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Development of a Family Adaptation Model with One of Its Members Experiencing Diabetus Millitus with Diabetic Foot Complications

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ABSTRACT

Background: Diabetus millitus with diabetic foot complications is one of the diseases with blood vessel disorders that result in the emergence of public health problems, especially the burden on families as a result of disability that arises after complications. Diabetus millitus with diabetic foot complications is the biggest cause of the patient's inability to carry out daily activities, where some patients with diabetus millitus with diabetic foot complications will experience weakness or paralysis of the limbs so that the patient is unable to move so that it becomes a family burden. This condition results in a burden for the family, which may be a care problem that reduces the quality of care provided to the patient. This study aims to develop a family adaptation model in caring for patients with diabetes millitus with diabetic foot complications. **Methods:** This study uses a survey research method with a total sample size of 200 respondents of family members: wife / husband and children who directly care for family members who experience diabetus millitus with diabetic foot complications, respondents are taken at home after 1 week the patient returns home from the hospital, a discrift observational design with a crossectional approach, sampling with non-probality purphosive sampling using a questionnaire from the family care centered developed by the researcher with validity and reliability tests above 0.6 and data analysis through the SEM-PLS test. **Results and Novelty:** The results of this study explain that adaptation is influenced by *family cop*ing strategies (p=0.001). The final results also show that family demographics affect stress (p=0.000), Stressors affect family perceptions (p=0.000) and stress (p=0.007), stress affects current family perceptions (p=0.041), social support affects current family perceptions (p=0.003), self-efficacy (p=0.017) and coping strategies (p=0.03). Spiritual coping affects adversity quotient (p = 0.001) and coping strategies (p = 0.005). Self-confidence affects problem solving strategies (p=0.033). Emotional intelligence affects problem-emotion coping strategies (p=0.000) and self-confidence (p=0.0003). Current family perceptions influence problem-emotion focused coping strategies (p=0.044) and stress (p=0.002). Adversity quotient influenced current family perceptions (p=0.001). The novelty of this study is that the family adaptation model can help families adjust while caring for patients with diabetus millitus with diabetic foot complications at home. **Conclusion:** This study can be concluded through this study that the family adaptation model is an excellent model to help families in caring for patients with diabetes millitus with diabetic foot complications at home after returning from the hospital.

Keywords: Adaptation, Family, Diabetus millitus, Complications, Diabetic foot

INTRODUCTION

Diabetus millitus with diabetic foot complications in the family can lead to many changes, whether it is relationship dynamics, finances, home modifications, or role changes. As a spouse, sibling, child, grandchild, or friend, the *family* may take on many new tasks, such as providing daily help and support, plus planning, and facilitating patient care. Because diabetus

millitus with diabetic foot complications are sudden and unexpected, there is often no time to prepare. (1). No matter when or how the role as a *family* begins, it can be a challenging job both physically, mentally and emotionally.

Families play an important role during the recovery process after diabetus millitus with diabetic foot complications begins. family members are the members who care for patients with diabetus millitus with diabetic foot complications can cause high levels of emotional, mental, and physical stress for patients with diabetus millitus with diabetic foot complications and caregivers. In addition to the difficulties, disruption of work and family life, it also requires many sacrifices and challenges. *Families* can promote positive post-diabetes millitus recovery outcomes with diabetic foot complications and make diabetus millitus patients with diabetic foot complications capable of self-care as well.(2-4).

In general, patients and *families* who are not included in post-diabetes millitus diabetic foot complication care planning and home follow-up, lead to further health complications, especially pressure sores (Decubitus), urinary tract infections (UTIs), joint contractions, aspiration pneumonia, and recurrent diabetes millitus diabetic foot complications.(5).

Most *families* with diabetes mellitus with diabetic foot complications experience high levels of burden, anxiety or depressive symptoms in the sub-acute and chronic phases of post-diabetes mellitus with diabetic foot complications. Especially, the level of anxiety symptoms is high. In contrast to the level of anxiety, the level of burden and depressive symptoms did not decrease over time. *Families* with long-term (one-year) adverse outcomes can be identified in the sub-acute phase (i.e. two months post-diabetes millitus with diabetic foot complications), thus *families* are expected to be able to adapt to the changing circumstances of patients with diabetes millitus with diabetic foot complications and the *family* itself.(4,6,7)Problem study.

