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Original Article

Family functioning and depression in primary caregivers of stroke patients in China

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ABSTRACT

Objective: To determine the relationship between family functioning and depression in primary caregivers of stroke survivors in China.
Design: Baseline cross-sectional data from an intervention study for stroke survivors and their families were used.
Setting: Neurology inpatient service of a large urban hospital.
Participants: Stroke survivors ($n = 180$), each with a primary caregiver, were enrolled in this study. The mean age of stroke survivors was 65.60 years, and the mean age of primary caregivers was 57.60 years.
Interventions: Not applicable.
Methods: The Family Assessment Device (FAD) and Center for Epidemiologic Studies Depression Scale (CES-D), respectively, were used.
Results: Following a stroke of a family member, 71% of caregivers experienced depressive symptoms. Higher depression severity in caregivers was linked to caregiver education, stroke survivor ADLs, and family functioning.
Conclusion: Assessment of family functioning may help determine which caregivers are most at risk for developing depressive syndrome.

1. Background

Worldwide, stroke is one of the top five leading causes of death and is a major of cause of disability [1]. At least 50%–70% of stroke survivors suffer from chronic neurological or cognitive impairment [2] creating significant burden on both the healthcare system [3,4] and patient families [5,6]. As the lifespan of the population increases with advances in medicine, so will the overall prevalence of stroke-related disability [7]. Given the burden on healthcare service, it was necessary to develop community-based rehabilitation as well as to improve the ability of family caregivers to provide quality rehabilitative care for stroke survivors [8].

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Systematic reviews of stroke family caregivers found that the burden of caregiving negatively impacted their physical and psychosocial well-being and even overall quality of life [9,10]. In studies from Brazil, China, Japan, and Germany, it was shown that approximately 30% of family caregivers of stroke survivors have anxiety or depressive symptoms that extend beyond the acute phase of stroke [11–14]. Cross-sectional studies suggest that the first month at home after a stroke can be the most difficult for caregivers [15] because of lack of knowledge [16,17] or skills [18] related to the management of problems associated with the patients' safety, activities of daily living, and changes in cognitive and emotional function after stroke [19]. Caregivers with a strong sense of coherence, who are more able to respond to novel stressors, may be protected against experiencing burden and depression in the initial month after stroke [20]. Some studies suggest that stroke severity and patient behavioral problems increase the risk for caregiver depression [21,22]. Other factors that may affect caregiver health during the first year are low-esteem, high threat appraisal [23] and anxiety [24].

Family function refers to how members of a family communicate and work together. It is a reflection of the ability of a family to meet the demands of members as a whole, and its expression is closely related to the health of each individual and the occurrence and outcome of diseases [25]. Indeed, one study demonstrated that family function can affect the course and severity of psychiatric illnesses [26]. There are several ways to measure family function after stroke, and one major measure is the Family Assessment Device (FAD) [27]. It assesses six dimensions of family life: communication, roles, problem-solving, affective involvement, affective responsiveness, and behavioral control. A seventh dimension assesses general functioning. In the context of stroke, it remains unknown whether family function is associated with caregiver depression.

The aims of this study are as follows: (1) to examine family functioning and depression in caregivers of stroke patients; (2) to analyze the relationship between family functioning and depression; and (3) to explore the effects of demographic characteristics and family functioning on depression. We focused on family functioning because it can be effectively modified with nursing interventions.

2. Methods

Ethical approval was obtained from the Human Subjects Ethics Subcommittee of ZhengZhou University. Prior to enrollment in this study, informed consent was obtained from each participant. They were assured of anonymity, confidentiality, and their right to withdraw from the study at any time.

For this cross-sectional study, we recruited 196cases of hospitalized patients and caregivers between January 2014 and May 2014. Stroke survivors met the following inclusion criteria: (1) patients met the diagnostic criteria for cerebral apoplexy established in 1995 at the Fourth National Cerebrovascular Meeting and with computed tomography (CT) or magnetic resonance imaging (MRI) and (2) willingness to participate in the study. Participants were excluded if they were suffered from cognitive impairment, as measured by the Mini-Mental State Examination (MMSE). According to the results of the Chinese MMSE, there are three different cut-off points, depending on the respondent's educational level: a score 17 (illiteracy), >20 (primary school), and >24 (junior high school or above), indicating no cognitive impairment. Participants who suffered from cognitive impairment were excluded based on their MMSE scores. A primary caregiver was defined as someone who was not a social worker or professional who voluntarily assisted in daily activities and protected the interests of patients with cerebral apoplexy. In total, 196 participants were included in this study, where 11 participants were excluded due to cognitive impairment and five refused to participate. The final sample in the study included 180 patients and caregivers.

3. Measures

3.1. *Family functioning*

Family function [27] is a 60-item self-report questionnaire designed to assess six specific aspects of family functioning: problem solving (six items), communication (nine items), role (11 items), emotional reactions (six items), emotional involvement (seven items), behavioral control (nine items), and general function (twelve items). In addition, general functioning of the family, which is highly correlated with overall family functioning, is assessed. Each item was set to four options: totally agree, agree, disagree, and do not agree, where each option was assigned a value of 1, 2, 3, and 4 points, respectively. One or two points indicated healthy function, whereas three or four points indicated unhealthy family functioning. Prior to the start of the study, we took 30 cerebral apoplexy patients cases and performed a preliminary experiment, and calculated the scale of Cronbach 's a coefficient as 0.89, with a retest-reliability coefficient of 0.91.

3.2. *Depression*

The Center for Epidemiologic Studies Depression Scale (CES-D) is a 10-item self-report questionnaire used to assess depressive symptoms. It includes three dimensions: depression, positive emotion, and body complaint. A score of 10 or higher indicates depressive symptoms, with a highest possible score of 30. A simplified version of the scale with only 20 items was created by Andresen et al., [28] and it was used in China for the first time to evaluate caregivers of patients with cerebral apoplexy by Qiu et al. [13].

3.3. *Activities of daily living (ADL)*

Barthel Index was used to evaluate ADLs. Scores of 0–20 indicated total dependence; 21-60 indicated severe dependence; 61-90 indicated moderate dependence, and 91-99 indicated slight dependence.

Demographic characteristics, including gender, age, marital status, and educational level, were documented.