60; the higher the score is, the greater the number of depressive symptoms that are presented by the patients. Scores of 16 or higher indicate depressive symptoms. For the classification of depressive level, scores lower than 16 indicate that mood status is stable

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