Hill's ABCX theory (Ricw, 1987) states that an event interacts with family members and creates a crisis (B), and the family's interpretation of the event (C), can create a crisis (X). In a family, a stressor arises only if the family interprets the event as a threat (*family appraisal*), and the *family resources* cannot deal with the threat (*secondary appraisal*). There are two fundamental concepts in the ABCX model proposed by Hill (Rice, 2000). First, the magnitude of change caused by stressful events. Second, the family's vulnerability to stress (Friedman, 2010). It is not only the patient's quality of life that is affected by anxiety, *families* also need knowledge on how to manage and prevent complications following diabetus millitus with diabetic foot complications, support the patient's ADLs, and access what rehabilitation and community services are available. They also need training to provide nursing care relevant to the patient's problems, level of dependence and needs including feeding techniques, aspiration prevention, ulcer prevention, and wound care. Social support such as compassion, advice, and equipment for patient care and rehabilitation from family, healthcare providers, and the community is also needed (Pitthayapong *et al*., 2017).*Spiritual/Religios Coping* (SRC) is defined as the process by which an individual, through his or her spirituality, religious beliefs or behaviors, deals with stressful situations in his or her life. SRC may have positive strategies (e.g., seeking spiritual help and knowledge and a positive attitude towards God) or negative strategies (e.g., dissatisfaction with religious representation, negative reappraisal of God or meaning) Some research suggests the association of positive SRC strategies with better outcomes in the physical and mental health of people of all ages. On the other hand, there is also evidence of an association of Negative SRC with major depressive symptoms, anxiety, loneliness, impaired

health, and quality of life.

The general objective of this study was to develop a *family* adaptation model in caring for post-diabetes millitus patients with diabetic foot complications.

RESEARCH METHOD

This study uses survey research methods, namely research that is applied by taking samples from a population and using a questionnaire as the main data collection instrument, a questionnaire based on adaptation theory developed by researchers with validity and reliability above 0.7, using a *cross sectional* design with an *explanatory* research approach. Location and Time This research was conducted at the location of the research sample, namely the Bangil regional general hospital in April - May 2024.

The population in this study were all families who had family members with post diabetus millitus with diabetic foot complications 1 week after being hospitalized. The sample in this study were *families* who had family members with post-diabetes millitus patients with diabetic foot complications with inclusion criteria for *families* including: The *family* lives in the same house with patients with post-diabetes millitus with diabetic foot complications, is the main *family*, patients with post-diabetes millitus with diabetic foot complications have been hospitalized / become hospital patients. The sample size was determined based on the *rule of thumb* for Structural Equation Modeling analysis, which is 100-200 *family* members who care for family members. Non-random purphusiv sampling technique.

RESULT AND DISCUSSION

Table 1. Cross Tabulation of Family Characteristics with *Family* Stress *in* 2024

Characteristics	Severe Stress (n, %)	Moderate Stress (n, %)	Mild Stress (n, %)	Total (n, %)
Age				
< 19 years old	5 (16,7)	2 (6,7)	23 (76,7)	30 (100)
20-30 years	9 (24,3)	5 (13,5)	23 (62,2)	37 (100)
31-40 years old	7 (15,2)	0 (0)	39 (84,8)	46 (100)
>40 years	9 (10,3)	8 (9,2)	70 (80,5)	87 (100)
Total	30 (15)	15 (7,5)	155 (77,5)	200 (100)
Education Level				
SD	12 (29,3)	2 (4,9)	27 (65,9)	41 (100)
SMP	6 (14)	3 (7)	34 (79,1)	43 (100)
HIGH SCHOOL	10 (10,5)	8 (8,4)	77 (81,1)	95 (100)
PT	2 (9,5)	2 (9,5)	17 (81)	21 (100)
Total	30 (15)	15 (7,5)	155 (77,5)	200 (100)
Economic Status				
<UMR	21 (18,9)	11 (9,9)	79 (71,2)	111 (100)
>UMR	9 (10,1)	4 (4,5)	76 (85,4)	89 (100)
Total	30 (15)	15 (7,5)	155 (77,5)	200 (100)
Knowledge Level				
Less	10 (32,3)	2 (6,5)	19 (61,3)	31 (100)
Simply	15 (19,2)	7 (9)	56 (71,8)	78 (100)
Good	5 (5,5)	6 (6,6)	80 (87,9)	91 (100)
Total	30 (15)	15 (7,5)	155 (77,5)	200 (100)
The Role of the Family				
Husband	10 (16,9)	4 (6,8)	45 (76,3)	59 (100)
Wife	13 (18,8)	9 (13)	47 (68,1)	69 (100)
Children	6 (12,5)	0 (0)	42 (87,5)	48 (100)
Siblings	0 (0)	1 (7,7)	12 (92,3)	13 100)
More	1 (9,1)	1 (9,1)	9 (81,8)	11 (100)

Total	30 (15)	15 (7,5)	155 (77,5)	200 (100)
Number of Family Members				
2	7 (23,3)	3 (10)	20 (66,7)	30 (100)
3	10 (19,2)	2 (3,8)	40 (76,9)	52 (100)
4	3 (5,9)	6 11,8)	42 (82,4)	51 (100)
5	7 (24,1)	0 (0)	22 (75,9)	29 (100)
6	1 (3,8)	2 (7,7)	23 (88,5)	26 (100)
7	2 (16,7)	2 (16,7)	8 (66,7)	12 (100)
Total	30 (15)	15 (7,5)	155 (77,5)	200 (100)

Families caring for *post-diabetes millitus* family members *with diabetic foot complications* are generally husbands (29.5%), wives (34.5%) and children (24%). Statistics on *families* in the United States show that most *families* care for their loved ones, namely spouses, parents or children (Family Family Alliance, 2016). This study shows that spouses and children also struggle with the same issues. The majority of *families* who provide care to their partners or parents live in the same house as the care recipient. The close relationship between the *family* and the patient can provide positive support during the care role. Nurses in the community can also facilitate *family* respondents to develop the expectations of each family member, so that they have adaptive coping.(8,9).

Problem-emotion coping mechanisms. *Community resources* in this study, such as social networks, proved to have a valuable role in supporting the care of post-diabetes millitus patients with diabetic foot complications that require long-term recovery. Meanwhile, the success of this treatment can also be influenced by self-efficacy factors and existing social support. Collective efficacy as one of the important components in *community resources* affects the extent of self-efficacy possessed by individuals (Vassilev *et al.*, 2019). *Families* who have collective efficacy will assess that the surrounding community has the ability to be involved in providing support to others. The forms of support in question can include emotional support, informational support, instrumental support and judgment.(10-13).

Spiritual coping is described as existential beliefs that enable *families* to understand the meaning, significance and ultimate purpose of being a caregiver. This type of coping can also increase self-comfort and reduce the presence of negative perceptions while assisting in the care of the sufferer. *Adversity Quotient* describes whether the *family* feels satisfied or secure with what has been achieved to date in caring for family members suffering from post-diabetes millitus with diabetic foot complications. *Families* who have good *spiritual religious coping* will allow individuals to see the meaning contained in each role they play and interpret each activity as a belief so that they can carry out their duties with full responsibility.(14,15).

Problem-emotion coping mechanism. Self-confidence is formed through the learning process that individuals can receive at the formal education level. Individuals who have a higher education level usually have higher *self-confidence*, because basically they learn more and receive formal education, besides that individuals who have a higher level of education will have more opportunities to learn to overcome problems in their lives. Respondents who have high self-efficacy tend to have strong beliefs so that they will be able to overcome the obstacles they encounter. In addition, respondents are also more persistent in their efforts and more tolerant of the difficulties and fatigue they experience. This strong effort makes them more able to overcome the problems they face and not be avoidant.(16-19).

Problem-emotion focused coping strategies. Religion and spirituality is one type of coping chosen for coping, as it involves an internal locus of control in

stressful situations. Religious and spiritual activities help to reframe stressful events by intrinsically motivating individuals to deal with emerging stressors. Religious activities can be a possible source of spirituality nourishment, and healthy religious activities are a medium for expressing spirituality.(20,21).

Post-diabetes millitus with diabetic foot complications. Problem-focused coping strategies are used by *families* by focusing on how to: do something to overcome the problem and plan strategies about what to do, or think about what steps to take to help care for people with post-diabetes millitus with diabetic foot complications.(18-20).

Problem-emotion focused coping strategies on adaptation. In this study, *problem-emotion coping strategies*. The results also showed that most *families* who had positive adaptation had *problem-based* coping strategies. Problem-focused coping strategies are widely used by *families* where they try to do something if a problem occurs, and try to find out what strategies to do, or think hard about what steps to take. In addition, *families* who used emotion-based coping were less likely to experience stress, anxiety or depression. The emotion-focused strategies most often used by *families* are: acceptance (accepting reality), emotional help (getting emotional support/comfort from others), humor, *positive reframing* (seeing the positive side in it); religion (trying to find comfort through worship or spiritual activities.

The new findings in this study are a model of family adaptation in caring for family members with post diabetus millitus with diabetic foot complications developed based on the ABCX double theory with the addition of spiritual religiuos coping and relationships between variables that show new relationships and have not existed before.

CONCLUSION AND RECOMMENDATION

The *family* adaptation model in caring for diabetus millitus with diabetic foot complications is formed through several factors, namely *family* perceptions, stress, *family* perceptions of the conditions experienced by the family, problem-emotion coping strategies and adaptation.

Community resources as protective factors affecting *family* problem-emotion coping strategies include collective efficacy, social support, social networks and access to new contacts and information.

Factors that influence *family* stress are family characteristics, stressors and *family* perceptions. This shows that these three factors are the determining factors that influence *family* stress during patient care.

Factors that influence *family* perceptions at the beginning of the patient care process are stressors. The existence of stressors can determine the extent to which the family views the care process as a threat or an additional burden on the family where further stressors will affect the *family*'s adaptation process in assisting the patient's care. The family characteristics factor does not directly affect the family's perception at the beginning.

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